CISCO SYSTEMS

Cisco Products Quick Reference Guide

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C O N T E N T S

CHAPTER 7 *Broadband and Dial Access Products*

CHAPTER 8   *Optical Transport*

CHAPTER 9   *IOS Software & Network Management*

Introduction

Cisco Products Quick Reference Guide (CPQRG)

CPQRG Background

The Cisco Products Quick Reference Guide (CPQRG) is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many of Cisco's products. The CPQRG is primarily published to support Cisco partners, resellers, sales account teams, and even end-user customers who need a broad, high-level overview of Cisco products, but at that moment do not have access to Cisco's Web site, the Cisco Connection Online (CCO) at *http://www.cisco.com*.

Because this book is only published twice per year, there are likely to be new products, configurations, and part numbers not included in this edition. Note: For the most up-to-date and comprehensive information about Cisco products and solutions, please refer to our on-line information or consult a Cisco representative.

CPQRG Ordering Information

Additional printed copies of this book can be purchased on an as-needed basis or through an annual subscription. To order, see *http://shop.cisco.com/login*.

For questions regarding the CPQRG ordering process, please send an email to *companystore@external.cisco.com*.

For questions, comments or to download an Adobe PDF version of the CPQRG, go to *http://www.cisco.com/go/guide*.

How to Get More Complete Product Information

Cisco Product Catalog	For more comprehensive information on all of Cisco's products, please refer to the Cisco Product Catalog at: http://www.cisco.com/univercd/cc/td/doc/pcat/
Cisco Connection Online (CCO)	For even more complete product and solution information, please go to CCO at http://www.cisco.com.
	In addition to product, technology, and network solutions support, CCO provides a wealth of information including how to find an authorized representative or partner, how to order products, technical support/customer service, Cisco Corporate news and information, and links to training/events/seminars.

Cisco Systems Overview

Cisco Systems, Inc. is the worldwide leader in networking for the Internet. Cisco's Internet Protocol-based (IP) networking solutions are the foundation of the Internet and most corporate, education, and government networks around the world. Cisco provides the broadest line of solutions for transporting data, voice and video within buildings, across campuses, or around the world.

Today, the Internet and computer networking are an essential part of business, learning and personal communications and entertainment. Virtually all messages or transactions passing over the Internet are carried quickly and securely through Cisco equipment. Cisco solutions ensure that networks both public and private operate with maximum performance, security, and flexibility. In addition, Cisco solutions are the basis for most large, complex networks used by corporations, public institutions, telecommunication companies, and are found in a growing number of medium-sized commercial enterprises.

Cisco was founded in 1984 by a group of computer scientists from Stanford University. Since the company's inception, Cisco engineers have been prominent in advancing the development of IP- the basic language to communicate over the Internet and in private networks. The company's tradition of innovation continues today with Cisco creating leading products and key technologies that will make the Internet more useful and dynamic in the years ahead. These technologies include: advanced routing and switching, voice and video over IP, optical networking, wireless, storage networking, security, broadband, and content networking.

In addition to technology and product leadership, Cisco is recognized as an innovator in how business is conducted. The company has been a pioneer in using the Internet to provide customer support, sell products, offer training, and manage finances. Drawing upon the company's own Internet best practices and core-value of customer focus, Cisco has established the Internet Business Solutions Group (IBSG) dedicated to helping top business leaders transform their own businesses into e-businesses.

As a company, Cisco operates on core values of customer focus and corporate citizenship. The company's philanthropic efforts are committed to helping communities prosper while also encouraging Cisco employees to learn about the needs of the communities where Cisco operates. Also, to help bolster education around the world, the company has founded Cisco Networking Academies in 128 countries dedicated to teaching students to design, build, and maintain computer networks.

Cisco Channel Partner Program

Whether you provide services, solutions or a combination of both, Cisco is committed to your success. The Cisco Channel Partner Program can help partners create a sustainable business model in a fast-changing environment, where customers require value-added services, focused technical expertise, and higher levels of satisfaction. As a Cisco certified partner, you'll have the backing of the Cisco brand, and access to world-class products and service packages, technical support, productivity tools, online training, marketing resources and sales promotions.

The Partner Program integrates the technology focus of each Cisco Partner Specialization, flexible individual career certification requirements, customer satisfaction targets, and pre- and post-sales support capabilities. These elements make up the points-based structure of the overall program requirements. There are three partner certification levels: Gold Certification, Silver Certification, and Premier Certification.

The Partner Program requires every partner to specialize in technology areas as part of the program requirement. You may choose the technology area for Specialization, but must earn a minimum number of Specialization points to become certified. You may decide to be strictly a specialized partner or specialize your organization as a means to achieving certification. Either way, you'll have access to structured training roadmaps, free online technical and sales education and video-on-demand content to build your knowledge and skill level through the Partner E-Learning Connection *http://cisco.partnerelearning.com*

For More Information

See the Channel Partner Program Web Site:
http://www.cisco.com/go/channelprograms

If you are interested in reselling Cisco product without becoming certified or specialized, see *http://www.cisco.com/go/reseller*

Reseller and Customer Support

Reseller Sales and Technical Assistance Contact Information

Customer Help Lines	Contact Information
US Distribution Presales Helplines[1]	Comstor: 800-COMSTOR, option 3
	Ingram Micro: 800-445-5066, enter Ingram customer #, dial extension 24041
	Tech Data: 800-237-8931, extension 77776
Presales—Partner/Reseller Helpline	800 553-6387 (within U.S.)
	408 526-7208 (outside U.S.)
	http://CiscoPartner.custhelp.com/
Post-Sales—Technical Assistance Center (TAC)	800 553-6387 (within U.S.)
	408 526-7209 (outside U.S.)
	tac@cisco.com (e-mail)

1. Follow voice prompts to access: Pre-sales Assistance of Network Validation & Product Information, Reseller Support, Customer Service, Service Contract Sales, Reporting a technical problem/open a trouble ticket, and Seminars, Events, Training & Certification

Helpful Cisco Web Sites

Cisco Web Site	URL[1]
Worldwide Contacts Cisco office locations; directions; maps; and sales, partners, and channel contacts.	http://www.cisco.com/go/wwcontacts
Partner Relationship Central Find a Channel Account Manager (CAM), Distributor, apply to the Cisco Channel Partner Program, or update your profile.	http://www.cisco.com/go/prc
Technical Support For customer support tips, software center, online documents, and more.	http://www.cisco.com/go/support http://www.cisco.com/public/Tech_support.shtml http://www.cisco.com/public/technotes/serv_tips.shtml
Cisco Products Quick Reference Guide This guide is available on line (in PDF and HTML); it is continually updated between bi-yearly printings. CCO login required.	http://www.cisco.com/go/guide
Cisco Subscription Service Ordering service for one-time purchase of or annual subscriptions to this guide or other Cisco documents and CDs; order online, or order by phone by calling 800 768-7162 (U.S. or Canada) or 925 327-4072 (outside the U.S.).	http://shop.cisco.com/login
Partner Help Search partners' frequently asked questions and ask for the help you need	http://ciscopartner.custhelp.com/
Certification/Specialization Application Apply for a Cisco Certification or Specialization	http://www.cisco.com/warp/customer/765/partner_programs/apply/
Find a Channel Account Manager Search for the Cisco Channel Account Manager assigned to your company	http://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp
Partner Registration Begin your relationship with Cisco by registering as a Cisco Registered or Certified Partner	http://tools.cisco.com/WWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage
Tool Index	http://www.cisco.com/en/US/partners/partners_tool_index.html
Get CCO Access Register for a guest-level Cisco.com ID as a prerequisite for partner level access	http://tools.cisco.com/RPF/register/register.do
Associate Myself With A Partner If you are an employee of Cisco Registered and Cisco Certified or Specialized Partners, you can associate yourself with your company and upgrade your current Cisco.com ID to partner level	http://tools.cisco.com/WWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage
Partner Self Service Use this suite of tools to manage personal and company information in the Cisco partner database	http://tools.cisco.com/WWChannels/GETLOG/welcome.do
Update Company Data If you are a registered partner administrator, you can update company and contact information	http://www.cisco.com/warp/public/765/tools/certification/
Worldwide Distributors Web Site List, by country, of authorized Cisco Distributors who stock and resell Cisco products.	http://www.cisco.com/go/disti
Distribution Product Reference Guide (DPRG) Complete list of pricing information, part numbers, and more for distribution (2-tier) products. Data is refreshed nightly. CCO login required.	http://www.cisco.com/dprg
Partner Business Central—Browse and Configure Products An ecommerce web site with a configuration tool to validate channel product options; also select and compare products, check price and availability, and submit your order to your distributor online. CCO login required—click on "Browse and Configure Products".	http://www.cisco.com/go/partner/bizcentral
End-of-Life Matrix Last order and end-of-life dates for Cisco products.	http://www.cisco.com/go/eol
Training Cisco University—Offers detailed course material on the latest technical topics throughout the year targeted for Resellers, Partners and Cisco Sales representatives. Also see the Partner E-Learning Connection.	http://www.cisco.com/go/ciscou http://cisco.partnerelearning.com

1. Additional CCO access required for most URLs.

Partner and Reseller Service and Support Offerings

Various partner and reseller service and support programs are available according to certification level and method of purchase from Cisco:

Method of Purchase	Service and Support Offerings
Direct from Cisco (only available to Partners with Direct contracts)	• **System Integrator Support**—System Integrator Support 98 (SIS98) program is designed for Silver and Gold partners who wish to provide their own brand of support to their end customers with back-end support from Cisco − SMARTspares provides partners using SIS98 the opportunity to leverage Cisco's logistics infrastructure to provide their customers with enhanced delivery services. • **Shared Support**—Currently only available in the US, Cisco's Shared Support program is designed for Silver and Gold partners who wish to provide their own brand of support to their end customers while leveraging Cisco's Technical Assistance Center (TAC) and logistics infrastructure • **Cisco Brand Resale**—Program allows partners to provide Cisco's services (SMARTnet, etc.) directly to their end customers
2-Tier (through a Distributor)	• **Packaged Services**—Partners and Resellers may purchase warranty extension, hardware replacement, installation and configuration, technical support, software upgrades, and online services. Several of these services have been bundled together to offer convenient service solutions for Cisco customers.

Packaged Resalable Service Products (only via Distributors/2-Tier):

Product	Description
Maintenance Services	
SMARTnet Maintenance	Provides customers with software maintenance, registered access to CCO, advance replacement of hardware, and technical support required for self-maintenance. SMARTnet maintenance has three delivery options: • SMARTnet 8x5xNBD (Next Business Day)—8 hours/day, 5 days/week, next-business-day hardware replacement • SMARTnet 8x5x4—8 hours/day, 5 days/week, 4-hour hardware replacement • SMARTnet 24x7x4—24 hours/day, 7 days/week, 4-hour hardware replacement Available through resellers and distributors.
SMARTnet Onsite	Provides all the benefits of SMARTnet maintenance, plus one of the following onsite hardware services for repairs: • SMARTnet Onsite 8x5xNBD—8 hours/day, 5 days/week, next-business-day response • SMARTnet Onsite 8x5x4—8 hours/day, 5 days/week, 4-hour response • SMARTnet Onsite 24x7x4—24 hours/day, 7 days/week, 4-hour response Packaged SMARTnet OnSite 24x7x4 provides SMARTnet OnSite 24x7x4 service in a shrink-wrapped package, allowing it to be effectively marketed through resellers.
Cisco Advance Replacement	Advance Replacement offers customers the flexibility to cover their equipment with an advance replacement service only. Cisco Advance Replacement comes with a full year of advance replacement coverage, guest access to the public portion of Cisco Connection Online (CCO), and a single technical support incident. This service is intended to be used by customers who need to supplement service offered by their reseller with a replacement option from Cisco.
Software Application Support plus Upgrades (SASU)	Software Application Support plus Upgrades provides customers with software upgrades and maintenance releases for Cisco Application Software, registered access to Cisco.com plus technical support, for one year. For when a customer needs investment protection on software purchases and/or access to the latest software while eliminating unexpected budget revisions.
Noncontract and Consulting Services	Cisco provides noncontract services at current time-and-materials rates. For more information contact Customer Services at 1-800-553-NETS or 1-415-326-1941.
Startup Services	
Total Implementation Services (TIS)	Cisco Total Implementation Solutions (TIS) is a portfolio of services that deliver the tools, expertise, and resources needed to install, configure, and implement Cisco equipment. TIS is intended to supplement services that resellers provide, either directly or indirectly, to their customers. Product Components: Installation, Configuration, and Implementation. For more information, see http://www.cisco.com/go/tis

For More Information

See the Partner and Reseller Support Services Web page at:
http://www.cisco.com/en/US/products/index.html (CCO login required)

Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have a longer or more appropriate coverage, ranging from One-Year to Limited Lifetime warranties. Note that all Warranties are applicable to original owner only and support is subject to product end-of-life terms.

Warranty[1]	Entitlements Description
Cisco Standard 90-day Hardware Warranty, Software Warranty and License Agreement (78-5235-vvrr)	• Advance Replacement shipping within 10 business days from RMA date, within 90 days of original shipment from Cisco or from Cisco Reseller • 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications • Guest Access to Cisco Connection Online (CCO)
90-Day Limited Hardware Warranty(78-5236-vvrr)	• Advance Replacement shipping within 10 business days from RMA date, within 90 days of original shipment from Cisco or from Cisco Reseller • 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications • Guest Access to Cisco Connection Online (CCO)
One-Year Limited Hardware Warranty (78-10747-vvrr)	• Advance Replacement shipping within 10 business days from RMA date within One Year of original shipment from Cisco or from Cisco Reseller • 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications • Guest Access to Cisco Connection Online (CCO)
Limited Lifetime Hardware Warranty (78-6310-vvrr)	• Advance Replacement shipping within 10 business days from RMA date during supported life of the product, starting original ship date from Cisco or Cisco reseller. (fan and power supply warranty limited to 5 years from ship-date) • 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications • Guest Access to Cisco Connection Online (CCO)
End-User Software License Agreement and Software Warranty (78-3621-vvrr)	• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications • End User License Agreement terms • Guest Access to Cisco Connection Online (CCO)
5-Years Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)	• Replacement shipping within 15 business days from RTF date within 5 years from the original ship date from Cisco or Cisco reseller • One-Year SW support includes availability of bug fixes and maintenance releases • Cisco TAC 24x7 support for P1/P2 cases for Five years • Guest Access to Cisco Connection Online (CCO)

1. "vv" and "rr" suffixes of the warranty document numbers represent the revision and version numbers respectively.

For More Information

See the Web site:
http://www.cisco.com/en/US/products/prod_warranties_listing.html

Cisco Capital Financing

Cisco Systems Capital offers a variety of financing and equipment leasing alternatives, both short term and long term, to customers and partners in the United States, Canada, Europe, Asia, Australia, and Latin America. Cisco Capital's financial solutions offer customers the ability to acquire new technologies or refresh existing equipment through flexible, easy-to-use programs.

For More Information

See the Cisco Systems Capital Web site: *http://www.cisco.com/go/CiscoCapital*
Within the United States, call 800 730-4090.

Cisco Authorized Refurbished Equipment (US and Canada Only)

Customers looking for used Cisco equipment can now be assured of the quality and support they come to expect from new Cisco products, through the Cisco Authorized Refurbished Equipment program. Cisco Authorized Refurbished Equipment gives customers a price competitive alternative to buying uncertified and unlicensed products off the secondary market. All equipment sold through this program is labeled "Refurbished by Cisco Systems," indicating that the product is Cisco tested, refurbished, authorized, and supported.   The program is limited to certain countries, so interested customers should check with their local Cisco account manager of Cisco authorized reseller for availability.

For More Information

End Users/Customers:
cisco.com/en/US/ordering/or6/or17/order_refurbished_equipment_program_description.html
Resellers: *http://www.cisco.com/go/refurb* (click on "Refurbished Products")

Cisco Services

Cisco Services offers a wide range of services and support to customers, partners and resellers. Through a suite of support services Cisco enables you to improve the overall efficiency of your network operations and network performance, while benefiting from the broad range of Cisco engineering knowledge and experience base, leading practices and innovative, web-based tools.

Cisco Advanced Services (AS) is a comprehensive suite of professional engineering support offerings of Cisco networking solutions delivering the highest levels of availability, quality of service, and security for your specific network needs to realize business return on investment through high performance networking and communications applications enablement.   Cisco Technical Support Services (TSS) offer leading-edge services to improve customer productivity, protect customer investment, and maximize operational efficiency. Cisco TSS solutions provide access to highly skilled engineers with technical expertise on multiple disciplines of technology.   In addition, Cisco TSS provides you with the online tools and resources, software support and hardware replacement options to address your challenges and provide rapid problem resolution. Key support tools and knowledge provide your staff with the ability to avoid problems, maximize network utility, and expedite problem resolution.

For More Information

Technical Support Services:
http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/serv_group_home.html
Advanced Services:
http://www.cisco.com/en/US/products/svcs/ps11/serv_category_home.html

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Routers

Routers at a Glance

Product	Features	Page
Cisco IOS® Software	See the Chapter 9—Cisco IOS Software and Network Management for an overview of Cisco IOS Software	9-4
Cisco SOHO Series Secure Broadband Routers	Ethernet, ADSL, ADSL over ISDN, and G.SHDSL Routers for Small Office and Home Ofices	1-8
	• Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption	
	• Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)	
	• Offers many local and remote debug and troubleshooting features in Cisco IOS Software	
Cisco 800 Series Router	Ethernet, ADSL, ADSL over ISDN, G.SHDSL, ISDN, and serial routers for small remote offices and teleworkers	1-9
	• 1-port Ethernet, 1-port ADSL, ADSL over ISDN or G.SHDSL or 1-port BRI (optional NT1), 1-port serial WAN	
	• 4-port Ethernet hub or 10/100 swithch on most models and 2 analog telephone ports on ISDN models and 4 analog voice ports on 827-4V	
	• Advanced security features including stateful inspection firewall and hardware assisted encryption (830 series)	
	• Toll quality voice with VoIP (Cisco 827-4V)	
	• Dial back up and out-of-band management (Cisco 830 series)	
Cisco 1700 Series Router	Flexible, secure, modular access routers	1-11
	• 1-port autosensing 10/100 Fast Ethernet LAN	
	• Modular slots support a wide variety of WAN and voice interface cards	
	• Supports secure Internet, intranet, and extranet access as well as new WAN applications including VPNs, integrated voice/data (VoIP), and broadband services	
	• VLAN Capability	
	• Supports up to three Ethernet connections with 1FE and 2 ENET WICs	
Cisco 2500 Series Router	Fixed-port configuration access servers	1-14
	• The Cisco AS2509-RJ/AS2511-RJ access/terminal servers provide Ethernet LAN connectivity and enable 8 or 16 (respectively) users/devices via async connections	
	• Ideal for low-density analog telephone line dial access applications via external modems	
Cisco 2600 Series Router	Modular multiservice router	1-16
	• Single or dual LAN (Ethernet, 10/100 Mbps Ethernet, Token Ring and mixed Ethernet options)	
	• Wide variety of interface support, including integrated 16-port switching, high-density analog and digital, voice, Cisco IOS Firewall and VPN, async and sync serial, ISDN, Fractional and channelized T1/E1, Ethernet, analog modems, ADSL, G.SHDSL, switching integration, and ATM support	
	• Shares WAN interface cards and network modules with Cisco 1700, 3600 and 3700 series	
	• Cisco 2610XM, 2620XM, and 2650XM models offer the features of Cisco 2600 with more default memory, capacity, performance and FE support on all models.	
Cisco 3600 Series Router	Modular multiservice high-density access router	1-22
	• 2-, 4-, and 6-slot models	
	• Wide variety of media support including: high density analog and digital voice, Cisco IOS Firewall and VPN, integrated 16-port switching, ADSL, and G.SHDSL, async and sync serial, BRI and PRI ISDN, channelized T1/E1, Ethernet, Fast Ethernet, Token Ring, digital and analog modems, and ATM	
	• Digital and analog voice/fax over IP or Frame Relay or ATM	
	• The Cisco 3640 is no longer orderable. Customers are encouraged to migrate to the Cisco 3700 Series Routers. On an interim basis we have made available the Cisco 3640A as an alternative for customers with configurations not available on the Cisco 3700.	

Product	Features	Page
Cisco 3700 Series Router	Modular multiservice high-density access router	1-26
	• Enable higher levels of application and service integration in enterprise branch offices in a small form factor	
	– Supports integrated firewall, intrusion detection, and VPN capabilities and offloads processing to on-board Advanced Integration Module (AIM)	
	– Combines flexible routing and low density switching in a single platform with new 16 and 36-port EtherSwitch module	
	– Delivers internal in-line power for the EtherSwitch ports for a single platform Branch Office IP Telephony and Voice Gateway	
	– Conserves WAN bandwidth with Content Engine module to combine intelligent caching, content routing and management	
	– Higher performance enables scalable deployment of multiple, concurrent applications	
	• Wide variety of interface support, including integrated 36 and 16-port switching, high-density analog and digital, voice, Cisco IOS Firewall/IDS and VPN, Fractional and channelized T1/E1 and DS-3, Ethernet, Gigabit Ethernet and ADSL.	
	• Shares WAN interface cards and network modules with Cisco 1700, 2600/2600XM, and 3600 series	
Cisco 7100 Series VPN Router	Large branch and central site VPN router, for a dedicated site-to-site VPN solution	5-11
	See Chapter 5—VPN and Security for information on the Cisco 7100 Series VPN Routers	
Cisco 7200 Series Router	WAN-edge router providing intelligent services, modularity, high performance, investment protection, and scalability in a small form factor	1-31
	• Modular 3 RU Chassis	
	• 4- or 6-slot models and choice of system processors for up to 1 Mpps performance	
	• Wide variety of LAN and WAN options, including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, ISDN, HSSI, ATM, Packet over SONET, DPT/RPR	
Cisco 7300 Series	Network Edge router with high performance IP services delivered at optical speeds for service providers and enterprise networks	1-35
	• Compact and modular 4 rack unit chassis—4 slots	
	• High performance connectivity—T3 through OC48/STM16 with 3.5 Mpps performance	
	• Built-in Gigabit Ethernet connectivity	
	• Multiprotocol routing: IP, IPX, AppleTalk, DLSw	
	• Compact size, high availability and optimal cooling	
Cisco 7400 Series Router	Highest performance 1 rack unit router in the industry, with a stackable architecture that is designed for service provider and enterprise networks	1-38
	• One port adapter slot, two built-in 10/100/GE Ethernet ports, and a broad range of WAN media interfaces from DS0 to OC3 (40+ port adapters) common with Cisco 7x00-series port adapters	
	• High-density broadband aggregation	
	• Managed CPE for service provider demarcation point	
	• Gigabit Ethernet to Gigabit Ethernet IP services applications platform	
Cisco 7500 Series	High-end services-enabled core and WAN aggregation router for enterprise and service provider applications	1-40
	• 5-, 7-, and 13-slot models	
	• 1-, 2-, or 4-bus models offering 1, 2, or 4 Gbps backplanes	
	• Wide variety of LAN and WAN options including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, ISDN, HSSI, ATM, and Packet over SONET	
Cisco 7600 Series	Service provider and high-end enterprise-class router delivering optical WAN and Metropolitan Area Network services with high-touch IP services at the network edge.	1-45
	• Consolidated LAN/WAN/MAN in a single platform	
	• Scalable backplane bandwidth from 32 Gbps to 256 Gbps and performance from 15 Mpps to 30 Mpps	
	• High-volume aggregation of Ethernet traffic (server farms)	
	• Wide range of WAN/MAN interfaces from NxDS0, T1, T3 to OC-48 with line rate services	
	• Ideal for Internet data center, metropolitan aggregation, WAN edge aggregation, and enterprise core applications	
	• Also supports Catalyst 6000 series line cards	
Cisco 10000 Series	Service provider-class edge services router	1-47
	• High-Performance IP, MPLS, and Broadband Services — The Cisco 10000 Series enables service providers to deploy revenue-generating services without worrying about performance degradation	
	• Carrier-Class High Availability — With its carrier-class high availability, the Cisco 10000 Series minimizes costly network outages and maximizing end-customer satisfaction	
	• Application Integration — The Cisco 10000 Series leverages service providers' current investments by enabling leased line and broadband aggregation features on a single platform	
	• Application Flexibility — The Cisco 10000 Series has a broad range of channelized, clear channel, ATM and LAN interfaces. Physical interface speeds from E1/T1 up to OC-48c/STM-16c	

Routers at a Glance

Product	Features	Page
Cisco 10700 Series	Service provider-class metro edge services router • Optimized building block for the next generation metro Ethernet/IP access networks • Equipped with either (24) 10/100 or 4 GbE and 8 FE ports for customer access and OC-48c/STM-16c dynamic packet transport/resilient packet ring (DPT/RPR) technology or Packet Over SONET (POS) for metro optical connectivity • Powered by Cisco IOS 12.0S software and the parallel express forwarding (PXF) architecture • Cost-effective, reliable, high-performance platform supporting full suite of IP/MPLS features and services found in Cisco Internet Routers • With DPT/RPR architecture, enables optimal fiber connectivity as well as features such as IP class of service, VoIP, L2 VPN (EoMPLS and L2TPv3) and L3 VPN (MPLS) services	1-49
Cisco 12000 Series	Premier high-end routing portfolio for service provider backbone and high-speed edge applications. With its unique, modular distributed system architecture, the Cisco 12000 Series Router, is the industry choice for building Carrier IP/MPLS networks with its portfolio of 10Gbps systems and interfaces: • Seven chassis options that fit your scaling and real estate requirements offering the only complete solution for small to large POPs; backbone or edge. • The only platforms supporting backbone—or edge-optimized line cards in the same chassis, maximize the value of line-rate edge applications with 10G uplinks, and sustained line-rate performance as they scale to maximum capacity. • Proven investment protection with simple, field upgrades to higher switching capacities. • The only complete priority packet delivery solution set—the industry's only IP QoS implementation that uniquely enables premium real time IP services such as VoIP and video. • Extensive portfolio of line cards offering leading edge technologies (POS, ATM, DPT/RPR, GbE/FE), support a wide range of networking speeds (from DS1 to OC-192c/STM-64c). • The industry's only high-end router proven (via independent lab testing) to maintain customer connections and network traffic with zero packet loss despite a route processor failure.	1-51
Cisco SN 5400 Series Storage Router	Enables direct access to storage systems anywhere on an IP network. Enables SCSI over IP (iSCSI); the first storage implementation based on IP standards. • Cisco SN 5428: Migrates DAS (Direct Attached Storage) environments to SAN (Storage Area Networks) for small / medium businesses and enterprise workgroups. This is a full function Fibre Channel switch that adds iSCSI, providing very low price per port networked storage configurations.	1-55

Sample Routing Solutions Overview—WAN & Internet Data Center
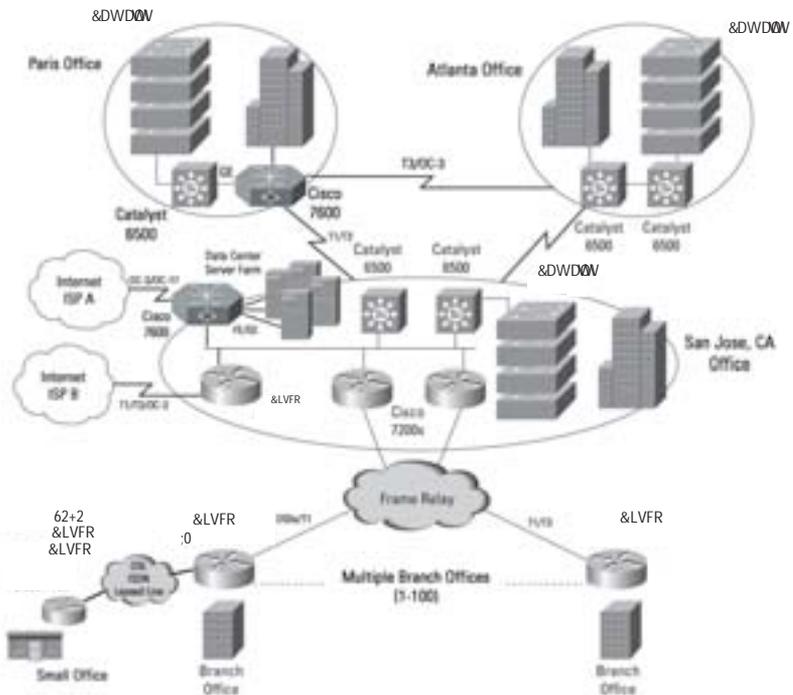
Cisco Routers Port Matrix

	SOHO Series	800 Series	1700 Series	2600 Series	3600 Series	3700 Series	7100 Series	7200 Series	7300 Series	7400 Series	7500 Series	7600 Series	10000 Series	10720 Series	12000 Series
Fixed Ports Only	X	X													
Fixed & Modular Ports			X	X	X[1]	X	X			X			X		
Modular Ports Only					X[2]			X		X	X			X	X
LAN Ports															
10-MB Ethernet	X	X	X	X	X	X	X	X		X	X	X		X	
10-MB Ethernet (fiber)					X		X	X		X	X	X			
100-MB Ethernet			X	X	X	X	X	X		X	X	X		X	X
100-MB Ethernet (fiber)					X		X	X		X	X	X	X	X	X
10/100-MB Eth	X	X	X	X	X	X	X	X						X	
Token Ring			X	X	X	X					X				
FDDI/CDDI											X				
ATM	X	X		X	X	X		X		X	X	X	X		
Gigabit Ethernet					X	X	X	X	X	X	X	X	X	X	X
WAN Ports															
Sync Serial		X	X	X	X	X		X		X	X	X			
Sync Serial w/ CSU		X	X	X	X								X		
ISDN BRI (S/T)		X	X	X	X	X	X	X		X	X				
ISDN BRI (U)		X	X	X	X	X	X	X		X	X				
ISDN PRI/Ch T1				X	X	X	X	X		X	X	X			
ISDN PRI w/ CSU				X	X	X		X		X	X	X			
Async			X	X	X	X									
Analog/POTS		X		X	X	X									
Integrated Modems				X	X	X									
Integrated Modem WICs			X	X	X	X									
HSSI				X[3]	X	X	X	X		X	X	X			
DS3				X	X	X	X	X		X	X	X	X		X
ATM OC-3				X[3]	X	X	X	X		X	X	X	X		X
ATM OC-12								X		X	X	X	X		X
ATM				X	X	X		X		X	X	X	X		X
ATM - T1/E1				X	X	X	X	X		X	X	X			
POS OC-x/STM-x							X	X	X	X	X	X	X		X
DPT/RPR OC-12/STM-4								X			X				X
DPT/RPR OC-48/STM-16												X	X	X	X
DPT/RPR OC-192/STM-64															X
ADSL	X	X	X	X	X	X									
ADSL over ISDN	X	X													
G.SHDSL	X	X	X	X		X									
IDSL		X	X	X		X									
DPT								X			X		X	X	X

	SOHO Series	800 Series	1700 Series	2600 Series	3600 Series	3700 Series	7100 Series	7200 Series	7300 Series	7400 Series	7500 Series	7600 Series	10000 Series	10720 Series	12000 Series
Voice Ports															
Analog		X	X	X	X	X									
Digital			X	X	X	X		X		X	X	X			
Integrated Switching															
Integrated 16-port Switching				X	X	X									
Integrated 36-port Switching					X^1	X									
Inline Power				X^4	X^4	X									
Content Acceleration and Delivery															
Content Engine				X	X	X									
Security/VPN															
Encryption Advanced Integration Modules				X	X^1	X									
Encryption Network Module					X^2	X									

1. Cisco 3660 only
2. Cisco 3620 and 3640
3. Supported on the 2691 only
4. Requires external power source

Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Default Max Memory	Configuration (Notes)
SOHO 78	Flash	1	8 MB	8 MB	No Upgradeable Memory
	DRAM	1	16 MB	16 MB	
SOHO 90	Flash	1	8 MB	8 MB	No Upgradeable Memory
	DRAM	1	32 MB	32 MB	
801, 802, 803, and 804	Flash	1	8 MB	12 MB	4MB on board and 4MB or 8MB Mini flash card
	DRAM	1	4 MB	12 MB	4MB onboard and 4MB or 8MB DIMM module
805	Flash	1	4 MB	12 MB	
	DRAM	1	8 MB (On board)	16 MB	4MB On board + 4MB Mini Flash
811 and 813	Flash	1	8MB	12MB	4MB On board + 4MB or 8MB Mini Flash
	DRAM	1	8MB	16MB	8MB on board and 4MB or 8MB DIMM Module
827-4V, 828	Flash	1	8 MB	16 MB	8MB On board + 4MB Mini Flash
	DRAM	1	16 MB (827-4V: 24 MB, 806: 32MB)	32 MB	16MB Onboard and 4MB or 8MB or 16MB DIMM Module
831, 836, 837	Flash	1	8 MB	24 MB	
	DRAM	1	32 MB	48 MB	
1721	Flash	1	16 MB	16 MB	Uses Mini Flash
	DRAM	1	32 MB (On board)	48 MB	
1751	Flash	1	16 MB	48 MB	
	DRAM	1	32 MB	96 MB	
1760	Flash	1	16 MB	64 MB	
	DRAM	1	32 MB	96 MB	
2500 Series	Flash	2	8 MB	16 MB	Slot 0 = 8 MB
	DRAM	1	4 MB	16 MB	
2600 Series	Flash (261xXM, 262xXM, 265xXM)	1	16 MB	48 MB	16 MB on Mother Board; Slot 0 = 32 MB
	Flash (261x)	1	8 MB	16 MB	Slot 0 = 8 MB
	Flash (262x,265x)	1	8 MB	32 MB	Slot 0 = 8 MB
	Flash (2691)	2	32 MB	128 MB	Slot 0 = 32 MB
	DRAM (261XM, 262xXM)	2	32 MB	128 MB	Slot 0 = 32 MB; Slot 1 = empty
	DRAM (265xXM)	2	64 MB	128 MB	Slot 0 = 64 MB; Slot 1 = empty
	DRAM (261x, 262x)	2	32 MB	64 MB	Slot 0 = 32 MB; Slot 1 = empty
	DRAM (265x)	2	32 MB	128 MB	Slot 0 = 32 MB; Slot 1 = empty
	DRAM (2691)	2	64 MB	256 MB	Slot 0 = 64 MB; Slot 1 = empty
3620 and 3640	Flash (PCMCIA)	2	0	32 MB	
	Flash (SIMM)	2	16 MB	32 MB	Slot 0 = 8 MB
	DRAM	4	32 MB	64 MB (3620) 128 MB (3640)	Slot 0 = 16 MB; Slot 1 = 16 MB
3660	Flash (PCMCIA)	2	0	32 MB	
	Flash (SIMM)	2	16 MB	64 MB	
	SDRAM	2	32 MB	256 MB	
3700	Flash (Internal)	1	32 MB	128 MB	
	Flash (External)	1	0 MB	32-128 MB	
	DRAM (SoDIMM)	2	128 MB	256 MB	Slot 0 = 128 MB
7100 Series	Flash (PCMCIA)	2	48 MB	110 MB	Slot 0 = 48 MB
	System SDRAM	2	64 MB	256 MB	Slot 0 = 64 MB
	Packet SDRAM		64 MB	64 MB	
7200 Series	Flash (PCMCIA)	2	20 MB	128 MB	
	Flash (non-volatile, fixed config)		128 KB	128 KB	
	Flash (C7200-IO-FE bootflash)	1	4 MB	4 MB	
	Flash (C7200-IO-2FE, C7200-IO-GE/E bootflash)	1	4 or 8 MB	4 or 8 MB	
	DRAM (NPE-225)	1	128 MB	256 MB	Slot 0 = 128 MB DIMM
	DRAM (NPE-300)	4	32+128 MB	32+256 MB	Slot 0 = 32 MB DIMM, Slot 2 = 128 MB DIMM
	DRAM (NPE-400)	1	128 MB	512 MB	Slot 0 = 128 MB SoDIMMs
	DRAM (NSE-1)	1	128 MB	256 MB	Slot 0 = 128 MB DIMM
	DRAM (NPE-G1)	1	256 MB	1 GB	Slot 0 = 128 MB SoDIMM, Slot 2 = 128 MB SoDIMM
7300 Series	Flash (CFM)	1	64 MB	128 MB	
	DRAM	1	128 MB	512 MB	

Router	Memory Type	Slots	Default Memory	Default Max Memory	Configuration (Notes)
7400 Series	Flash (PCMCIA)	2	64 MB	128 MB	
	DRAM (NSE-1) BB	1	256 MB	512 MB	
	DRAM (NSE-1) CP	1	128 MB	512 MB	
7500 Series	Flash (PCMCIA) RSP2, RSP4+	1	16 MB	20 MB	
	Flash (PCMCIA) RSP8	2	20 MB	40 MB	
	Flash (PCMCIA) RSP16	1	48 MB	128 MB	
	Flash (SIMM)	1	8 MB	8 MB	
	DRAM (RSP2)	4	32 MB	128 MB	
	DRAM (RSP4+, RSP8)	2	64 MB	256 MB	
	DRAM (RSP16)	2	128 MB	1 GB	
	DRAM (VIP2-40)	1	32 MB	64 MB	
	DRAM (VIP2-50)	1	32 MB	128 MB	
	DRAM (VIP4-50/80)	1	64 MB	256 MB	
	DRAM (VIP6-80)	1	64 MB	256 MB	
7600 Series	Flash (PCMCIA)	1	16MB	20 MB	
	DRAM (Sup 2)	1	128MB	512 MB	
	DRAM (MSFC2)	1	128MB	512 MB	
	DRAM (PFC2)	1	128MB	256 MB	
10000 Series	Flash (PCMCIA)	2	48 MB	128 MB	1 x 48MB ships as default; 128MB is optional
	Flash (Internal)	1	32 MB	32 MB	
	Shared (PRE-1)	1	128 MB	128 MB	
	DRAM (PRE-1)	1	512 MB	512 MB	
10700 Series	Flash (Internal)	1	32 MB	64 MB	Maximum memory is configured with No Option
	SDRAM RP	1	256 MB	256 MB	
	Packet Buffer	1	64 MB	64 MB	
12000 Series	Flash (PCMCIA)	2	20 MB	20 MB	
	DRAM (GRP-B)	1/2	128 MB	512 MB	Route Memory
	SDRAM (PRP-1)	1/2	512 MB	1 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Route Memory (line card dependent)
	SDRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Packet Memory (line card dependent)
	Shared (PRE-2)	1	128 MB	128 MB	
	DRAM (PRE-2)	1	512 MB	512 MB	

Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL and G.SHDSL Routers

The Cisco SOHOseries provides an affordable, secure, multi-user access solution to small office/home office (SOHO) customers while reducing deployment and operational costs for service providers. Through the power of Cisco IOS software technology, the Cisco SOHO 91 Ethernet to Ethernet Router, the SOHO 96 ADSL over ISDN, the SOHO 97 ADSL and SOHO 78 G.SHDSL routers provide superior manageability and reliability.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco SOHO 91	• Ethernet WAN port for use with an external DSL or cable modem with 4-port 10/100 switch, stateful firewall and software based encryption
Cisco SOHO 96	• ADSL modem for use of ADSL over ISDN with 4-port 10/100 switch, stateful firewall and software based encryption
Cisco SOHO 97	• ADSL modem for ADSL over POTS with 4-port 10/100 switch, stateful firewall and software based encryption
Cisco SOHO 78	• 4-port Ethernet Hub and 1 G.SHDSL port with firewall security and Cisco IOS manageability and reliability

Key Features

- Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption (no encryption on the SOHO 78)
- Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)
- Offers many local and remote debug and troubleshooting features in Cisco IOS Software

Competitive Products

• 3Com: OfficeConnect 810	• Netopia: R6100, 4533
• Alcatel: Speed Touch Pro Router	• Westel: Wirespeed 36R566
• Cayman: 3220H	• Zyxel: 641, 782
• Efficient: 5861, 5660	• Nokia: MW1352
• Lucent: CellPipe 50A	• Linksys: Etherfast models

Specifications

Feature	SOHO 91	SOHO 96	SOHO 97	SOHO 78
Fixed LAN Ports	4-port 10/100 Switch	4-port 10/100 Switch	4-port 10/100 Switch	4-port Ethernet (10BASE-T)
Fixed WAN Ports	1-port Ethernet (connects to external DSL or cable modem	1-port ADSL over ISDN	1-port ADSL over POTS	1-port G.SHDSL
Flash Memory	8 MB	8 MB	8 MB	8 MB
DRAM Memory	32 MB	32 MB	32 MB	16 MB
Dimensions (HxWxD)	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)

For More Information

See the Cisco SOHO Web site: *http://www.cisco.com/go/soho90*

Cisco 800 Series

The Cisco 800 series router provides enhanced network security and proven reliability through Cisco IOS software, for small offices and telecommuters. It connects users to the Internet or to a corporate LAN via one ADSL, ADSL over ISDN, G.SHDSL, IDSL, ISDN, or serial connection (up to 512 Kbps), or with an Ethernet WAN port connected to an external broadband modem.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 800 Series	• Companies who Cisco IOS-based networks who want to add telecommuters
	• Service providers who offer value-added services to small offices
	• VARs who are familiar with Cisco IOS software and want to profitably service small office customers
	• Ethernet LAN ports and variety of WAN connectivity, including: ISDN BRI, Frame Relay, ADSL, G.SHDSL, async dialup (see Specifications for details)

Key Features

- Fixed configuration support for several types of WAN connections
- Standard security with ACLs, PAT/NAT, PAP/CHAP, MS-CHAP, Lock and Key, and Generic Routing Encapsulation (GRE) tunneling
- Enhanced security with stateful inspection firewall, IPSec encryption (hardware based on Cisco 830s and AES encryption on Cisco 830s)
- Toll quality voice with VoIP on Cisco 827-4V
- Integrated 4-port 10/100 Ethernet Switch on Cisco 830 series
- Bandwidth optimization features such as compression, Bandwidth-on-Demand, Dial-on-Demand, Always-On-Dynamic-ISDN (AODI), and X.25 over D channel (Cisco 801- 804)
- Support for CAPI applications in the European market

Competitive Products

• 3Com: Office Connect Remote 511/521	• Netopia: R3100, R6100, 4533
• Alcatel: Speed Touch Pro Routers	• Nortel/Bay: Nautica 250
• Ascend: Pipeline 75/85	• Nokia: MW1352
• Efficient: 5861 / 5660	• Zyxel: 782
• Intel: Express 8100	• Linksys: Etherfast

Specifications

Cisco 801, 802, 803, 804, 805, 811 and 813

Feature	801	802	803	804	811	813
Fixed LAN Port Connections	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet hub (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)
Fixed WAN Port Connections	1-port ISDN BRI (S/T)	1-port ISDN BRI (U) NT-1	1-port ISDN BRI (S/T) 2 analog ports	1-port ISDN BRI (U) NT-1 2 analog ports	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1 2 analog ports
Flash Memory	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	4MB (default) 12MB (max)	8MB (default) 12MB (max)
DRAM Memory	4MB (default) 12MB (max)	4MB (default) 12MB (max)	4MB (default) 12MB (max)	4MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)
Dimensions (HxWxD)	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801

Cisco 800 Series (805, 836, 827-4V, 828, 836, 837)

Feature	805	827-4V	828	831	836	837
Fixed LAN Port Connections	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet (10BASE-T)
Fixed WAN Port Connections	1-port Serial (Up to 512 KBPS)	1-port ADSL	1-port G.SHDSL	1-port Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T	1-port ADSL over POTS
Flash Memory	4MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)	8MB (default) 24MB (max)	8MB (default) 24MB (max)	8MB (default) 24MB (max)
DRAM Memory	8MB (default) 16MB (max)	24MB (default) 32MB (max)	16MB (default) 32MB (max)	32MB (default) 48MB (max)	32MB (default) 48MB (max)	32MB (default) 48MB (max)
Dimensions (HxWxD)	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 805	Same as Cisco 805	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.

Selected Part Numbers and Ordering Information[1]

Cisco 800 Series Routers

CISCO801	1-port 10BASE-T, 1-port BRI (S/T), IP s/w
CISCO802	1-port 10BASE-T, 1-port BRI (U) w/ NT-1, IP s/w
CISCO803	4-port 10BASE-T hub, 1-port BRI (S/T), 2-port POTS, IP s/w
CISCO804	4-port 10BASE-T hub, 1-port BRI (U) w/ NT-1, 2-port POTS, IP s/w
CISCO805	1-port 10BASE-T, 1-port serial, IP s/w
CISCO801-CAPI	ISDN/Ethernet Router with one-user CAPI license
CISCO803-CAPI	ISDN/Ethernet Router with one-user CAPI license, 4-port hub
CISCO827-4V	1-port ADSL, 1-port 10BASE-T, 4 ports FXS, IP/Voice s/w
CISCO828	1-port G.SHDSL, 4-port 10BASE-T hub, IP s/w
CISCO831-K9 USD 649.00	Cisco 831 Ethernet Router
CISCO836-K9	Cisco 836 ADSL over ISDN Router
CISCO837-K9	Cisco 837 ADSL Router

Cisco 800 Series CD Feature Packs

CD08-BHL-12.0.7XV=	Cisco 800 Series IP/IPX/FW Plus IPSec 56
CD08-BP-12.07.XV=	Cisco 800 Series IP/IPX/Plus
CD800-5CAPI=	CAPI 5 User CD
CD08-IC-12.0.5T=	Cisco 800 Series Internet DSL
CD08-ICHL-12.0.5T=	Cisco 800 Series Internet DSL FW IPSec56
CD08-IBHL-12.0.5T=	Cisco 800 Series Internet DSL IPX FW IPSec56

Cisco 800 Series Memory Options

MEM800-4F=	Cisco 800 Series, 4 MB Flash Mini-Card
MEM800-8F=	Cisco 800 Series, 8 MB Flash Mini-Card
MEM800-4D=	Cisco 800 Series, 4 MB DRAM DIMM
MEM800-8D=	Cisco 800 Series, 8 MB DRAM DIMM
MEM820-8U16F	Cisco 820 Flash upgrade 8Mbyte-16Mbyte
MEM820-16U20D	Cisco 820 DRAM upgrade 16Mbyte-20Mbyte (16Mbyte-24Mbyte & 16Mbyte-32Mbyte also available)
MEM820-24U32D	Cisco 820 DRAM 24Mbyte upgrade to 32 Mbytes

Cisco 800 Series Accessories

PWR-8xx-WW1=	Cisco 8xx Series, AC Power Supply Spare

Cisco 800 Series Basic Maintenance

CON-SNT-PKG1	Cisco 800 Series SMARTnet Maintenance (8x5xNBD)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco 800 Series Web site: *http://www.cisco.com/go/800*

Cisco 1700 Series

The Cisco 1700 series modular access routers are designed to provide a cost-effective integrated access platform for small and medium-sized businesses and enterprise small branch offices.

These Cisco IOS-based routers deliver high-speed network access, comprehensive security features, and multiservice data/voice/video/fax integration to meet the most demanding business requirements. Within the Cisco 1700 series, Cisco 1710 security access routers work with existing broadband modems to provide advanced routing and security functionality, Cisco 1721 modular access routers provide flexible, high-performance data access, and Cisco 1751 and Cisco 1760 modular access routers are optimized for both voice and data traffic, providing a simple and cost-effective path to multi-service networking—today or in the future.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 1710	• Advanced routing and security functionality in one device when connecting to the Internet using a broadband modem • Hardware-assisted 3DES VPN encryption at full T1/E1 speeds
Cisco 1721	• Secure data-only access solution that adapts to customers' evolving network requirements • Support for data applications including VPNs and broadband access services • A broad array of WAN services supported, including Frame Relay, leased line, ADSL, G.SHDSL, ISDN BRI, X.25, SMDS and more • IPSec 3DES VPN encryption at full T1/E1 speeds • IEEE 802.1Q VLAN Support
Cisco 1751	All the above, plus: • Analog and digital voice support in a desk-top form factor • 3 modular slots for WAN and Voice interface cards
Cisco 1760	All the above, plus: • 19″ rackmount form factor • 4 slots with 2 WIC/VIC and 2 VIC slots • Multiservice analog and digital voice support • Highest performance multi-service router in the Cisco 1700 family • Higher density analog and digital voice support than Cisco 1751

Key Features

• Support for up to 4 serial interfaces or 2 ISDN BRI; 1 autosensing 10/100 Mbps Fast Ethernet LAN connection; 1 auxiliary (AUX) port for dial-up management or low-speed asynchronous connections (up to 112.5 kbps)

• Flexibility—Cisco 1700 Series supports a diverse set of WAN and Voice Interface Cards that are shared with the 1600 (WAN only), 2600/2600XM, and 3600 series routers enabling field upgradeability to evolve with the needs of growing businesses

• Integrated Device—Cisco 1700 series combines WAN routing, VPN and multiservice access in a single device

• Expansion Slot—Supports optional hardware VPN module for wire-speed IPSec 3DES encryption and can enable future technologies (VPN Module standard on Cisco 1710)

• Integrated Security—The 1700 series supports context-based access control for dynamic firewall filtering, denial-of-service detection and prevention, Java blocking, real-time alerts, Intrusion Detection System (IDS), and encryption.

• IEEE 802.1Q VLAN Support

Specifications

Feature	Cisco 1710	Cisco 1721	Cisco 1751/1751-V	Cisco 1760/1760-V
Fixed LAN Ports (connections)	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing10/100 Mbps Ethernet
Fixed WAN Ports	1-port 10BASE-T Ethernet for broadband modem	None	None	None
Modular Slots	None	2 WAN slots	3 slots (2 WAN or Voice slots and 1 Voice-only slot)	4 Slots (2 WAN or Voice slots and 2 Voice-only slots)
WAN Interface Card (WIC) Modules	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Voice Interface Cards (VIC) Modules	None	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Flash Memory	16 MB Flash (default/max)	16 MB (default); 16 MB (max)	1751 base model: 16 MB (default); 16 MB (max) 1751-V multiservice ready configuration: 32 MB (default); 32 MB (max)	1760 base model: 16-MB Flash Memory (on board) 64-MB (max) 1760-V: 32-MB Flash 64-MB (max)
DRAM Memory	64 MB	32 MB (default); 96 MB (max)	1751 base model: 32 MB (default); 96 MB (max) 1751-V multiservice-ready configuration: 64 MB (default); 96 MB (max)	1760 base model:32 MB (default)96 MB (max)1760-V:64 MB (default)96 MB (max)
Dimensions (HxWxD)	3.1 x 11.2 x 8.7 in.	3.1 x 11.2 x 8.7 in.	4.0 x 11.2 x 8.7 in.	1.7 x 17.5 x 12.8 in.

Cisco IOS Software and Memory Requirements[1]

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD17-C- 12.x	IP only IP/ADSL	12.1 Mainline	4 MB 8 MB	16 MB 20 MB
CD17-CH-12.x	IP/FW	12.1 Mainline	4 MB	20 MB
CD17-CP-12.x	IP Plus	12.1 Mainline	4 MB	20 MB
CD17-CHK2-12.x	IP/FW Plus IPSEC 3DES	12.1 Mainline	8 MB	32 MB
CD17-CVP-12.x	IP/Voice Plus	12.1 Mainline	8 MB	24 MB
CD17-CHV-12.x	IP/FW/Voice Plus	12.1 Mainline	8 MB	24 MB
CD17-CHVK2-12.x	IP/FW/Voice Plus IPSEC 3DES	12.1 Mainline	8 MB	24 MB
CD17-C- 12.x	IP only	12.1T	4 MB	16 MB
CD17-CH-12.x	IP/FW	12.1T	4 MB	20 MB
CD17-CP-12.x	IP Plus	12.1T	8 MB	24 MB
CD17-CK2-12.x	IP Plus IPSEC 3DES	12.1T	8 MB	32 MB
CD17-CHK2-12.x	IP/FW Plus IPSEC 3DES	12.1T	8 MB	32 MB
CD17-CVP-12.x	IP/Voice Plus	12.1T	8 MB	32 MB
CD17-CHV-12.x	IP/FW/Voice Plus	12.1T	8 MB	32 MB
CD17-CVK2-12.x	IP/Voice Plus IPSEC 3DES	12.1T	8 MB	32 MB
CD17-CHVK2-12.x	IP/FW/Voice Plus IPSEC 3DES	12.1T	8 MB	32 MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at http://www.cisco.com/go/fn

Selected Part Numbers and Ordering Information[1]

Cisco 1700 Series Modular Access Routers

CISCO1760	10/100 Modular Router w/ 2WIC/VIC,2VIC slots,19 inch Chassis
CISCO1760-ADSL	10/100 BaseT Modular Router w/ADSL WIC, IP/ADSL
CISCO1760-SHDSL	10/100 BaseT Modular G.SHDSL Router, 19 inch Chassis
CISCO1760-VPN/K9	1760 VPN Bundle with VPN Module, 48MB DRAM, IP Plus/FW/3DES
CISCO1760-VPN/K9-A	1760 VPN Bun. w/ADSL WIC, VPN Module, 48MB DRAM, IP+/FW/3DES
CISCO1760-V	10/100 Modular Router w/Voice IP/VOICE Plus, 19 inch Chassis
CISCO1751	10/100 Modular Router w/ 3 slots, IOS IP, 16F/32D
CISCO1751-V	10/100 Modular Router w/Voice, IOS IP/VOICE Plus, 32F/64D
CISCO1751-VPN/K9	1751 VPN Bundle with VPN Module, 48MB DRAM, IP Plus/FW/3DES
CISCO1751-VPN/K9-A	1751 VPN Bun. w/ADSL WIC, VPN Module, 48MB DRAM, IP+/FW/3DES
CISCO1721-ADSL	10/100 BaseT Modular ADSL Router, IP/DSL

Cisco 1700 Series

CISCO1721	10/100BaseT Modular Router w/2 WAN slots, 16M Flash/32M DRAM
CISCO1721-VPN/K9	1721 VPN Bundle with VPN Module, 48MB DRAM, IP Plus/FW/3DES
CISCO1721-VPN/K9-A	1721 VPN Bun. w/ADSL WIC, VPN Module, 48MB DRAM, IP+/FW/3DES
CISCO1721-SHDSL	10/100 BaseT Modular G.SHDSL Router, IP/DSL
CISCO1710-VPN-M/K9	Dual-Ethernet Security Access Router, VPN Module, IP/3DES/FW

Cisco 1751 Software Feature Packs for Cisco IOS Release 12.1.(5)YB

CD17-C-12.1.5=	IP
CD17-C-12.1.5=	IP ADSL
CD17-C7P-12.1.5=	IP Plus ADSL
CD17-C7K2-12.1.5=	IP Plus IPSec 3DES ADSL
CD17-CH-12.1.5=	IP/FW/IDS
CD17-B-12.1.5=	IP/IPX
CD17-B7HP-12.1.5=	IP/IPX/FW/IDS Plus ADSL
CD17-C7HK2-12.1.5=	IP/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS Plus IPSec 3DES
CD17-C7VP-12.1.5=	IP/Voice Plus
CD17-C7VP-12.1.5=	IP/Voice Plus ADSL
CD17-C7HV-12.1.5=	IP/Voice/FW/IDS Plus ADSL
CD17-C7VK2-12.1.5=	IP/Voice Plus IPSec 3DES ADSL
CD17-C7HVK2-12.1.5=	IP/Voice/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HVK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS/Voice Plus IPSec 3DES

Cisco 1700 Series Memory Options

MEM-1700-4MFC=	Cisco 1700 Series, 4 MB Mini-Flash Card
MEM-1700-8MFC=	Cisco 1700 Series, 8 MB Mini-Flash Card
MEM-1700-16D=	Cisco 1700 Series, 16 MB DRAM DIMM
MEM-1700-32D=	Cisco 1700 Series, 32 MB DRAM DIMM
MEM-1700-64D+	Cisco 1700 Series, 64 MB DRAM DIMM

Cisco 1700 Series WAN Interface Cards (WICs)

WIC-1T	1-port Serial WAN Interface Card
WIC-2T	2-port Serial WAN Interface Card
WIC-2A/S	2-port Async/Sync Serial WAN Interface Card
WIC-1B-S/T	1-port BRI (S/T) WAN Interface Card (dial and leased line)
WIC-1B-U	1-port BRI w/ NT-1 WAN Interface Card (dial and leased line)
WIC-1DSU-56K4	1-port 4-Wire 56/64 Kbps w/ (DSU/CSU) WAN Interface Card
WIC-1DSU-T1	1-port T1/Fr T1 w/ (DSU/CSU) WAN Interface Card
WIC-1ADSL=	1-port ADSL WAN Interface Card
WIC-1SHDSL	1-port G.SHDSL WAN Interface Card
WIC-1ENET=	1-port Ethernet Interface Card

Cisco 1751/1760 Voice Interface Cards

VIC-2FXS	2-port Voice Interface Card FXS
VIC-4FXS	4-port Voice Interface Card FXS
VIC-2FXO	2-port Voice Interface Card FXO
VIC-2E/M	2-port Voice Interface Card E&M
VIC-2FXO-EU	2-port Voice Interface Card FXO for Europe
VIC-2FXO-M	32-port Voice Interface Card FXO for Australia
VIC-2BRI-NT/TE	2-port Voice Interface Card—BRI (NT & TE)
VIC-2FXO-M1	2-port FXO for U.S. with battery reversal
VIC-2FXO-M2	2-port FXO for Europe with battery reversal
VIC-2DID	2-port FXO analog DID

Cisco 1700 Multiflex Voice / WAN interface Cards

VWIC-1MFT-E1	1-Port RJ-48 Multiflex Trunk - E1
VWIC-1MFT-E1=	1-Port RJ-48 Multiflex Trunk - E1
VWIC-1MFT-G703	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-1MFT-G703=	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-E1	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1=	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1-DI	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-2MFT-E1-DI=	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-2MFT-G703	2-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-G703=	2-Port RJ-48 Multiflex Trunk - G.703
VWIC-1MFT-T1	1-Port RJ-48 Multiflex Trunk - T1
VWIC-1MFT-T1=	1-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1-DI	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-2MFT-T1-DI=	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-2MFT-T1	2-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1=	2-Port RJ-48 Multiflex Trunk - T1

Cisco 1700 Module Options

MOD1700-VPN   Cisco 1700 Series VPN Module

Cisco 1700 Spares and Accessories

PWR-1700-WW1=   Cisco 1700 AC Power Supply—worldwide
PVDM-256K-4=   4-Channel Packet Voice/Fax DSP Module for the 1751
PVDM-256K-8=   8-Channel Packet Voice/Fax DSP Module for the 1751
PVDM-256K-12=   12-Channel Packet Voice/Fax DSP Module for the 1751
PVDM-256K-16=   16-Channel Packet Voice/Fax DSP Module for the 1751
PVDM-256K-20=   20-Channel Packet Voice/Fax DSP Module for the 1751

Cisco 1700 Series Basic Maintenance

CON-SNT-PKG4   Cisco 1751-V SMARTnet Maintenance
CON-SNT-PKG3   Cisco 1751 and 1710-VPN-M/K9 SMARTnet Maintenance
CON-SNT-PKG2   Cisco 1720 and 1720-ADSL SMARTnet Maintenance

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco 1700 Series Web site: *http://www.cisco.com/go/1700*

Cisco 2500 Series

The Cisco 2500 series router has served for years as the most deployed and popular branch office router in the world, and provides low cost routing functionality for data-only applications (no voice support). There are currently two access servers to choose from, 8 or 16 asynchronous ports, each with 1 Ethernet port, for aggregating multiple network elements to provide a single Telnet access point (telemetry application)—or for attaching 8 to 16 external analog or digital modems in environments where T1/E1 digital circuits are not available, but multiple dial-up telephone lines can be leveraged for low cost remote access.

For higher performance requirements, where a wider variety of WAN/LAN interfaces are needed, as well as voice support, refer to Cisco 2600/2600XM/3600 or 1700 series routers.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco AS2509-RJ and AS2511-RJ	• Data-only network requirement • An access server combining a terminal server, protocol translator, console port aggregator, and a router in a single device • One Ethernet LAN and dual serial ports • 8 or 16 asynchronous serial ports with RJ-11 jacks, ideal for attaching 8 to 16 external modems

Key Features

• Proven technology with a full suite of Cisco IOS Software
• Setup with Cisco ConfigMaker, a free tool for configuring a network of routers
• With CiscoWorks for Windows, allows remote management and maintenance from a central location

Specifications

Feature	Cisco AS2509-RJ	Cisco AS2511-RJ
Throughput Performance (pps)	3-5 Kpps (depending on configuration)	3-5 Kpps (depending on configuration)
Memory	8-MB dual Flash bank option (default) 16 MB (max) 16 MB DRAM (default)	Same as Cisco AS2509-RJ
Power Supply	AC, with optional DC or redundant power supply	Same as Cisco AS2509-RJ
Fixed LAN Ports	1-port Ethernet	1-port Ethernet
Fixed WAN Ports	1-port sync serial 8-port async	1-port sync serial 16-port async
Dimensions (H x W x D)	1.75 x 17.5 x 10.56 in.	1.75 x 17.5 x 10.56 in.

Cisco IOS Software and Memory Requirements

To run the Cisco IOS software Feature Packs, you need the amount of memory shown in the following table:

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required[2]	DRAM Memory Required
CD25-C-12.0=	IP only	12.0(10) 12.0(7)T	8 MB 8 MB	4 MB 6 MB
CD25-CP-12.0=	IP Plus	12.0(10) 12.0(7)T	8 MB 16 MB	6 MB 8 MB
CD25-CHL-12.0=	IP/FW Plus IPSEC 56	12.0(10) 12.0(7)T	16 MB 16 MB	8 MB 10 MB
CD25-B-12.0=	IP/IPX/AT/DEC	12.0(10) 12.0(7)T	8 MB 16 MB	6 MB 6 MB
CD25-BP-12.0=	IP/IPX/AT/DEC Plus	12.0(10) 12.0(7)T	16 MB 16 MB	6 MB 8 MB
CD25-AP-12.0=	Enterprise Plus	12.0(10) 12.0(7)T	16 MB 16 MB	6 MB 10 MB

1. For users with CCO access, search by IOS feature or release via the **Feature Navigator** at http://www.cisco.com/go/fn
2. Bold numbers indicate that more memory than the default amount is needed to run the Feature Pack.

Selected Part Numbers and Ordering Information[1]

Cisco 2500 Series Access Router Chassis
CISCO2509-CH	1-port Ethernet AUI, 2-port Serial, 8-port Async Serial, IP s/q
AS2509-RJ-CH	1-port Ethernet AUI (RJ-45), 1-port Serial, 8-port Async Serial, IP s/w
CISCO2511-CH	1-port Ethernet AUI, 2-port Serial, 16-port Async Serial, IP s/w
AS2511-RJ-CH	1-port Ethernet AUI (RJ-45), 1-port Serial, 16-port Async Serial, IP s/w

Cisco 2500 Series Memory Options
MEM-1X4F=	Cisco 2500 Series, 4 MB Flash Upgrade
MEM-1X8F=	Cisco 2500 Series, 8 MB Flash Upgrade
MEM-1X8D=	Cisco 2500 Series, 8 MB DRAM Upgrade
MEM-1X16D=	Cisco 2500 Series, 16 MB DRAM Upgrade

Cisco 2500 Series Accessories
ACS-2500RM-19=	Cisco 2500 Series, Rack-Mount Kit, 19 Inches
ACS-2500RM-24=	Cisco 2500 Series, Rack-Mount Kit, 24 Inches
ACS-2500ASYN=	Cisco 2500 AUX/Console Part Cable Kit
ACS-2500RPS=	Cisco 2500 Series, RPS Field Upgrade

Cisco 2500 Series Basic Maintenance
CON-SNT-PKG4	Packaged SMARTnet (8 x 5 x NBD) for the Cisco AS2509 and AS2511

For More Information

See the Cisco 2500 Series Web site: *http://www.cisco.com/go/2500*

Cisco 2600 Series

The Cisco 2600 series is an award-winning family of modular multiservice access routers, providing flexible LAN and WAN configurations, multiple security options, voice/data integration, and a range of high performance processors. This range of features make the Cisco 2600 series the ideal branch-office router for today's and tomorrow's customer requirements.

The Cisco 2600 series family of modular routers include the Cisco 2600XM models, the Cisco 2691 and the Cisco 2612 token ring router. These new models deliver extended performance, higher density, enhanced security performance and increased concurrent application support to meet the growing demands of branch offices.

The Cisco 2600XM models are based on the classic Cisco 2600 platform architecture, and extend the performance by as much as 33%. They also increase default platform memory and provide increases in memory capacity at the same price as their Cisco 2600 predecessor.

The highest performing router in the Cisco 2600 family that extends the density of emerging branch office applications, is the Cisco 2691 offering almost twice the performance of the Cisco 2650XM platform while leveraging the same modules from other Cisco 2600, Cisco 3600 and Cisco 3700 Series routers. Compared to the Cisco 2600XM models, the new Cisco 2691 is designed to offer a higher degree of versatility, providing greater throughput for higher density WAN applications, support for high speed interfaces and increased performance to handle new services.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 2691	• Enterprises wanting a higher level of performance for a broadened range of concurrent remote office applications, including unparalleled voice/data integration, Virtual Private Network (VPN) performance, increased bandwidth to support voice and video applications, and the delivery of Web-based applications.
Cisco 2600XM Series	• Enterprises considering the Cisco 2600 for branch office applications should now regard the Cisco 2600XM as the preferential platform for delivering high performing, flexible solutions to branch and remote offices. • High Performance 10/100 Dual Ethernet Router with 3 WIC Slots, 1 NM
Cisco 2651XM	• High performance Dual 10/100 Modular Router with Cisco IOS IP
Cisco 2650XM	• High performance 10/100 Modular Router with Cisco IOS IP
Cisco 2621XM	• Mid Performance Dual 10/100 Ethernet Router with Cisco IOS IP
Cisco 2620XM	• Mid Performance 10/100 Ethernet Router with Cisco IOS IP
Cisco 2611XM	• Dual 10/100 Ethernet Router with Cisco IOS IP
Cisco 2610XM	• 10/100 Ethernet Router with Cisco IOS IP
Cisco 2612	• One Token Ring port and one Ethernet port for mixed LANs and migrating from Token Ring to Ethernet

Key Features

- Integration/manageability—Lowers cost of ownership and improves ease of remote management, providing integrated "branch-in-a-box" networking that combines CSU/DSUs, multiplexors, modems, voice/data gateways, ISDN NT1s, firewalls, VPNs, encryption, and compression devices
- Multiservice voice/data networks—Reduces phone/fax costs between offices; using Cisco IOS software QoS features (such as RSVP, WFQ, CAR, and RED), voice/fax traffic is digitized and encapsulated in Frame Relay or IP packets and consolidated with data traffic

- Enterprise/Provider class solution—Meets the requirements of multiservice enterprises and their managed service CPE providers with high reliability features, multiple WAN connections, and the ability to migrate from data- only to TDM voice and data to packetized voice and data infrastructure
- High-density analog/fax network modules provide the ability to directly connect PSTN and legacy telephony equipment to existing Cisco 2600 and 3600 routers
- An EtherSwitch network module for the Cisco 2600/3600 series with 16 ports of 10/100 Ethernet and one optional 1000BaseT (Gigabit Ethernet) connection, providing a fully integrated Layer 2 (L2) switch with the capability to support both Line Power to Cisco IP phones and current Aironet 802.11 wireless base stations (with the addition of an external power supply). This provides a single box solution for branch offices deploying converged IP telephony, extending data, voice and video by delivering IP routing, Ethernet switching, fixed wireless solutions and voice gateway capabilities
- A wide range of Virtual Private Network modules (VPN) optimize the Cisco 2600 Series platforms for virtual private networks (VPNs) and delivers a rich integrated package of routing, firewall, intrusion-detection, and VPN functions
- The introduction of the WIC-ADSL and WIC-1SHDSL, offers business-class broadband service with scalable performance, flexibility, and security for branch and regional offices
- Content Networking Integration and Branch-Office Routing with router-integrated content-delivery system that combines intelligent caching, content routing and management with robust branch-office routing, WAN bandwidth for branch IP services such as voice over IP (VoIP)

Competitive Products

• 3Com: SuperStack II NETBuilder SI and Pathbuilder S400	• Nortel/Bay: Advanced Remote Node (ARN), Passport 4400 series
• Intel/Shiva: LanRover Family	• FutureWei/Quidway®: R2630/31E
• Motorola: Vanguard 645x/643x	• Tasman: 2004, 1400

Specifications

Feature	2610/11XM	2620/21XM	2650/51XM	2691
Performance	Up to 20Kpps	Up to 30Kpps	Up to 40Kpps	Up to 70Kpps
Flash Memory (Default/Max)	16MB/48MB	16MB/48MB	16MB/48MB	32MB/128MB (Compact Flash)
System Memory (Default/Max)	32MB/128MB	32MB/128MB	64MB/128MB	64MB/256MB
Integrated WIC Slots	2	2	2	3
Onboard AIM Slot	1	1	1	2
Minimum Cisco IOS Release	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.2(8)T1 or later
Onboard LAN Ports	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	2 10/100 FE ports
Rack Mounting	Yes, 19″ and 23″ options	Yes, 19″ and 23″ options	Yes, 19″ and 23″ options	Yes, 19″ and 23″ options
Wall Mounting	Yes	Yes	Yes	No

Cisco IOS Software and Memory Requirements[1]

Most Cisco IOS software CD feature packs for the Cisco 2600 series include several selected Cisco IOS releases. To run the latest Cisco IOS Software Feature Packs with version 12.0(7)XK, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more than the recommended minimum.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
Cisco 2612				
CD26-C-12.0.7=	IP only	12.0(7)XK1	8 MB	24 MB
CD26-CP-12.0.7=	IP Plus	12.0(7)XK1	8 MB	40 MB
CD26-CH-12.0.7=	IP/Firewall	12.0(7)XK1	8 MB	32 MB
CD26-CHL-12.0.7=	IP/Firewall Plus IPSec 56	12.0(7)XK1	16 MB	48 MB
CD26-CHK2-12.0.7=	IP/Firewall Plus IPSec 3DES	12.0(7)XK1	16 MB	48 MB
CD26-CK2-12.0.7=	IP Plus IPSec 3DES	12.0(7)XK1	16 MB	40 MB
CD26-CL-12.0.7=	IP Plus IPSec 56	12.0(7)XK1	16 MB	40 MB
CD26-B-12.0.7=	IP/IPX/AT/DEC	12.0(7)XK1	8 MB	32 MB
CD26-BP-12.0.7=	IP/IPX/AT/DEC Plus	12.0(7)XK1	16 MB	40 MB
CD26-BHP-12.0.7=	IP/IPX/AT/DEC/Firewall Plus	12.0(7)XK1	16 MB	48 MB
CD26-AP-12.0.7=	Enterprise Plus	12.0(7)XK1	16 MB	48 MB
CD26-AL-12.0.7=	Enterprise Plus IPSec 56	12.0(7)XK1	16 MB	48 MB
CD26-AHK2-12.0.7=	Enterprise/Firewall Plus IPSec 3DES	12.0(7)XK1	16 MB	48 MB
CD26-AHL-12.0.7=	Enterprise/Firewall Plus IPSec 56	12.0(7)XK1	16 MB	48 MB
CD26-AK2-12.0.7=	Enterprise Plus IPSec 3DES	12.0(7)XK1	16 MB	48 MB
CD26-E-12.0.7=	Remote Access Server	12.0(7)XK1	8 MB	24 MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the **Feature Navigator** at http://www.cisco.com/go/fn

Selected Part Numbers and Ordering Information[1]

Cisco 2600/2600XM Series Router Chassis
CISCO2610XM	10/100 Ethernet Router w/ Cisco IOS IP
CISCO2610XM-DC	10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2610XM-RPS	10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2611XM	Dual 10/100 Ethernet Router w/ Cisco IOS IP
CISCO2611XM-DC	Dual 10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2611XM-RPS	Dual 10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2620XM	Mid Performance 10/100 Ethernet Router with Cisco IOS IP
CISCO2620XM-DC	Mid Performance 10/100 Ethernet Router w/Cisco IOS IP-DC
CISCO2620XM-RPS	Mid Performance 10/100 Ethernet Rout w/Cisco IOS IP-RPS ADPT
CISCO2621XM	Mid Performance Dual 10/100 Ethernet Router w/Cisco IOS IP
CISCO2621XM-DC	Mid Performance Dual 10/100 Ethernet Rout w/Cisco IOS IP-DC
CISCO2621XM-RPS	Mid Performance Dual 10/100 Ethernet Rout w/IOS IP-RPS ADPT
CISCO2650XM	High Performance 10/100 Modular Router w/Cisco IOS IP
CISCO2650XM-DC	High Performance 10/100 Modular Rout w/Cisco IOS IP-DC NEBs
CISCO2650XM-RPS	High Performance 10/100 Modular Rout w/Cisco IOS IP-RPS ADPT
CISCO2651XM	High Performance Dual 10/100 Modular Rout with Cisco IOS IP
CISCO2651XM-DC	High Performance Dual 10/100 Modular Rout w/IP-DC NEB
CISCO2651XM-RPS	High Performance Dual 10/100 Mod Rout w/IP-RPS ADPT
CISCO2691	High Performance 10/100 Dual Eth Router w/3 WIC Slots,1 NM
CISCO2612	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, IP s/w
CISCO2612-DC	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, DC Power Supply, IP s/w
CISCO2612-RPS	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, RPS adapter, IP s/w
Cisco 2600 Series Voice Gateway Bundles	
CISCO2651XM-V	CISCO2651XM, AIM-VOICE-30, IOS IP Plus, 96D/32F
CISCO2651XM-V-SRST	CISCO2651XM, FL-SRST-MEDIUM, AIM-VOICE-30, IOS IP Plus, 96D/32F

Cisco 2600 Series VPN Bundles

CVPN2600FIPS/KIT=	KIT (Instructions, labels) to configured 2600 for FIPS
C2651XM-2FE/VPN/K9	2651XM/VPN Bundle, AIM-VPN/EP/2FE/IOS FW/IPSec 3 DES, 96DRAM
C2621XM-2FE/VPN/K9	2621XM/VPN Bundle, AIM-VPN/EP/2FE/IOS FW/IPSec 3 DES, 96DRAM
C2611XM-2FE/VPN/K9	2611XM/VPN Bundle, AIM-VPN/EP/2FE/IOS FW/IPSec 3 DES, 96DRAM
C2691-VPN/K9	2691 VPN Bundle,AIM-VPN/EPII, Plus IOS/FW/IPSEC3DES

Cisco 2600 Series DSL Bundles

CISCO2651XM-ADSL	2651XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/96DRAM
CISCO2621XM-ADSL	2621XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/96DRAM
CISCO2611XM-ADSL	2611XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/96DRAM
CISCO2651XM-SHDSL	2651XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/96DRAM
CISCO2621XM-SHDSL	2621XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/96DRAM
CISCO2611XM-SHDSL	2611XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/96DRAM

Cisco 2600/2600XM Series LAN Modules

NM-1E=	1-port 10BASE-T network module
NM-4E=	4-port 10BASE-T network module

Cisco 2600/2600XM and 3600 Series WAN Interface Cards (WICs)

WIC-1B-S/T=	1-port BRI (S/T) WAN Interface Card (Dial and Leased Line)
WIC-1B-U-V2	1-port BRI (U) w/NT-1 WAN Interface Card (Dial and Leased Line)
WIC-1DSU-56K4=	1-port Serial W/ 4-Wire 56/64Kbps DSU/CSU WAN Interface Card
WIC-1DSU-T1=	1-port Serial w/ FrT1/T1 DSU/CSU WAN Interface Card
WIC-1T=	1-port Serial WAN Interface Card
WIC-2T=	2-port Serial WAN Interface Card
WIC-2A/S=	2-port Async/Sync Serial WAN Interface Card
WIC-1ADSL=	1-port ADSL WAN Interface Card
WIC-1SHDSL=	1-port G.SHDSL WAN Interface Card
WIC-1AM=	1-port Analog Modem WAN Interface Card
WIC-2AM=	2-port Analog Modem WAN Interface Card

Cisco 2600/2600XM and 3600 Series Multiflex Voice and WAN Interface Cards[2]

VWIC-1MFT-T1=	1-port RJ-48 Multiflex TrunkT1
VWIC-2MFT-T1=	2-port RJ-48 Multiflex Trunk—T1
VWIC-2MFT-T1-DI=	2-port RJ-48 Multiflex Trunk—T1 With Drop and Insert
VWIC-1MFT-E1=	1-port RJ-48 Multiflex Trunk—E1
VWIC-1MFT-G703=	1-port RJ-48 Multiflex Trunk-G.703
VWIC-2MFT-E1=	2-port RJ-48 Multiflex Trunk—E1
VWIC-2MFT-G703=	2-port RJ-48 Multiflex Trunk-G.703
VWIC-2MFT-E1-DI=	2-port RJ-48 Multiflex Trunk—E1 With Drop and Insert

Cisco 2600/2600XM and 3600 Series Voice/Fax Network Modules and Expansion Modules

NM-1V=	1-slot voice/fax network module
NM-2V=	2-slot voice/fax network module
NM-HDV-1T1-24=	1-port T1 24 channel voice/fax network module
NM-HDV-1T1-24E=	1-port T1 24 enhanced channel voice/fax network module
NM-HDV-2T1-48=	2-port T1 48 channel voice/fax network module
NM-CE-BP-20G-K9=	Content Engine NM-Basic Perf-20GB
NM-CE-BP-40G-K9=	Content Engine NM-Basic Perf-40GB
NM-CE-BP-SCSI-K9=	Content Engine NM-Basic Perf-SCSI Adapter
NM-HDV-1E1-30=	1-port E1 30 channel voice/fax network module
NM-HDV-1E1-30E=	1-port E1 30 enhanced channel voice/fax network module
NM-HDV-2E1-60=	2-port E1 60 channel voice/fax network module
NM-HDV=	High density voice network module, spare (no T1/E1 or DSPs)
NM-HDA-4FXS=	High density analog voice/fax network module with 4 FXS
EM-HDA-8FXS=	8-port FXS voice/fax expansion module
EM-HDA-4FXO=	4-port FXO voice/fax expansion module
DSP-HDA-16	16-channel DSP module for NM-HDA

Cisco 2600/2600XM and 3600 Series ATM Modules

NM-4T1-IMA=	4-port T1 ATM network module with IMA
NM-4E1-IMA=	4-port E1 ATM network module with IMA
NM-8T1-IMA=	8-port T1 ATM network module with IMA
NM-8E1-IMA=	8-port E1 ATM network module with IMA

Cisco 2600/2600XM and 3600 Series EtherSwitch Modules

NM-16ESW=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch
NM-16ESW-PWR=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch with power daughter card

Cisco 2600/2600XM and 3600 Series High-Density Voice/Fax DSP Upgrade Modules

PVDM-12=	12-channel Packet Voice/Fax DSP Module

Cisco 2600/2600XM and 3600 Series Voice Interface Cards (VICs)

VIC-2E/M=	2-port E&M Voice Interface Card
VIC-2FXO=	2-port FXO Voice Interface Card
VIC-2FXS=	2-port FXS Voice Interface Card
VIC-2DID=	2-port DID Voice/Fax Interface Card
VIC-2FX0-EU=	2-port FXO Voice Interface Card (for Europe)
VIC-2FXO-M3=	2-port FXO Voice Interface Card (for Australia)
VIC-2BRI-S/T-TE=	2-port BRI (S/T user side) Voice Interface Card
VIC-2FXO-M1=	2-port Voice Interface Card—FXO w/ Reversal (for US+)
VIC-2FXO-M2=	2-port Voice Interface Card—FXO w/ Reversal (for EU)

Cisco 2600/2600XM and 3600 Series WAN Network Modules

NM-4B-S/T=	4-port BRI (S/T) network module
NM-8B-S/T=	8-port BRI (S/T) network module
NM-4B-U=	4-port BRI (U) w/ NT1 network module
NM-8B-U=	8-port BRI (U) w/ NT1 network module
NM-4A/S=	4-port Async/Sync Serial network module
NM-8A/S=	8-port Async/Sync Serial network module
NM-16A=	16-port Async Serial network module
NM-32A=	32-port Async Serial network module
NM-1CT1=	1-port Channelized T1/ISDN-PRI network module
NM-2CT1=	2-port Channelized T1/ISDN-PRI network module
NM-1CT1-CSU=	1-port Channelized T1/ISDN-PRI w/ CSU network module
NM-2CT1-CSU=	2-port Channelized T1/ISDN-PRI w/ CSU network module
NM-1ATM-25=	1-port ATM 25 network module

Cisco 2600/2600XM and 3600 Series Modem Network Modules

NM-8AM=	8-port Analog Modem network module
NM-16AM=	16-port Analog Modem network module

Cisco 2600/2600XM and 3600 Series Network Modules (International)

NM-1CE1B=	1-port Channelized E1/ISDN-PRI balanced network module
NM-1CE1U=	1-port Channelized E1/ISDN-PRI unbalanced network module
NM-2CE1B=	2-port Channelized E1/ISDN-PRI balanced network module
NM-2CE1U=	2-port Channelized E1/ISDN-PRI unbalanced network module

Cisco 2600/2600XM and 3600 Series Modem Management Technology Licenses (MMTL)[3]

MMTL-3600/2600-8=	MMTL for 8 Analog Modems
MMTL-3600/2600-16=	MMTL for 16 Analog Modems

Cisco 2600/2600XM Series Advanced Integration Modules

AIM-COMPR2=	Data Compression AIM for the Cisco 2600/2600XM series
AIM-COMPR4=	Data Compression AIM for the Cisco 2691/3660/3700 series
AIM-VPN/BP=	DES/3DES VPN Encryption AIM for 2600-Base Performance
AIM-ATM=	ATM SAR Only AIM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM
AIM-VPN/-EP=	DES/3DES VPN Encryption Module for 2600-Enhanced Performance
AIM-VPN/-EPII=	DES/3DES/AES VPN Encryption Module for 2691/3725
AIM-ATM-VOICE-30=	30-Channel T1/E1 Digital Voice Module
AIM-VOICE-30=	SAR and 30-Channel T1/E1 Digital Voice Module

Cisco 260/2600XM0 Series Factory Memory Options

Product Number	Product Description
MEM2691-32CF-EXT	32MB External Compact Flash Memory for the 2691
MEM2691-64CF-EXT	64MB External Cisco Flash Memory for the 2691
MEM2691-128CF-EXT	128MB External Cisco Flash Memory for 2691

Cisco 2600/2600XM Series Factory DRAM Memory Upgrades

MEM2600-32U40D	32- to 40-MB DRAM Factory Upgrade for the Cisco 2600 Series
MEM2600-32U48D	32- to 48-MB DRAM Factory Upgrade for the Cisco 2600 Series
MEM2600-32U64D	32- to 64-MB DRAM Factory Upgrade for the Cisco 2600 Series
MEM2650-32U40D	32 TO 40MB DRAM Factory Upgrade for the Cisco 265x only
MEM2650-32U48D	32 TO 48MB DRAM Factory Upgrade for the Cisco 265x only
MEM2650-32U64D	32 TO 64MB DRAM Factory Upgrade for the Cisco 265x only
MEM2650-32U96D	32 TO 96MB DRAM Factory Upgrade for the Cisco 265x only
MEM2650-32U128D	32 TO 128MB DRAM Factory Upgrade for the Cisco 265x only
MEM2600XM-32U128D	32 to 128MB DRAM factory upgrade for Cisco 261x/2xXM
MEM2600XM-32U64D	32 to 64MB DRAM factory upgrade for Cisco 261x/2xXM
MEM2600XM-32U96D	32 to 96MB DRAM factory upgrade for Cisco 261x/2xXM
MEM2600XM-64U128D	64 to 128MB DRAM factory upgrade - 265xXM/XM VPN Bundles
MEM2600XM-64U96D	64 to 96MB DRAM factory upgrade - 265xXM/XM VPN Bundles
MEM2691-64U128D	64 to 128MB DIMM DRAM factory upgrade for the Cisco 2691
MEM2691-64U192D	64 to 192MB DIMM DRAM factory upgrade for the Cisco 2691

MEM2691-64U256D   64 to 256MB DIMM DRAM factory upgrade for the Cisco 2691

Cisco 2600/2600XM Series Factory Flash Memory Upgrades

MEM2600-8U16FS   8 to 16 MB Flash Factory Upgrade for the Cisco 2600 Series
MEM2620-8U32FS   8 TO 32MB Flash SIMM Upgrade for the Cisco262x only
MEM2650-8U32FS   8 TO 32MB Flash SIMM Upgrade for the Cisco265x only
MEM2600XM-16U32FS   16 to 32 MB Flash Factory Upgrade for the Cisco 2600XM
MEM2600XM-16U48FS   16 to 48MB Flash Factory Upgrade for the Cisco 2600XM
MEM2691-32U128CF   32 to 128MB Cisco 2691 Compact Flash factory upgrade
MEM2691-32U64CF   32 to 64MB Cisco 2691 Compact Flash factory
MEM-CE-256U512D   256MB DRAM Factory Upgrade for NM-CE-BP

Cisco 2600/2600XM Series Memory Spares

MEM2600-8D=   8 MB DRAM DIMM for the Cisco 2600 Series
MEM2600-16D=   16 MB DRAM DIMM for the Cisco 2600 Series
MEM2600-32D=   32 MB DRAM DIMM for the Cisco 2600 Series
MEM2600-4FS=   4 MB Flash SIMM for the Cisco 2600 Series
MEM2600-8FS=   8 MB Flash SIMM for the Cisco 2600 Series
MEM2600-16FS=   16 MB Flash SIMM for the Cisco 2600 Series
MEM2620-32FSBOOT=   32MB FLASH SIMM and BOOTROM for 262x Only
MEM2650-32FS=   32MB Flash SIMM for the Cisco 265x only
MEM2650-8D=   8MB DRAM DIMM for the Cisco 265x only
MEM2650-16D=   16MB DRAM DIMM for the Cisco 265x only
MEM2650-32D=   32MB DRAM DIMM for the Cisco 265x only
MEM2650-64D=   64MB DRAM DIMM for the Cisco 265x only
MEM2600XM-16FS=   16MB Flash SIMM for the Cisco 2600XM
MEM2600XM-32D=   32MB DIMM DRAM for the Cisco 2600XM
MEM2600XM-32FS=   32MB Flash SIMM for the Cisco 2600XM
MEM2600XM-64D=   64MB DIMM DRAM for the Cisco 2600XM
MEM2691-128CF=   128MB Cisco 2691 Compact Flash Memory
MEM2691-128D=   128MB DIMM DRAM for the Cisco 2691
MEM2691-32CF=   32MB Cisco 2691 Compact Flash Memory
MEM2691-64CF=   64MB Cisco 2691 Compact Flash Memory
MEM2691-64D=   64MB DIMM DRAM for the Cisco 2691
MEM-CE-256D=   256MB DRAM Field Upgrade for NM-CE-BP

Cisco 2600/2600XM Series Spares - Power Supplies and Other

PWR-2600-AC=   Cisco 2600/2600XM AC power supply spare
PWR-2600-DC=   Cisco 2600/2600XM DC power supply spare
PWR-2650-AC=   Cisco265x AC power supply spare
ACS-2600RPS=   RPS Field Upgrade for the Cisco 2600 Series
ACS-2600RM-19=   19 Inch Rack Mount Kit for the Cisco 2600 series
ACS-2600RM-24=   24 Inch/23 Inch Rack Mount Kit for the Cisco 2600 Series
ACS-2600ASYN=   Auxiliary and Console Port Cable Kit for Cisco 2600 Series
ACS-2600NEBS/ETSI=   NEBS/ETSI Telco Accessory Kit for Cisco 2600
CAB-RPS-2218   RPS 22/18 Load Cable
CAB-RPS-2218=   RPS 22/18 Load Cable
CAB-RPSY-2218   RPS 22/18 Two-to-one DC Power Cable
CAB-RPSY-2218=   RPS 22/18 Two-to-one DC Power Cable
PWR600-AC-RPS-CAB   600W Redundant AC Power System With DC Power Cables
PWR600-AC-RPS-NCAB   600W Redundant AC Power System W/O DC Power Cables
BOOT-2600=   Boot ROM for Cisco 2600 Series

Cisco 2600/2600XM Series SMARTnet Maintenance

CON-SNT-PKG5   Cisco 2600 Series Packaged SMARTnet 8x5xNBD Maintenance

Cisco 2691 Series Network Modules

NM-1GE=   1 Port GE Network Module
NM-1T3/E3=   One port T3/E3 network module

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have
    restricted access or are not available through distribution channels. Resellers: For latest part number and pricing
    info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).
2. VoIP and VoFR require use of a Voice/Fax network module
3. Requires Plus feature pack

For More Information

See the Cisco 2600 Series Web site: *http://www.cisco.com/go/2600*

Cisco 3600 Series

The Cisco 3600 Series is a family of modular, high-performance multiservice access routers for medium and large-sized branch offices and Internet service providers. With over 100 modular interface options (shares modular interfaces with the 2600/2600XM series), the Cisco 3600 Series provides solutions for voice/data integration, virtual private networks (VPNs), dial access, and multiprotocol data routing. Using Cisco's digital and analog voice/fax network modules, the Cisco 3600 Series allows customers to consolidate voice, fax, and data traffic on a single network. Its architecture protects customers' investment in network technology and integrates the functions of several devices into a single, manageable solution. Cisco 3600 VPN and Dial Bundles are also available to also address specific VPN/security, and dial-up remote access server requirements. Customers are encouraged to migrate to the Cisco 3700 Series.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 3620	• Medium-density WAN and dialup connectivity • Medium-density LAN connectivity • Low-density Voice over Data • Low-density ATM connections • Mid-density modem-over-PRI bundles
Cisco 3640A	• High-density WAN and dialup connectivity • Medium- to high-density LAN connectivity • Mid-density Voice over Data • Low- to mid-density ATM connections • Low-density modem-over-BRI bundles • Configurations not available on the Cisco 3700
Cisco 3660	• Very high-density WAN and dialup connectivity • High-density LAN connectivity • Mid-density Voice over Data • Mid-density ATM connections • Mid- to high-density modem-over-PRI and BRI connectivity

Key Features

- Combines dial access, advanced LAN-to-LAN routing services, ATM connectivity, and multiservice integration of voice, video, and data in a single platform
- Modular, scalable design provides performance, scalability, flexibility, and investment protection
- High-density ISDN PRI capabilities
- Preconfigured BRI and PRI modem bundles available
- Support for modem-over-BRI functionality
- Integrated Cisco IOS software (base price includes IP IOS software)
- Full VPN and Firewall support
- ADSL and G.SHDSL support
- ISDN Modem backup

Specifications

Feature	Cisco 3620		Cisco 3640	Cisco 3660
Fixed Ports	None		None	1 or 2 10/100 Fast Ethernet
Network Module Slots	2		4	6
Advanced Integration Module (AIM) Slots	None		None	2
LAN/Combo Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
WAN Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620 (Hardware compression support only through AIM-COMPR4)
ATM Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
Voice/Fax Network Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
WAN Interface Card (WIC) Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
Multiflex Voice/WAN Interface Cards	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
Voice Interface Card (VIC) Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
Modem Modules	See Part Numbers and Ordering Information		Same as Cisco 3620	Same as Cisco 3620
Performance	40 kpps		50-70 kpps	100-120 kpps
Flash Memory	8 MB (default); 32 MB (max)		Same as Cisco 3620	8 MB (default); 64 MB (max)
DRAM Memory	32 MB (default) 64 MB (max)		32 MB (default) 128 MB (max)	32 MB SDRAM (default) 256 MB SDRAM (max)
Power Supply	AC, DC optional		AC, DC optional	Single or dual AC/DC
Dimensions (HxWxD)	1.75 x 17.5 x 13.5 in.		3.44 x 17.5 x 15 in.	8.7 x 17.5 x 11.8 in.

Cisco IOS Software and Memory Requirements[1]

To run the Cisco IOS Feature Packs, you need the following amount of memory:

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required[2]	DRAM Memory Required
Cisco 3620 and 3640				
CD36-C-12.0.7=	IP only	12.0(7)XK	8 MB	32 MB
CD36-CP-12.0.7=	IP Plus	12.0(7)XK	16 MB	48 MB
CD36-CH-12.0.7=	IP/FW	12.0(7)XK	8 MB	32 MB
CD36-CHL-12.0.7=	IP/FW Plus IPSec 56	12.0(7)XK	16 MB	64 MB
CD36-CHK2-12.0.7=	IP/FW Plus IPSec 3DES	12.0(7)XK	16 MB	64 MB
CD36-CK2-12.0.7=	IP/ Plus IPSec 3DES	12.0(7)XK	16 MB	48 MB
CD36-CL-12.0.7=	IP Plus IPSec 56	12.0(7)XK	16 MB	48 MB
CD36-B-12.0.7=	IP/IPX/AppleTalk/DECnet	12.0(7)XK	8 MB	32 MB
CD36-BP-12.0.7=	IP/IPX/AppleTalk/DECnet Plus	12.0(7)XK	16 MB	48 MB
CD36-BHP-12.0.7=	IP/IPX/AT/DEC/FW Plus	12.0(7)XK	16 MB	64 MB
CD36-AP-12.0.7=	Enterprise Plus	12.0(7)XK	16 MB	64 MB
CD36-AL-12.0.7=	Enterprise Plus IPSec 56	12.0(7)XK	16 MB	64 MB
CD36-AHK2-12.0.7=	Enterprise/FW Plus IPSec 3DES	12.0(7)XK	16 MB	64 MB
CD36-AHL-12.0.7=	Enterprise/FW Plus IPSec 56	12.0(7)XK	16 MB	64 MB
Cisco 3660				
CD36-C-12.0.7=	IP only	12.0(7)XK	8 MB	32 MB SDRAM
CD36-CP-12.0.7=	IP Plus	12.0(7)XK	16 MB	64 MB SDRAM
CD36-CH-12.0.7=	IP/FW	12.0(7)XK	8 MB	64 MB SDRAM
CD36-CHL-12.0.7=	IP/FW Plus IPSec 56	12.0(7)XK	16 MB	64 MB SDRAM
CD36-CHK2-12.0.7=	IP/FW Plus IPSec 3DES	12.0(7)XK	16 MB	64 MB SDRAM
CD36-CK2-12.0.7=	IP/ Plus IPSec 3DES	12.0(7)XK	16 MB	64 MB SDRAM
CD36-CL-12.0.7=	IP Plus IPSec 56	12.0(7)XK	16 MB	64 MB SDRAM
CD36-B-12.0.7=	IP/IPX/AppleTalk/DECnet	12.0(7)XK	8 MB	64 MB SDRAM
CD36-BP-12.0.7=	IP/IPX/AppleTalk/DECnet Plus	12.0(7)XK	16 MB	64 MB SDRAM

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required[2]	DRAM Memory Required
CD36-BHP-12.0.7=	IP/IPX/AT/DEC/FW Plus	12.0(7)XK	16 MB	64 MB SDRAM
CD36-AP-12.0.7=	Enterprise Plus	12.0(7)XK	16 MB	64 MB SDRAM
CD36-AL-12.0.7=	Enterprise Plus IPSec 56	12.0(7)XK	16 MB	64 MB SDRAM
CD36-AHK2-12.0.7=	Enterprise/FW Plus IPSec 3DES	12.0(7)XK	16 MB	64 MB SDRAM
CD36-AHL-12.0.7=	Enterprise/FW Plus IPSec 56	12.0(7)XK	16 MB	64 MB SDRAM

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information". For users with CCO access, search by IOS feature or release via the **Feature Navigator** at http://www.cisco.com/go/fn
2. Bold numbers indicate that more memory than the default amount is needed to run the Feature Pack.

Selected Part Numbers and Ordering Information[1]

Cisco 3600 Series Router Chassis
CISCO3620	2-slot Modular Router-AC Power Supply, IP s/w
CISCO3620-DC	2-slot Modular Router-DC Power Supply, IP s/w
CISCO3620-RPS	2-slot Modular Router, w/ RPS, IP s/w
CISCO3640	4-slot Modular Router-AC Power Supply, IP s/w
CISCO3640-DC	4-slot Modular Router-DC Power Supply, IP s/w
CISCO3640-RPS	4-slot Modular Router, w/ RPS, IP s/w
CISCO3661-DC	10/100 E Cisco 3660 6-slot Modular Router-DC with IP SW
CISCO3661-AC	10/100 E Cisco 3660 6-slot Modular Router-AC with IP SW
CISCO3662-DC	Dual 10/100 E Cisco 3660 6-slot Modular Router-DC with IP SW
CISCO3662-AC	Dual 10/100 E Cisco 3660 6-slot Modular Router-AC with IP SW

Cisco 3600 Series Bundles
3640MBUNDLE-4B-S/T	3640 BRI Dial bundle. Includes 1E2W,12DM, 4 BRI-S/T, IP IOS
3640MBUNDLE-4B-U	3640 BRI Dial bundle. Includes 1E2W,12DM, 4 BRI-U, IP IOS
3640MBUNDLE-8B-S/T	3640 BRI Dial bundle. Includes 1E2W,18DM, 8 BRI-S/T, IP IOS
3640MBUNDLE-8B-U	3640 BRI Dial bundle. Includes 1E2W,18DM, 8 BRI-U, IP IOS
3620MBUNDLE-24DM	3620 PRI Dial bundle. Includes 1FE2CT1-CSU, 24DM, IP IOS
AS3640-T1-48DM	3600 Access Concentrator, 48 MICA Modems, 2 PRI/T1, Ethernet, IP IOS
AS3640-E1-60DM	3600 Access Concentrator, 60 MICA Modems, Ethernet, IP IOS, no PRI

Cisco 2600/2600XM and 3600 Series ATM Modules[2]
Cisco 2600/2600XM and 3600 Series WAN Interface Cards (WICs)[2]
Cisco 2600/2600XM and 3600 Series Multiflex Voice/WAN Interface Cards[2]
Cisco 2600/2600XM and 3600 Series Voice/Fax Network Modules[2]
Cisco 2600/2600XM and 3600 Series High-Density Voice/Fax DSP Upgrade Modules[2]
Cisco 2600/2600XM and 3600 Series Network Modules (International)[2]
Cisco 3600 Series LAN/Combo Network Modules
NM-1E=	1-port 10BASE-T Network Module
NM-4E=	4-port 10BASE-T Network Module
NM-1FE-TX=	1-port 100BASE-TX Network Module
NM-1FE-FX=	1-port 100BASE-FX Network Module
NM-1E2W=	1-port 10BASE-T, 2 WIC Slots Network Module
NM-2E2W=	2-port 10BASE-T, 2 WIC Slots Network Module
NM-1E1R2W=	1-port 10BASE-T, 1-port Token Ring, 2 WIC Slots Network Module
NM-1FE1CT1=	1-port 100BASE-TX, 1-port Channelized T1/ISDN-PRI Network Module
NM-1FE1CT1-CSU=	1-port 100BASE-TX, 1-port Channelized T1/ISDN-PRI with CSU Network Module
NM-1FE1CE1B=	1-port 100BASE-TX, 1-port Channelized E1/ISDN-PRI (Balanced) Network Module
NM-1FE1CE1U=	1-port 100BASE-TX, 1-port Channelized E1/ISDN-PRI (Unbalanced) Network Module
NM-1FE2CT1=	1-port 100BASE-TX, 2-port Channelized T1/ISDN-PRI Network Module
NM-1FE2CT1-CSU=	1-port 100BASE-TX, 2-port Channelized T1/ISDN-PRI with CSU Network Module
NM-1FE2CE1B=	1-port 100BASE-TX, 2-port Channelized E1/ISDN-PRI (Balanced) Network Module
NM-1FE2CE1U=	1-port 100BASE-TX, 2-port Channelized E1/ISDN-PRI (Unbalanced) Network Module
NM-1FE2W=	1-port 10/100 Ethernet, 2 WIC Slots Network Module
NM-2FE2W=	2-port 10/100 Ethernet, 2 WIC Slots Network Module
NM-1FE1R2W=	1-port 10/100 Ethernet, 1-port Token Ring, 2 WIC Slots Network Module
NM-2W=	2 WIC Slots Network Module

Cisco 3600 Series Voice Interface (VIC) Cards
VIC-2E/M=	2-port Voice Interface Card—E&M
VIC-2FXO=	2-port Voice Interface Card—FXO
VIC-2FXS=	2-port Voice Interface Card—FXS
VIC-2BRI-S/T-TE=	2-port Voice Interface Card—BRI (S/T user side)
VIC-2DID=	2-port Voice Interface Card—Direct Inward Dial (DID)
VIC-2FXO-EU=	2-port Voice Interface Card—FXO (for Europe)

Cisco 3600 Series

Cisco 3600 Series WAN Modules

NM-4B-S/T=	4-port BRI (S/T) Module
NM-8B-S/T=	8-port BRI (S/T) Module
NM-4B-U=	4-port BRI (U) w/ NT-1 Module
NM-8B-U=	8-port BRI (U) w/ NT-1 Module
NM-4T=	4-port Serial Module
NM-4A/S=	4-port Async/Sync Serial Module
NM-8A/S=	8-port Async/Sync Serial Module
NM-16A=	16-port Async Module
NM-32A=	32-port Async Module
NM-1CT1=	1-port Channelized T1/ISDN-PRI Module
NM-1CT1-CSU=	1-port Channelized T1/ISDN-PRI w/ CSU Module
NM-2CT1=	2-port Channelized T1/ISDN-PRI Module
NM-2CT1-CSU=	2-port Channelized T1/ISDN-PRI w/ CSU Module
NM-1HSSI=	1-port HSSI Module
NM-COMPR=	Compression Module
NM-VPN/MP=	DES/3DES VPN Encryption NM for the 3620/3640 Mid-Platform

Cisco 3660 AIM Modules

AIM-VPN/HP=	DES/3DES VPN Encryption AIM for 3660 High Performance
AIM-COMPR4=	Data Compression AIM for the 3600 series
AIM-ATM=	ATM SAR Only ATM
AIM-ATM-VOICE-30=	30-Channel T1/E1 Digital Voice Module
AIM-VOICE-30=	SAR and 30-Channel T1/E1 Digital Voice Module

Cisco 3620/40 VPN Module

NM-VPN/MP=	DES/3DES VPN Encryption NM for 3620/3640 Mid Performance

Cisco 3600 Series Modem Modules

NM-6DM=	6-port Digital Modem Module
NM-8AM=	8-port Analog Modem Module
NM-12DM=	12-port Digital Modem Module
NM-16AM=	16-port Analog Modem Module
NM-18DM=	18-port Digital Modem Module
NM-24DM=	24-port Digital Modem Module
NM-30DM=	30-port Digital Modem Module
MICA-6MOD=	6-port Digital Modem Module (Spare)

Cisco 3600 Series Modem Management Technology Licenses[3]

MMTL-3600-6=	Modem Management Technology License (6 modems)
MMTL-3600-12=	Modem Management Technology License (12 modems)
MMTL-3600-18=	Modem Management Technology License (18 modems)
MMTL-3600-24=	Modem Management Technology License (24 modems)
MMTL-3600-30=	Modem Management Technology License (30 modems)
MMTL-3600/2600-8=	Modem Management Technology License (for 8 Analog Modems)
MMTL-3600/2600-16=	Modem Management Technology License (for 16 Analog Modems)

Cisco 3600 Series Memory Options

MEM3600-8FC=	Cisco 3600 Series 8 MB Flash PCMCIA Card
MEM3600-16FC=	Cisco 3600 Series 16MB Flash Card
MEM3600-8FS=	Cisco 3600 Series 8 MB Flash
MEM3600-16FS=	Cisco 3600 Series 16 MB Flash
MEM3600-2X8FS=	Cisco 3600, 16 MB Flash (2x8 MB Flash SIMMs)
MEM3600-2X16FS=	Cisco 3600, 32 MB Flash (2x16 MB Flash SIMMs)
MEM3620-8D=	Cisco 3620, 8 MB DRAM SIMM
MEM3620-16D=	Cisco 3620, 16 MB DRAM SIMM
MEM3640-2X8D=	Cisco 3640, 16 MB DRAM (2x8 MB DRAM SIMMs)
MEM3640-2X16D=	Cisco 3640, 32 MB DRAM (2x16 MB DRAM SIMMs)
MEM3640-2X32D=	Cisco 3640, 64 MB DRAM (2x32MB DRAM SIMMs)
MEM3640-4X32D=	Cisco 3640, 128 MB DRAM (4x32MB DRAM SIMMs)
MEM3660-32D=	Cisco 3660, 32 MB SDRAM Field Upgrade
MEM3660-128D=	Cisco 3660, 128 MB SDRAM Field Upgrade
MEM3660-2X64D=	Cisco 3660, 128 MB SDRAM (2x64 MB Flash DIMMs)
MEM3660-2X128D=	Cisco 3660, 256 MB Flash (2x128 MB Flash DIMMs)
BOOT-3600=	Boot ROM Upgrade for Cisco 3600

Cisco 3600 Series Accessories

ACS-3620RM-19=	Cisco 3620—19-Inch Rack Mount Kit
ACS-3620RM-24=	Cisco 3620—24-Inch Rack Mount Kit
PWR-3620-AC	Cisco 3620—AC Power Supply
PWR-3620-DC	Cisco 3620—DC Power Supply
ACS-3620RPS=	Cisco 3620—RPS Field Upgrade
ACS-3640RM-19=	Cisco 3640—19-Inch Rack Mount Kit
ACS-3640RM-24=	Cisco 3640—24-Inch Rack Mount Kit
PWR-3640-AC	Cisco 3640—AC Power Supply
PWR-3640-DC	Cisco 3640—DC Power Supply
ACS-3640RPS=	Cisco 3640—RPS Field Upgrade
NM-BLANK-PANEL=	Blank Network Module Panel
WIC-BLANK-PANEL=	Blank WAN Interface Card Panel
ACS-3660RM-23	23 inch Rack Mount Kit for the Cisco 3660
PWR-3660-AC	AC Power Supply for Cisco 3660
PWR-3660-DC	DC Power Supply for Cisco 3660

Cisco 3600 Series Basic Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-PKG7	Cisco 3620 Packaged SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG10	Cisco 3640 Packaged SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG13	Cisco 3661 and Cisco 3662 Packaged SMARTnet Maintenance 8x5xNBD

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).
2. The ATM Modules, WAN Interface Card (WIC) Modules, Multiflex Voice/WAN Interface Cards, Voice/Fax Network Modules, High-Density Voice/Fax DSP Upgrade Modules, and Network Modules (International) for the 3600 series are the same as those for the 2600 series. Please see page 1-24 for part numbers.
3. Requires Plus feature pack.

For More Information

See the Cisco 3600 Series Web site: *http://www.cisco.com/go/3600*

Cisco 3700 Series

The Cisco 3700 Series is a new line of modular routers that enable flexible and scalable deployment of new applications in an integrated branch office access platform. The Cisco 3700 Series is ideal for sites and solutions requiring the highest levels of integration at the branch for branch office IP Telephony, voice gateway, and integrated flexible routing with low-density switching solutions.Integrated security, intrusion detection, and VPN protect the network at the perimeters, while integrated caching conserves WAN bandwidth. The Cisco 3700 Series provides a consolidated service infrastructure and high service density in a compact form factor that enables the incremental incorporation of branch applications.
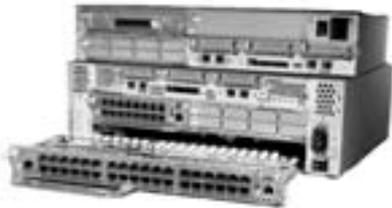
When to Sell

Sell This Product	*When a Customer Needs These Features*

Cisco 3725	• New levels of branch office service density in a compact form factor (2RU)
	• Integrated Security, intrusion detection, and VPN
	• Integrated flexible routing and low-density switching (16-or-36 ports)
	• Flexible incremental and scalable migration to a voice/data converged branch office network
	  – Compatibility with more than 90% of the world's legacy analog and digital TDM PBXs
	  – Survivable Remote Site Telephony (SRST) features that enable centralized call processing with local branch IP Telephony redundancy
	  – Inline power for IP Telephony
	• Content Networking and Caching integrated for WAN bandwidth conservation

Cisco 3745	Same features as above plus: • New levels of branch office service density in a compact form factor (3RU) • Availability features such as redundant power, online insertion and removable components, and field replaceable components • Increased performance and density

Key Features

- Optimized for multiple high density services
- Versatile High Density Service Module (HDSM) design enhances integrated services options
- Integrated connectivity options free up network module slots
- Optional features enhance availability/resiliency (3745 only): internal redundant power, hot-swappable modules, and field-serviceable components
- Optimized for Integrated IP Telephony: IP phone powered switch, high density voice gateway, flexible WAN routing, and Survivable Remote Site Telephony
- Flexible combination of analog and/or digital voice with scalable port density
- Full support for Cisco IOS voice suite of features
- Platforms performance-tuned for scaling packet voice solutions
- New integrated switching modules (16- and 36-port)
- Common user interface with Catalyst series switches
- Simplified management from a single platform for ease of configuration, deployment, and troubleshooting
- Integrated inline power for wireless access points and IP phones
- GigE connectivity

Specifications

Feature	Cisco 3725	Cisco 3745
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	2
WAN Interface Card (WIC) Slots	3	3
10/100 FE Ports	2	2
WAN Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
ATM Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Voice/Fax Network Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
WAN Interface Card (WIC) Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Multiflex Voice/WAN Interface Cards	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Voice Interface Card (VIC) Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Modem Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
EtherSwitch Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Performance	100 kpps	225 kpps
VPN/Security Advanced Integration Modules (AIM)	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Content Network Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Flash Memory	32 MB (default); 128 MB (max)	32 MB (default); 128 MB (max)
Flash Memory (External)	32 MB -128 MB (optional)	32 MB -128 MB (optional)
DRAM Memory	128 MB (default) 256 MB (max)	128 MB (default) 256 MB (max)
Power Supply	AC, DC optional	AC, DC optional
Dimensions (HxWxD)	3.5 x 17.25 x 14.7 in.	5.25 x 17.25 x 15 in.

Selected Part Numbers and Ordering Information[1]

Cisco 3700 SeriesModular Multiservice Access Router
CISCO3725	2-slot Modular Multiservice Router with IP Software
CISCO3745	4-slot Modular Multiservice Router with IP Software

Serial Network Modules
NM-4A/S	4-port async/sync serial network module
NM-8A/S	8-port async/sync serial network module
NM-1HSSI	1-port high speed serial interface module

Asynchronous Network Modules
NM-16A	16 Async Ports network module
NM-32A	32 Async Ports network module

LAN Network Modules and Mixed-Media LAN & WAN Network Modules
NM-2W	2 WAN Card Slot Network Module (no LAN)
NM-1FE2W	1 10/100 Ethernet 2 WAN Card Slot Network Module
NM-1FE1R2W	1 10/100 Ethernet 1 4/16 Token Ring 2 WAN Card Slot NM
NM-2FE2W	2 10/100 Ethernet 2 WAN Card Slot Network Module
NM-1FE-FX	1-port Fast Ethernet network module (10/100Base Fiber only)

Digital Packet Voice and Fax Trunk Network Modules

NM-HDV-1T1-12	High Density Voice Network Module, with 1 VWIC-1MFT-T1 and 1 PVDM-12
NM-HDV-1E1-12	High Density Voice Network Module, with 1 VWIC-1MFT-E1 and 1 PVDM-12
NM-HDV-1E1-30	Single-port, 30-channel E1 voice/fax Network Module (supports 30 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)
NM-HDV-1E1-30E	Single-port, enhanced 30-channel E1 voice/fax Network Module (supports 30 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)
NM-HDV-2E1-60	Dual-port, 60-channel E1 voice/fax Network Module (supports 60 channels) of medium complexity VoCoders: G.729a/b, G.726,G.711and fax or 30channels of G726, G729, G723.1, G.728, G729a/b, G711 and fax) Supports add/drop multiplexing (drop and insert)
NM-HDV-1T1-24	Single-port, 24-channel T1 voice/fax Network Module (supports 24 channels of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)
NM-HDV-1T1-24E	Single-port, enhanced 24-channel T1 voice/fax Network Module (supports 24 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)
NM-HDV-2T1-48	Dual-port, 48-channel T1 voice/fax Network Module (supports 48 channels) of medium complexity VoCoders:G.729a/b,G.726,G.711 and fax or 24 channels of G726, G729, G723.1, G.728, G729a/b, G711 and fax) Supports add/drop multiplexing (drop and insert)
AIM-ATM-VOICE-30	SAR and 30 Channel T1/E1 Digital Voice module
AIM-VOICE-30	30 Channel T1/E1 Digital Voice module

Analog Packet Voice and Fax Trunk Network Modules

NM-1V	1-slot voice and fax network module
NM-2V	2-slot voice and fax network module
NM-HDA	High Density Analog Module

Voice Interface Cards

VIC-2FXS	2-port voice interface card—FXS
VIC-2FXO	2-port voice interface card—FXO
VIC-2FXO-EU	2-port voice interface card—FXO (for Europe)
VIC-2FXO-M1	2-port voice interface card—FXO (with battery reversal, for North America)
VIC-2FXO-M2	2-port voice interface card—FXO (with battery reversal, for Europe)
VIC-2FXO-M3	2-port voice interface card—FXO (for Australia)
VIC-2E/M	2-port voice interface card—E&M
VIC-2DID	2-port voice interface card—DID (Direct Inward Dial)
VIC-2BRI-S/T-TE	2-port voice interface card—BRI (Terminal side)
VIC-2BRI-NT/TE	2-port voice interface card—BRI (Network side)

ATM Network Modules

NM-4T1-IMA	4-port T1 ATM network module with Inverse Multiplexing over ATM (IMA)
NM-4E1-IMA	4-port E1 ATM network module with IMA
NM-8T1-IMA	8-port T1 ATM network module with IMA
NM-8E1-IMA	8-port E1 ATM network module with IMA
NM-1A-T3	1-port DS3 ATM network module
NM-1A-E3	1-port E3 ATM network module
AIM-ATM	ATM cell processing module

Serial WAN Interface Cards

WIC-1DSU-T1	One T1 CSU/DSU - Integrated
WIC-2T	2-port High Speed Serial
WIC-2-A/S	2-port Async/Sync Serial
WIC-1DSU-56K4	1-port, four-wire 56/64-Kbps with CSU/DSU

Digital Voice/WAN Interface Cards

VWIC-1MFT-T1	1-port RJ-48 MultiFlex Trunk—T1
VWIC-2MFT-T1	2-port RJ-48 MultiFlex Trunk—T1
VWIC-2MFT-T1-DI	2-port RJ-48 MultiFlex Trunk—T1 with Drop and Insert
VWIC-1MFT-E1	1-port RJ-48 MultiFlex Trunk—E1
VWIC-2MFT-E1	2-port RJ-48 MultiFlex Trunk—E1
VWIC-2MFT-E1-DI	2-port RJ-48 MultiFlex Trunk—E1 with Drop and Insert Add not for VWICs VIC slots & WIC slots
VWIC-1MFT-G703	1-port RJ-48 MultiFlex Trunk—E1 unstructured
VWIC-2MFT-G703	2-port RJ-48 MultiFlex Trunk—E1 unstructured

ISDN WAN Interface Cards

WIC-1B-S/T	1-port ISDN BRI
WIC-1B-U	1-port ISDN BRI with NT1

ISDN and Channelized Serial Network Modules

NM-1CT1	1-port channelized T1/ISDN PRI network module
NM-1CT1-CSU	1-port channelized T1/ISDN PRI with CSU network module
NM-2CT1	2-port channelized T1/ISDN PRI network module
NM-2CT1-CSU	2-port channelized T1/ISDN PRI with CSU network module
NM-1CE1B	1-port channelized E1/ISDN PRI balanced network module
NM-1CE1U	1-port channelized E1/ISDN PRI unbalanced network module
NM-2CE1B	2-port channelized E1/ISDN PRI balanced network module
NM-2CE1U	2-port channelized E1/ISDN PRI unbalanced network module
NM-4B-S/T	4-port ISDN BRI network module
NM-4B-U	4-port ISDN BRI with NT1 network module
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI with NT1 network module (U interface)

Modem Modules

WIC-1AM	1-port analog modem WAN interface card (WIC)
WIC-2AM	2-port analog modem WAN interface card (WIC)
NM-6DM	6-port digital modem network module
NM-12DM	12-port digital modem network module
NM-18DM	18-port digital modem network module
NM-24DM	24-port digital modem network module
NM-30DM	30-port digital modem network module
NM-8AM	8-port analog modem Network Module
NM-16AM	16-port analog modem Network Module
NM-8AMJ	8-port analog modem Network Module—Japan
NM-16AMJ	16-port analog modem Network Module—Japan

Digital Subscriber Line (DSL)

WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-G.SHDSL	1-port G.shdsl WAN Interface Card

Encryption Advanced Integration Modules

AIM-COMPR4	Data Compression AIM for 3660 Series (4 E1 performance)
AIM-VPN/HP	DES/3DES VPN Encryption AIM for 3660-High Performance
AIM-VPN/EPDES/3DES	VPN Encryption AIM for 2600-Enhanced Performance

Content Engine Network Modules

NM-CE-BP-20G-K9	Content Engine Network Module, Basic Performance, 20GB IDE Hard Disk
NM-CE-BP-40G-K9	Content Engine Network Module, Basic Performance, 40GB IDE Hard Disk
NM-CE-BP-SCSI-K9	Content Engine Network Module, Basic Performance, SCSI Controller

Dry Contact Closure Alarm NM

NM-AIC-64	Alarm Monitoring and Control Network Module

Cisco EtherSwitch Modules

NM-16ESW	One 16-Port 10/100 EtherSwitch Network Module
NM-16ESW-PWR	One 16 port 10/100 EtherSwitch NM with Inline Power support
NM-16ESW-1GIG	One 16 port 10/100 EtherSwitch NM with 1 GE (1000BaseT) port
NM-16ESW-PWR-1GIG	One 16 port 10/100 EtherSwitch NM with Inline Power and GE
PPWR-DCARD-16ESW	One Inline power daughter card for 16 port EtherSwitch NM
NMD-36-ESW	One 36 port 10/100 EtherSwitch High Density Service Module
NMD-36-ESW-PWR	One 36 port 10/100 EtherSwitch HDSM with Inline Power
NMD-36-ESW-2GIG	One 36 port 10/100 EtherSwitch HDSM with two GE (1000BaseT)
NMD-36-ESW-PWR-2G	One 36 port 10/100 EtherSwitch HDSM + Inline Power and two GE
PPWR-DCARD-36ESW	One Inline Power daughter card for 36 port EtherSwitch HDSM
GE-DCARD-ESW	One GE (1000BaseT) daughter card for EtherSwitch Modules
PPWR-PS-360W	One 48V (360W) power supply for EtherSwitch Modules
PPWR-PS-CHASSIS	One power supply chassis for Cisco 48V (360W) power supply
PWR-CHASSIS-360W	One power supply chassis and 48V power supply for EtherSwitch
CAB-PPWR-PS1-1	Connects one EtherSwitch power supply to one EtherSwitch Module
CAB-PPWR-PS1-2	Connects one EtherSwitch power supply to two EtherSwitch Modules
CAB-PPWR-PS2-1	Connects two EtherSwitch power supplies to one EtherSwitch Module

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For More Information

See the Cisco 3600 Series Web site: *http://www.cisco.com/go/3700*

Cisco 7200 Series

The Cisco 7200 Series routers deliver exceptional price/performance, versatility, and feature-richness in a compact form factor. The Cisco 7200 is ideal as a WAN aggregator for the Service Provider (small POP) or enterprise edge, an enterprise WAN gateway, a high-end managed CPE, or as a small core router. The platform also supports sites that require IBM data center connectivity as well as sites that require multifunction capabilities that combine all the above for multiservice voice, video, and data traffic.

A key strength of the Cisco 7200 is its modularity. With a choice of 4- and 6-slot chassis, a selection of processors providing up to 1 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies, the customer can customize their system to achieve the performance, connectivity, and capacity desired. This modularity combined with a low initial price point guarantees both investment protection and maximum return on investment, allowing the customer to upgrade and/or redeploy their Cisco 7200 as their network needs change.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7204VXR	• 4-slot chassis • Modular processor: 225, 400, 900 Kpps (NPE-225, NPE-400, NPE-G1) or 300 Kpps service accelerator (NSE-1) • 1.2 Gbps backplane • MIX-enabled bus for data/voice/video applications
Cisco 7206VXR	• 6-slot chassis • Modular processor: 225, 400, 900 Kpps (NPE-225, NPE-400, NPE-G1) or 300 Kpps service accelerator (NSE-1) • 1.2 Gbps backplane • MIX-enabled bus for data/voice/video applications

Key Features

- Compact Form Factor—Up to six port adapters in a fully modular 3RU form factor. The optional Rack Density System (RDS) allows for up to nine Cisco 7206 routers per rack with front-to-back airflow
- Exceptional Value—As the most powerful single-processor platform, the Cisco 7200 offers customers a superior price/performance ratio supporting high-speed media and high-density configurations with up to 900 Kpps processing at a competitive price point
- Feature Rich—Full support for Cisco IOS software and enhancements for high-performance network services enables the Cisco 7200 to offer industry-leading network services, including: MPLS, broadband aggregation, quality of service (QoS), security, and voice/video/data support
- Connectivity/Flexibility—Provides high port density and an extensive range of LAN and WAN media, the Cisco 7200 dramatically reduces the cost per port and allows for flexible configurations to meet your specific network needs
- Common port adapters—Port adapters are shared with the Cisco 7300, 7400, 7500, and 7600 (w/FlexWAN Module), which simplifies sparing and protects customer investment in interfaces

Competitive Products

• Redback: SMS-500, SMS-1800	• Unisphere: ERX700, ERX1400
• Juniper: M5, M10	

Specifications

Feature	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	None	Same as 7204VXR
Expansion Slots	4	6
WAN Port Adapters	DS0 to OC-12	Same as 7204VXR
Processor	RM7K RISC Processor with optional PXF Processor	Same as 7204VXR
Forwarding Rate	Up to 1 Mpps	Same as 7204VXR
Backplane Capacity	1.2 Gbps	Same as 7204VXR
Flash PCMCIA Memory	48 MB (expandable to 256 MB)	Same as 7204VXR
System DRAM Memory	128 MB (expandable to 1 GB)	Same as 7204VXR
Minimum Cisco IOS Release	12.0(1)XE	Same as 7204VXR
Internal Power Supply	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, for AC or DC	Same as 7204VXR
Chassis Height	3 RU	Same as 7204VXR
Rack Mountable	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (HxWxD)	5.25 x 16.8 x 17 in.	Same as 7204VXR

Cisco IOS Software and Memory Requirements[1]

To run the Cisco IOS Feature Packs, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD72-C-12.1T=	IP	12.1T	16MB	64MB
CD72-CK2-12.1E=	IP IPSEC 3DES	12.1E	16MB	64MB
CD72-CHK2-12.1T=	IP/FW/IDS IPSEC 3DES	12.1T	16MB	64MB
CD72-A-12.1T=	Enterprise	12.1T	16MB	64MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at http://www.cisco.com/go/fn

Selected Part Numbers and Ordering Information[1]

Cisco 7204 Chassis
CISCO7204VXR	Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/IP Software
CISCO7204VXR/225	7204VXR Bundle with NPE-225 and I/O Controller with 2 FE/E

Cisco 7206 Chassis
CISCO7206VXR	Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/IP Software
C7206VXR/400/2FE	7206VXR with NPE-400 and I/O Controller with 2 FE/E Ports
C7206VXR/400/GE	7206VXR with NPE-400 and GE+E I/O controller
7206VXR/NPE-G1	7206VXR with NPE-G1 processing engine

Cisco 7200 CPE Bundles
7204VXR/CPE	7204VXR w/ NPE-225, 2 FE I/O, choice of specified WAN PA

Cisco 7200 Voice Bundles
C7206VXR/VOICE/400	7206VXR w/ NPE-400, Voice PA PA-VXC-2TE1+, I/O contlr w/ 2FE

Cisco 7200 VPN Bundle
7204VXR/VPN/400K9	7204VXR VPN Bundle NPE400,128MB, I/O 2FE, ISA,IPSEC 3DES IOS
7204VXR400/VPNK9	7204VXR VPN Bundle NPE400,128MB, I/O 2FE, VAM,IPSEC 3DES IOS
7204VXR225/VPNK9	7204VXR VPN Bundle NPE225,128MB, I/O 2FE, VAM,IPSEC 3DES IOS
7206VXR400/VPNK9	7206VXR VPN Bundle NPE400,256MB, I/O 2FE, VAM,IPSEC 3DES IOS
7206VXRG1/VPNK9	7206VXR VPN Bundle NPE-G1,256MB, 3 FE/GE, VAM,IPSEC 3DES IOS

Cisco 7200 Series Processors

NPE-G1=	Cisco 7200 Network Processing Engine NPE-G1 including 256MB default DRAM and 64MB default flash memory.
NPE-225=	Network Processing Engine 225 (128MB default memory)-spare
NPE-400=	7200VXR NPE-400 (128MB default memory),SPARE
NSE-1=	7200VXR Network Services Engine 1 (128MB default mem),SPARE

Cisco 7200 Series Input/Output Controller

C7200-I/O=	Cisco 7200 Input/Output Controller, Spare
C7200-I/O-2FE/E=	Cisco 7200 Input/Output Controller with Dual 10/100 Ethernet
C7200-I/O-GE+E=	Cisco 7200 Input/Output Controller with GE and Ethernet

Cisco 7200 Rack Mount Systems

CISCO7200RDS	CISCO 7200 Rack Density System

Cisco 7200 Processor Memory: NPE-G1

MEM-NPE-G1-256MB=	Two 128MB memory modules (256MB total) for the Cisco 7200 Network Processing Engine NPE-G1
MEM-NPE-G1-512MB=	Two 256MB memory modules (512MB total) for the Cisco 7200 Network Processing Engine NPE-G1
MEM-NPE-G1-1GB=	Two 512MB memory modules (1GB total) for the Cisco 7200 Network Processing Engine NPE-G1
MEM-NPE-G1-FLD64=	64MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1
MEM-NPE-G1-FLD128=	128MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1
MEM-NPE-G1-FLD256=	256MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1

Cisco 7200 Processor Memory: NPE-100, NPE-150, NPE-200

MEM-NPE-16MB=	16MB Memory Upgrade Kit for NPE-200/NPE-150/NPE-100
MEM-NPE-32MB=	32MB Memory Upgrade Kit for NPE-200/NPE-150/NPE-100
MEM-NPE-64MB=	2 32MB memory modules(64MB total) for NPE-200/NPE-150/NPE-100
MEM-NPE-128MB=	128MB Memory Upgrade Kit for NPE-200/NPE-150/NPE-100

Cisco 7200 Processor Memory: NPE-175 and NPE-300

MEM-SD-NPE-32MB=	32MB Memory Upgrade Kit for NPE-300/NPE-225/NPE-175
MEM-SD-NPE-64MB=	64MB Memory Upgrade Kit for NPE-300/225/175
MEM-SD-NPE-128MB=	128MB Memory Upgrade Kit for NPE-300/NPE-225/NPE-175
MEM-SD-NPE-256MB=	2 128MB memory modules (256MB total) for the NPE-300 in 7200

Cisco 7200 Processor Memory: NPE-225 and NSE-1

MEM-SD-NPE-128MB=	128MB Memory Upgrade Kit for NPE-300/NPE-225/NPE-175
MEM-SD-NSE-256MB=	256MB Memory for NPE-225 or NSE-1 in 7200 Series, SPARE

Cisco 7200 Processor Memory: NPE-400

MEM-NPE-400-128MB=	128MB Memory for NPE-400 in 7200 Series
MEM-NPE-400-256MB=	256MB Memory for NPE-400 in 7200 Series
MEM-NPE-400-512MB=	512MB Memory for NPE-400 in 7200 Series

Cisco 7200 Series Input/Output Controller Memory Options

MEM-CIP-32M=	CIP 32 MB DRAM Upgrade Kit
MEM-CPA-32M=	CPA 32MB DRAM Upgrade Kit
MEM-I/O-FLC20M=	Cisco 7200 I/O PCMCIA Flash Memory, 20MB
MEM-I/O-FLC8M=	Cisco 7200 I/O PCMCIA Flash Memory, 8MB
MEM-I/O-FLD128M=	Cisco 7200 I/O PCMCIA Flash Disk, 128 MB Spare
MEM-I/O-FLD48M=	Cisco 7200 I/O PCMCIA Flash Disk, 48 MB Spare

Cisco 7200 Series Port Adapters

PA-4C-E=	1 Port Enhanced ESCON Channel Port Adapter
PA-A2-4E1XC-E3ATM=	CES Port Adapter E3/E1 120 ohms
PA-A2-4E1XC-OC3SM=	CES OC3 Port Adapter 4E1 Ports 120ohms
PA-A2-4T1C-OC3SM=	ATM CES Port Adapter, 4T1 CES Ports and 1 OC3 ATM SM Port
PA-A2-4T1C-T3ATM=	ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM Port
PA-GE=	Gigabit Ethernet Port Adapter
PA-MCX-2TE1=	Spare 2 port MIX-enabled multichannel T1/E1 PA with CSU/DSU
PA-MCX-4TE1=	4 port MIX-enabled multichannel T1/E1 PA with CSU/DSU
PA-MCX-8TE1-M=	T1/E1 SS7 link PA for ITP
PA-MCX-8TE1=	8 port MIX-enabled multichannel T1/E1 with CSU/DSU
PA-SRP-OC12MM=	DPT-OC12 Multi-mode port adapter
PA-SRP-OC12SMI=	DPT-OC12 Single-mode intermediate port adapter
PA-SRP-OC12SML=	DPT-OC12 Single-mode long-reach port adapter
PA-SRP-OC12SMX=	DPT-OC12 Singe-mode extended reach PA

Cisco 7200, 7400 and 7500 Series Port Adapters

PA-VXC-2TE1+=	2 port TE1 hi-capacity enhanced voice PA
PA-VXB-2TE1+=	2 port T1/E1 moderate capacity enhanced voice PA
PA-T3=	1 Port T3 Serial Port Adapter with T3 DSUs
PA-T3+=	1 Port T3 Serial Port Adapter Enhanced
PA-POS-OC3SML=	1-Port Packet/SONET OC3c/STM1 Singlemode (LR) PA
PA-POS-OC3SMI=	1-Port Packet/SONET OC3c/STM1 Singlemode (IR) PA
PA-POS-OC3MM=	1-Port Packet/SONET OC3c/STM1 Multimode PA
PA-POS-2OC3=	2 Port Packet/SONET OC3c/STM1 Port Adapter
PA-MC-T3=	1 port multichannel T3 port adapter
PA-MC-E3=	1 port Multi-Channel E3 port adapter
PA-MC-4T1=	4 port multichannel T1 adapter with integrated CSU/DSUs
PA-MC-2T3+=	2 port multichannel T3 port adapter
PA-MC-2T1=	2 port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-2E1/120=	2 port multichannel E1 port adapter with G.703 120ohm interf
PA-H=	Port Adapter: 1-Port HSSI
PA-E3=	1 Port E3 Serial Port Adapter with E3 DSU
PA-A3-T3=	1-Port ATM Enhanced DS3 Port Adapter (Spare)
PA-A3-OC3SML=	1-Port ATM Enhanced OC3c/STM1 Singlemode(LR)Port Adapter
PA-A3-OC3SMI=	1-Port ATM Enhanced OC3c/STM1 Singlemode(IR)Port Adapter
PA-A3-OC3MM=	1-Port ATM Enhanced OC3c/STM1 Multimode Port Adapter
PA-A3-E3=	1-Port ATM Enhanced E3 Port Adapter (Spare)
PA-A3-8E1IMA=	8-port ATM Inverse Mux E1 (120 Ohm) Port Adapter, Spare
PA-8T-X21=	8-Port Serial, X.21 Port Adapter
PA-8T-V35=	8-Port Serial, V.35 Port Adapter
PA-8T-232=	8-Port Serial, 232 Port Adapter
PA-8E=	8-Port Ethernet 10BaseT Port Adapter
PA-4T+=	4-Port Serial Port Adapter, Enhanced
PA-4E1G/75=	4-Port E1 G.703 Serial Port Adapter (75ohm/Unbalanced)
PA-4E1G/120=	4-Port E1 G.703 Serial Port Adapter (120ohm/Balanced)
PA-4E=	4-Port Ethernet 10BaseT Port Adapter
PA-2T3=	2 Port T3 Serial Port Adapter with T3 DSUs
PA-2T3+=	2 Port T3 Serial Port Adapter Enhanced, Spare
PA-2H=	PORT ADAPTER:2-PORT HSSI
PA-2FE-TX=	2-Port Fast Ethernet 100Base TX Port Adapter
PA-2FE-FX=	2-Port Fast Ethernet 100Base FX Port Adapter
PA-2E3=	2 Port E3 Serial Port Adapter with E3 DSUs

Cisco 7200 and 7400 Series Port Adapters

PA-8B-S/T=	8-Port BRI Port Adapter, S/T Interface

Cisco 7200 and 7500 Series Port Adapters

PA-VXA-1TE1-30+=	1 Port T1/E1 Digital Voice Port Adapter with 30 Channels
PA-VXA-1TE1-24+=	1 Port T1/E1 Digital Voice Port Adapter with 24 Channels
PA-MC-STM-1SMI=	1 port multichannel STM-1 single mode port adapter
PA-MC-STM-1MM=	1 port multichannel STM-1multimode port adapter
PA-MC-8TE1+=	8 port multichannel T1/E1 8PRI port adapter
PA-F/FD-SM=	1-Port FDDI Full Duplex Single-Mode Port Adapter
PA-F/FD-MM=	1-Port FDDI Full Duplex Multi-Mode Port Adapter
PA-A3-8T1IMA=	8-port ATM Inverse Mux T1 Port Adapter, Spare
PA-4R-DTR=	Port Adapter:4-Port Dedicated Token Ring,4/16Mbps, HDX/FDX

Cisco 7200 Series Service Adapters

SA-ISA=	Integrated Services Adapter for IPSec or MPPE encryption
SA-VAM=	VPN Acceleration Module (VAM)IPSec and IPComp Acceleration

Cisco 7200 Series Transceiver Modules

GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-SX=	Gigabit Intf. Converter For 1000BASE-SX (Short Wavelength)
GBIC-ZX=	Gigabit Interface Converter for 1000 BASE-ZX
POM-OC3-MM	1-port OC3/STM1 Pluggable Optic Module, MM
POM-OC3-SMIR	1-port OC3/STM1 Pluggable Optic Module, SM-IR
POM-OC3-SMLR	1-port OC3/STM1 Pluggable Optic Module, SM-LR

Cisco 7200 Series Power Supplies

PWR-7200-DC+=	Cisco 7200 DC (24V-60V) Power Supply Option
PWR-7200/2-DC+	Cisco 7200 Dual DC (24V-60V) Power Supply Option
PWR-7200-AC=	Cisco 7200 AC Power Supply With United States Cord
PWR-7200-ACA=	Cisco 7200 AC Power Supply With Australian Cord
PWR-7200-ACE=	Cisco 7200 AC Power Supply With European Cord
PWR-7200-ACI=	Cisco 7200 AC Power Supply With Italian Cord
PWR-7200-ACU=	Cisco 7200 AC Power Supply With United Kingdom Cord

Cisco 7200 Series Spares and Accessories

ACS-7200-RMK=	Cisco 7200 Rackmount Kit and Cable Management Bracket
CVPN7200FIPS/KIT=	Kit(Instructions,labels)to configure 7206 for FIPS operation

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 7200 Series Web site: *http://www.cisco.com/go/7200*

Cisco 7300 Series

The Cisco 7300 Series Routers are optimized for flexible, high performance IP/MPLS services at the network edge, where service providers and enterprises link together. Coupled with powerful network processing, a broad set of interfaces and a compact, modular form factor the Cisco 7300 Series Routers are ideal for intelligent, multi-gigabit network connectivity.

The Cisco 7304 Series Router is ideally applied as a high-end CPE or as an Internet Gateway router. Architected for network High Availability and multi-protocol support, the 7304 supports the broad set of existing Cisco 7000 Series Port Adapters with the new Cisco 7304 Port Adapter Carrier Card.

The Cisco 7301 Series Router is a compact single rack unit router coupled with a broad set of interfaces and Cisco IOS software features. It packs high performance in a space and power efficient form factor that includes a single 7000 Series port adapter slot, 3 on-board Gigabit Ethernet (copper or optical)/Fast Ethernet ports and a new high-speed bus technologies.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7301	• Compact, power efficient 1RU form factor • Three times the performance increase over existing single rack unit routers like the Ciso 7401 • Single 7000 Series Port Adapter Slot
Cisco 7304	• Highly modular price and performance optimized platform, rich in IP services • High performance connectivity—DS-1 through OC48/STM16 with 3.5 Mpps performance • Built-in Gigabit Ethernet connectivity • Multiprotocol routing: IP, IPX, AppleTalk, DLSw • Compact size, high availability and optimal cooling

Key Features

- Cisco 7301: With nearly 1 million-packets-per-second (Mpps) processing performance, the fastest Cisco 1RU general-purpose processor, as of January 2003; 3 fixed 10/100/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor; Full Cisco IOS feature support; Pluggable Gigabit Ethernet optics (SFPs); Up to 1GB of available DRAM; Up to 256MB of removable compact flash memory; Front-back airflow and single sided management
- Cisco 7304: Compact modular form factor with four RU with four port adapter slots per chassis; PXF IP processor hardware-accelerated services such as Cisco Express Forwarding (CEF), NetFlow v8, and Turbo ACL; Offers 3.5Mpps performance for PXF-accelerated services with the NSE-100 Network Services Forwarding Engine; Two Gigabit Ethernet ports per NSE-100; System redundancy: optional dual processors and dual AC or DC power supplies increases network availability

Competitive Products

- Redback: SMS-500, SMS-1800
- Juniper: M5, M10
- Unisphere: ERX700, ERX1400

Specifications

Feature	Cisco 7301	Cisco 7304
Fixed Ports	Three Gigabit Ethernet ports	Same as 7301
Expansion Slots	1	4
WAN Interface Range	DS-1 to OC-3	T3 to OC-48
Processor	RM 7000 MIPS Processor + PXF Processor	RM 7000 MIPS Processor + PXF Processor
Forwarding Rate	Up to 1 Mpps	Up to 3.5 Mpps
Backplane Capacity	1.2 Gbps	16 Gbps
Flash PCMCIA Memory	64 MB (expandable to 128 MB)	Same as 7301
System DRAM Memory	128 MB (expandable to 512 MB)	Same as 7301
Minimum Cisco IOS Release	12.2(11)YZ	12.1(9)EX
Internal Power Supply	AC or DC	Same as 7301
Redundant Power Supply Support	Yes, for AC or DC	Same as 7301
Chassis Height	1 RU	4 RU
Rack Mountable	Yes, up to 40 per rack	Yes, up to 11 per rack
Dimensions (HxWxD)	1.73 x 17.3 x 13.87 in.	7 x 17.2 x 20.5 in.

Selected Part Numbers and Ordering Information[1]

Cisco 7300 System

PWR-7301-AC	Cisco 7301 AC Power Supply Option
PWR-7301/2-AC	Cisco 7301 Dual AC Power Supply Option
PWR-7301-DC48	Cisco 7301 DC48 Power Supply Option
PWR-7301/2-DC48	Cisco 7301 Dual DC48 Power Supply Option
PWR-7301-DC24	Cisco 7301 DC24 Power Supply Option
CISCO7301	Cisco 7301 chassis, 256MB memory, A/C power,64MB Flash
CISCO7304=	Cisco 7300, 4-slot chassis
CISCO7304-CH	Cisco7304 channel bundle
7300-NSE-100=	Cisco 7304 Network Services Engine 100
7300-NSE-100/2	Redundant Cisco 7304 NSE-100 w/Redundancy Feature License
7300-PWR-DC=	Cisco 7304 DC Power Supply Spare
7300-PWR-AC=	Cisco 7304 AC Power Supply Spare
7300-PWR/2-DC	Cisco 7304 Redundant DC Power Supply Option
7300-PWR/2-AC	Cisco 7304 Redundant AC Power Supply Option

Cisco 7300 Memory Options

MEM-7301-1GB=	1GB memory upgrade for 7301
MEM-7301-512MB=	512MB memory upgrade for 7301
MEM-7301-256MB=	256MB memory upgrade for Cisco 7301
7300-MEM-128=	128MB default SDRAM for 7304 NSE-100, spare
7300-MEM-256=	256MB SDRAM for 7304 NSE-100, spare
7300-MEM-512=	512MB SDRAM for 7304 NSE-100, spare
7300-I/O-CFM-64M=	Cisco 7304 Compact Flash Memory, 64 MB
7300-I/O-CFM-128M=	Cisco 7304 Compact Flash Memory, 128 MB

Cisco 7300 Series Compact Flash Disk Options

MEM-7301-FLD64=	Compact Disk Flash for 7301,64MB option
MEM-7301-FLD128=	Compact Disk Flash for 7301, 128MB option
MEM-7301-FLD256	Compact Disk Flash for 7301, 256MB Option

Cisco 7300 Line Cards

7300-1OC12POS-MM=	1-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-1OC12POS-SMI=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-1OC12POS-SML=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-1OC48POS-SMI=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR
7300-1OC48POS-SML=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode LR
7300-1OC48POS-SMS=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode SR
7300-2OC12POS-MM=	2-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-2OC12POS-SMI=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-2OC12POS-SML=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-2OC3ATM-MM=	2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode
7300-2OC3ATM-SMI=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR
7300-2OC3ATM-SML=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode LR
7300-2OC3POS-MM=	2-port OC3 POS line card for Cisco 7304 w/ Multi-mode
7300-2OC3POS-SMI=	2-port OC3 POS line card for Cisco 7304 w/ Single-mode IR
7300-2OC3POS-SML=	2-port OC3 POS line card for Cisco 7304 w/ Single-mode LR
7300-4OC3POS-MM=	4-port OC3 POS line card for Cisco 7304 w/ Multi-mode
7300-4OC3POS-SMI=	4-port OC3 POS line card for Cisco 7304 w/ Single-mode IR
7300-4OC3POS-SML=	4-port OC3 POS line card for Cisco 7304 w/ Single-mode LR
7300-6T3=	6-port T3 line card for Cisco 7304 w/ DSU

Cisco 7300 Series Transceiver Modules

GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-SX=	Gigabit Intf. Converter For 1000BASE-SX (Short Wavelength)
GBIC-ZX=	Gigabit Interface Converter for 1000 BASE-ZX

Cisco 7300 Accessories

7300-HALFSLOTBLNK	Cisco 7304 Half Slot Blank Line Card
7300-4RU/RCKBRKT=	Cisco 7304 Chassis Rackmount Bracket Spare
7300-CNTR-SPTUM=	Cisco 7304 Center Septum Spare

Cisco 7300 Software Options

S73A-12215B=	Cisco 7301 Series IOS ENTERPRISE
S73AH-12215B=	Cisco 7301 Series IOS ENTERPRISE/FW/IDS
S73AHK8-12215B=	Cisco 7301 Series IOS ENTERPRISE/FW/IDS IPSEC 56
S73AHK9-12215B=	Cisco 7301 Series IOS ENTERPRISE/FW/IDS IPSEC 3DES
S73AS-12215B=	Cisco 7301 Series IOS ENTERPRISE SSG
S73C-12215B=	Cisco 7301 Series IOS IP
S73A-12211YZ=	Cisco 7300 Series IOS ENTERPRISE
S73C-12211YZ=	Cisco 7300 Series IOS IP PLUS
S730A-12211YZ=	Cisco 7301 Series IOS ENTERPRISE
S730C-12211YZ=	Cisco 7301 Series IOS IP
S730Z-12211YZ=	Cisco 7301 Series IOS SERVICE PROVIDER
S73A-12113EX=	Cisco 7300 IOS ENTERPRISE
S73AHK2-12113EX=	Cisco 7300 IOS ENTERPRISE/FW/IDS IPSEC 3DES
S73AHL-12113EX=	Cisco 7300 IOS ENTERPRISE/FW/IDS IPSEC 56
S73AR1P-12113EX=	Cisco 7300 IOS CISCO 7300 SERIES IOS ENTERPRISE/SNASW PLUS
S73CHK2-12113EX=	Cisco 7300 IOS IP/FW/IDS IPSEC 3DES
S73CHL-12113EX=	Cisco 7300 IOS IP/FW/IDS IPSEC 56
S73CP-12113EX=	Cisco 7300 IOS IP PLUS
S73A-12112EX=	Cisco 7300 IOS ENTERPRISE
S73AHK2-12112EX=	Cisco 7300 IOS ENTERPRISE/FW/IDS IPSEC 3DES
S73AHL-12112EX=	Cisco 7300 IOS ENTERPRISE/FW/IDS IPSEC 56
S73AR1P-12112EX=	Cisco 7300 IOS CISCO 7300 SERIES IOS ENTERPRISE/SNASW PLUS
S73CHK2-12112EX=	Cisco 7300 IOS IP/FW/IDS IPSEC 3DES
S73CHL-12112EX=	Cisco 7300 IOS IP/FW/IDS IPSEC 56
S73CP-12112EX=	Cisco 7300 IOS IP PLUS

Cisco 7300 Carrier Cards

7300-CC-PA=	7304 Carrier Card for 7200 Series Port Adapters

SFPs for Cisco 7301 Series

GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-LH-SM=	GE SFP, LC connector LH transceiver

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 7300 Series Web site: *http://www.cisco.com/go/7300*

Cisco 7400 Series

With the Cisco 7400, this modular, one-port adapter slot unit leverages over 40 standard 7200/7500 series port adapters. Its compact, stackable architecture is designed for application specific routing deployments, such as broadband services aggregation (PPP/L2TP) and WAN edge connectivity in service provider and enterprise networks. Leveraging Cisco patented technology, the Cisco 7400 series delivers a premium suite of hardware-accelerated network services.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7401ASR-CP	• General WAN edge connectivity in a small form factor, or as managed customer premise equipment (CPE)
	• Broad range of connectivity options—from DS0 to OC-3 interfaces
	• Comprehensive management services with remote management, provisioning, trouble shooting and software upgrade
	• Hardware accelerated services, including: NAT, ACLs, Netflow, CBWFQ, CBWRED, Policing, marking, Hierarchical Traffic Shaping, & VRF lite
Cisco 7401ASR-BB	• Complete broadband subscriber services suite with highest subscribers per rack ratio
	• One fast LAN interface (FE/GE) and one fast WAN interface (DS3/OC3)
	• High volume/density of PPP, PPPoE, PPPoA, L2TP tunnel aggregation and termination for broadband services like DSL, Cable, and Wireless

Key Features

• Compact form factor with 1 RU, front-to-back airflow and stackability

• Hardware—accelerated IP network services

• Built-in dual GE connectivity

• Flexible WAN connectivity supporting over 40 interfaces including serial, multichannel, ISDN, Frame Relay, ATM, Packet over SONET (POS), from NxDS0 to OC-3

• Shared port adaptors with the Cisco 7200, 7300, 7500, and 7600 (with FlexWAN Module), which simplifies sparing and protects customer investment in interfaces

Competitive Products

• Redback: SMS500, SMS1800	• Unisphere: ERX700, ERX1400
• Juniper: M5, M10	

Specifications

Feature	Cisco 7401ASR-BB	Cisco 7401ASR-CP
Fixed Ports	2 Gigabit Ethernet (RJ or GBIC) ports	Same as 7401ASR-BB
Expansion Slots	1	Same as 7401ASR-BB
WAN Interface Range	DS0 to OC-3	Same as 7401ASR-BB
Processor	RM7K RISC Processor + PXF Processor	Same as 7401ASR-BB
Forwarding Rate	Up to 350 Kpps	Same as 7401ASR-BB
Backplane Capacity	1.2 Gbps	Same as 7401ASR-BB
Flash PCMCIA Memory	64MB (expandable to 128MB)	Same as 7401ASR-BB
System DRAM Memory	256MB (expandable to 512MB)	128MB (expandable to 512MB)
Minimum Cisco IOS Release	12.2(1)DX	Same as 7401ASR-BB
Internal Power Supply	AC, DC48V, DC24V, or Dual DC48V	Same as 7401ASR-BB
Redundant Power Supply Support	Yes	Same as 7401ASR-BB
Chassis Height	1 RU	Same as 7401ASR-BB
Rack Mountable	Yes, up to 40 per rack	Same as 7401ASR-BB
Dimensions (HxWxD)	1.72 x 17.3 x 11.80 in	Same as 7401ASR-BB

Selected Part Numbers and Ordering Information[1]

Cisco 7400 ASR Bundles

CISCO7401ASR-BB	7401ASR, 256M SDRAM, Broadband Feature License
CISCO7401ASR-CP	7401ASR,128M SDRAM, IP Software
CISCO7401-2DC48=	Cisco 7400 chassis with dual DC power supply
7401ASR-CPT3	7401ASR,256M SDRAM, PA-T3+
C7400VPN/K9	7400 VPNRouter w/VAM,VPN DeviceMgr, 2xFE/GE,AC PS,IPSEC 3DES

Cisco 7400 ASR Memory Options

MEM-COMP-FLD64M=	Cisco 7400ASR Compact Flash Disk, 64 MB (spare)
MEM-COMP-FLD128M=	Cisco 7400ASR Compact Flash Disk, 128 MB (spare)
MEM-7400ASR-256MB=	256MB Spare memory for Cisco 7400ASR/VPN
MEM-7400ASR-512MB=	512MB Spare SDRAM for Cisco 7400ASR/VPN

Cisco 7400 ASR Transceiver Modules

GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-SX=	Gigabit Intf. Converter For 1000BASE-SX (Short Wavelength)
GBIC-ZX=	Gigabit Interface Converter for 1000 BASE-ZX
POM-OC3-MM	1-port OC3/STM1 Pluggable Optic Module, MM
POM-OC3-SMIR	1-port OC3/STM1 Pluggable Optic Module, SM-IR
POM-OC3-SMLR	1-port OC3/STM1 Pluggable Optic Module, SM-LR

Cisco 7400 and 7500 Series Port Adapters

PA-POS-OC3MM=	1-Port Packet/SONET OC3c/STM1 Multimode PA
PA-MC-8E1/120=	8 port multichannel E1 port adapter with G.703 120ohm interf
PA-2FE-FX=	2-Port Fast Ethernet 100Base FX Port Adapter

Cisco7200, 7400 and 7500 Series Port Adapters[2]

Cisco 7400 ASR Power Supplies and Cords

CAB-AC=	AC Power Cord, US
CAB-ACA=	AC Power Cord, Australia
CAB-ACE=	AC Power Cord, Europe
CAB-ACI=	AC Power Cord, Italy
CAB-ACR=	Power Cord Argentina, Spare
CAB-ACU=	AC Power Cord, UK

Cisco 7400 Software Options

S74CHK9-12209YE=	Cisco 7400 Series IOS IP/FW/IDS IPSEC 3DES
S74CK9-12209YE=	Cisco 7400 Series IOS IP PLUS IPSEC 3DES
S74A-12204B=	Cisco 7400 Series IOS ENTERPRISE
S74AH-12204B=	Cisco 7400 Series IOS ENTERPRISE/FW/IDS
S74AHK9-12204B=	Cisco 7400 Series IOS ENTERPRISE/FW/IDS IPSEC 3DES
S74AS-12204B=	Cisco 7400 Series IOS ENTERPRISE SSG
S74C-12204B=	Cisco 7400 Series IOS IP
S74A-12202DD=	Cisco 7400 Series IOS ENTERPRISE
S74AH-12202DD=	Cisco 7400 Series IOS ENTERPRISE/FW/IDS

Cisco 7400 VPN Memory Options

MEM-COMP-FLD64M=	Cisco 7400ASR Compact Flash Disk, 64 MB (spare)
MEM-COMP-FLD128M=	Cisco 7400ASR Compact Flash Disk, 128 MB (spare)
MEM-7400ASR-256MB=	256MB Spare memory for Cisco 7400ASR/VPN
MEM-7400ASR-512MB=	512MB Spare SDRAM for Cisco 7400ASR/VPN

Cisco 7400 VPN Transceiver Modules

GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-SX=	Gigabit Intf. Converter For 1000BASE-SX (Short Wavelength)
GBIC-ZX=	Gigabit Interface Converter for 1000 BASE-ZX

Cisco 7400 VPN Power Supplies and Cords

CAB-AC=	AC Power Cord, US
CAB-ACA=	AC Power Cord, Australia
CAB-ACE=	AC Power Cord, Europe
CAB-ACI=	AC Power Cord, Italy
CAB-ACR=	Power Cord Argentina, Spare
CAB-ACU=	AC Power Cord, UK

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.
2. Cisco 7200, 7400 and 7500 share many port adapters. Please see Cisco 7200, 7400 and 7500 Series Port Adapters, page 1-34 for additional part numbers.

For More Information

See the Cisco 7400 Series Web site: *http://www.cisco.com/go/7400*

Cisco 7500 Series

An essential part of both Enterprise and Service Provider networks, the Cisco 7500 Series routers are the market leader for edge applications, due to its breadth of services, diverse interfaces, reliability, and performance. Since its inception, the Cisco 7500 has seen huge improvements in performance and its ability to scale, most recently with the Route Switch Processor 16 (RSP16) and Versatile Interface Processor 6-80 (VIP6-80) module. This series combines Cisco's proven software technology with exceptional reliability, availability, serviceability, and performance features to meet the requirements of today's most mission-critical networks.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7505	• 5 expansion slots • One CyBus • DS0 to OC-12 connectivity (all platforms)
Cisco 7507	• 7 expansion slots • Dual CyBuses • Redundant power supplies • Diverse set of routing protocols (all platforms)
Cisco 7513	• 13 expansion slots • Dual CyBuses • Redundant power supplies • Diverse set of routing protocols (all platforms)

Key Features

- High-performance switching—Delivers high performance for mission-critical applications by supporting high-speed media and high-density configurations; using the processing capabilities of the Versatile Interface Processors and Cisco Express Forwarding—the Cisco 7500 series system capacity can exceed two million packets per second
- Full support for Cisco IOS software and enhancements for high-performance network services—Performs network services such as quality of service, security, compression, and encryption at high speed; VIP technology extends the performance of these services through distributed IP services
- High port density—Provides high port density and an extensive range of LAN and WAN media; this feature dramatically reduces the cost per port and allows a flexible configuration
- Unmatched interface flexibility—The Cisco 7500 supports a broad selection of Interface Processors (IPs) and Port Adapters (PAs). Port adapters are shared with the Cisco 7200, 7400, and 7600 (with FlexWAN Module)
- High Availability—Enhanced features and capabilities include redundant route processors, power supplies, fans, and software fault isolation with Stateful Switchover and NonStop Forwarding

Competitive Products

• Redback: SMS-500, SMS-1800	• Unisphere: ERX700, ERX1400
• Juniper: M5, M10, M20	• Huawei: NE8 and NE16

Specifications

Feature	Cisco 7505	Cisco 7507	Cisco 7513
Fixed Ports	None	Same as Cisco 7505	Same as Cisco 7505
Expansion Slots	5	7	13
WAN Interface Range	DS0 to OC-12	Same as Cisco 7505	Same as Cisco 7505
Processor	MIPS RISC Processor	Same as Cisco 7505	Same as Cisco 7505
Forwarding Rate	Up to 1.1 Mpps	Up to 2.2 Mpps	Up to 2.2 Mpps
Backplane Capacity	1 Gbps	2 Gbps	2 Gbps
Flash PCMCIA Memory	16MB (expandable to 128MB)	Same as Cisco 7505	Same as Cisco 7505
System DRAM Memory	32MB (expandable to 1GB)	Same as Cisco 7505	Same as Cisco 7505
Minimum Cisco IOS Release	11.3	Same as Cisco 7505	Same as Cisco 7505
Internal Power Supply	AC or DC	AC, dual AC/DC, or dual DC	AC, dual AC/DC, or dual DC
Redundant Power Supply Support	No	Yes	Yes
Chassis Size	6 RU	13 RU	20 RU
Rack Mountable	Yes, up to 6 per rack	Yes, up to 3 per rack	Yes, up to 2 per rack
Dimensions (HxWxD)	10.5 x 17.5 x 17 in.	19.25 x 17.5 x 25 in.	33.75 x 17.5 x 22 in.

Selected Part Numbers and Ordering Information[1]

Cisco 7500 Series Products

CISCO7505/4	Cisco 7505 5-Slot, 1 CyBus, 1RSP4, Single Power Supply
CISCO7507/8-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7507/8X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/4	Cisco 7507 7-Slot, 2 CyBus, 1RSP4, Single Power Supply
CISCO7507/4X2	Cisco 7507 7-Slot, 2 CyBus, 2 RSP4, Dual Power Supply
CISCO7513/4	Cisco 7513 13-Slot, Dual Bus, 1RSP4, 1 PS
CISCO7513/4X2	Cisco 7513 13-Slot, Dual Bus, 2 RSP4, 2 PS
CISCO7513/8-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7513/8X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/16-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7507/16X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS
CISCO7513/16-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7513/16X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS

Cisco 7500 Series Processors and Accessories

RSP2=	CISCO 7507/7513 ROUTE SWITCH PROCESSOR SPARE
RSP2/2	DUAL RSP2 OPTION FOR 7507 and 7513
CAB-RSP2CON=	RSP2 Console Cable (Spare)
CAB-RSP2AUX=	RSP2 Auxiliary Cable (Spare)
RSP4+=	Cisco 7500 Series Route Switch Processor 4+ (Spare)
RSP8=	Cisco 7505/7507/7513/7576 Route Switch Processor (Spare)
RSP16=	CISCO 7500 ROUTE SWITCH PROCESSOR 16 Spare

Route Switch Processor Memory Options (RSP1 & RSP2)

MEM-RSP-FLC8M=	RSP Flash Credit Card: 8 MB Kit
MEM-RSP-FLC16M=	RSP Flash Credit Card: 16 MB Kit
MEM-RSP-FLC20M=	RSP Flash Credit Card: 20 MB Kit
MEM-RSP-FLC32M=	RSP2 Flash Card: 32MB Kit
MEM-RSP-16M=	RSP 16 MB DRAM Upgrade Kit
MEM-RSP-32M=	RSP 32MB DRAM Upgrade Kit
MEM-RSP-64M=	RSP 64MB DRAM Upgrade Kit
MEM-RSP-128M=	RSP 128MB DRAM Upgrade Kit

Route Switch Processor Memory Options (RSP4)

MEM-RSP4-FLC16M=	RSP4 Flash Card: 16 MB Kit
MEM-RSP4-FLC20M=	RSP4 Flash Card: 20 MB Kit
MEM-RSP4-FLC32M=	RSP4/4+ Flash Card: 32 MB Kit
MEM-RSP4-32M=	RSP4 32MB DRAM Upgrade Kit
MEM-RSP4-64M=	RSP4/RSP4+ 64MB DRAM Upgrade Kit
MEM-RSP4-128M=	RSP4/RSP4+ 128MB DRAM Upgrade Kit
MEM-RSP4-128-4PK=	RSP4 128MB DRAM Upgrade Kit (4-pack)
MEM-RSP4-256M=	RSP4/RSP4+ 256MB DRAM Upgrade Kit
MEM-RSP4-256-4PK=	RSP4 256MB DRAM Upgrade Kit (4-pack)
MEM-16F-RSP4+=	RSP4+ 16MB Boot Flash (Spare)
MEM-V250-128-10PK=	128 MByte DRAM Upgrade for VIP2-50/xIP-50 (10-pack)

Route Switch Processor Memory Options (RSP8)

MEM-RSP8-64M=	RSP8 64MB DRAM Option
MEM-RSP8-128M=	RSP8 128MB DRAM Upgrade Kit
MEM-RSP8-256M=	RSP8 256MB DRAM Upgrade Kit
MEM-RSP8-FLC16M=	RSP8 Flash Card: 16 MB Kit
MEM-RSP8-FLC20M=	RSP8 Flash Card: 20 MB Kit
MEM-RSP8-FLC32M=	RSP8 Flash Card: 32 MB Kit
MEM-RSP8-FLD48M=	RSP8 Flash Disk: 48 MB Kit
MEM-RSP8-FLD128M=	RSP8 Flash Disk: 128 MB Kit

Route Switch Processor Memory Options (RSP16)

MEM-RSP16-FLD48M=	RSP16 Flash Disk: 48 MB Option
MEM-RSP16-FLD128M=	RSP16 Flash Disk: 128 MB Option
MEM-RSP16-128M=	RSP16 128MB ECC SDRAM Memory Spare
MEM-RSP16-256M=	RSP16 256MB ECC SDRAM Memory Spare
MEM-RSP16-512M=	RSP16 512MB ECC SDRAM Memory Spare
MEM-RSP16-1G=	RSP16 1GB ECC SDRAM Memory Spare

CISCO7500 Series Gigabit Ethernet Interface Processor

GEIP=	Gigabit Ethernet Interface Processor
GEIP+=	Enhanced Gigabit Ethernet

Cisco 7500 Series Interface Processors

CX-CIP2-ECA1=	CHANNEL IP:CIP2 W/ ECA-1 PORT
CX-CIP2-ECA2=	CHANNEL IP:CIP2 W/ ECA-2 PORTS
FEIP2-DSW-2TX=	2-Port Fast Ethernet IP with Dist. Switching (100TX)
FEIP2-DSW-2FX=	2-Port Fast Ethernet IP with Dist. Switching (100FX)
CX-ECA1-U	ESCON Interface Upgrade for CX-CIP-ECA1 or CX-CIP-PCA1

Cisco 7500 Series Versatile Interface Processors

VIP2-40=	VERSATILE INT. PROCESSOR-2,MODEL 40
VIP2-50=	Versatile Interface Processor 2, Model 50
VIP2-10/15-UPG	VIP2-10 to VIP2-15 Upgrade
VIP2-10/40-UPG	VIP2-10 TO VIP2-40 UPGRADE
VIP2-15/40-UPG	VIP2-15 to VIP2-40 Upgrade
VIP2-20/40-UPG	VIP2-20 TO VIP2-40 UPGRADE
VIP4-50=	Versatile Interface Processor 4, Model 50
VIP4-80=	Versatile Interface Processor 4, Model 80
VIP6-80=	Services Accelerator Versatile Interface Processor 6-80

Cisco 7500 Series Transceiver Modules

GBIC-SX=	Gigabit Intf. Converter For 1000BASE-SX (Short Wavelength)
GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-ZX=	Gigabit Interface Converter for 1000 BASE-ZX
POM-OC3-MM	1-port OC3/STM1 Pluggable Optic Module, MM
POM-OC3-SMIR	1-port OC3/STM1 Pluggable Optic Module, SM-IR
POM-OC3-SMLR	1-port OC3/STM1 Pluggable Optic Module, SM-LR

Cisco 7500 VIP2 Memory Options

MEM-VIP240-32M	32 MB DRAM Option for VIP2-40 (Default)
MEM-VIP240-64M=	64 MB DRAM Option for VIP2-40 (Spare)
MEM-V240-64-10PK=	64 MByte DRAM Upgrade for VIP2-40 (10-pack)
MEM-V250-128-10PK=	128 MByte DRAM Upgrade for VIP2-50/xIP-50 (10-pack)
MEM-VIP250-32M-D=	32 Mbytes DRAM Option for VIP2-50/xIP-50 (default)
MEM-VIP250-64M-D=	64 Mbytes DRAM Option for VIP2-50/xIP-50
MEM-VIP250-128M-D=	128 Mbytes DRAM Option for VIP2-50/xIP-50
MEM-VIP250-4M-S=	4 Mbytes SRAM Option for VIP2-50/xIP-50 (default)
MEM-VIP250-8M-S=	8 Mbytes SRAM Option for VIP2-50/xIP-50

Cisco 7500 VIP4 Memory Options

MEM-VIP4-64M-SD=	64 MB SDRAM Option for VIP4 (Spare)
MEM-VIP4-128M-SD=	128 MB SDRAM Option for VIP4
MEM-VIP4-256M-SD=	256 MB SDRAM Option for VIP4

Cisco 7500 VIP6 Memory Options

MEM-VIP6-64M-SD=	64 MB SDRAM Option for VIP6 (Spare)
MEM-VIP6-128M-SD=	128 MB SDRAM Option for VIP6
MEM-VIP6-256M-SD=	256 MB SDRAM Option for VIP6

Cisco 7500 Series Memory Upgrades

VIP2-10/15/FE2-UPG	DRAM MEM Upgrade for VIP2-10, VIP2-15, CX-FEIP2-2TX AND -2FX
V2-10/15/FE2-UPG=	DRAM MEM Upgrade for VIP2-10, VIP2-15, CX-FEIP2-2TX AND -2FX

Cisco 7500 Series Port Adapters

PA-A3-OC12SMI=	1 Port ATM Enhanced OC12/STM4 single mode intermediate reach
PA-A3-OC12MM=	1 Port ATM Enhanced OC12/STM4 multi-mode
PA-A1-OC3SM	1 Port ATM OC3 Single Mode Intermediate Reach Port Adapter
PA-A1-OC3MM=	1-Port ATM OC3 Multimode Port Adapter
GEIP+=	Enhanced Gigabit Ethernet

Cisco7200, 7400 and 7500 Series Port Adapters[2]

Cisco7400 and 7500 Series Port Adapters[3]

Cisco 7500 Service Adapters

SA-ENCRYPT=	Encryption Service Adapter - Spare

Cisco 7500 Series CIP Options and Accessories

MEM-CIP-8M=	8 MB Memory, Replaces Existing CIP Memory, Total 8 MB
MEM-CIP-32M=	CIP 32 MB DRAM Upgrade Kit
MEM-CIP-64M=	CIP 64 MB DRAM Upgrade Kit
MEM-CIP-128M=	CIP 128 MB DRAM Upgrade Kit
FR-CIP-CSNA=	SNA SUPPORT FEATURE FOR CIP
FR-CIP-TCPOFF=	TCP/IP OFFLOAD FEATURE FOR CIP
FR-CIP-TN3270S-L=	TN3270 Server - Limited 2000 Session Support
FR-CIP-TN3270S-LS=	TN3270 Server - Limited 2000 Session Support SSL
FR-CIP-TN3270S-MS=	TN3270 Server - Mid-tier 5000 Session Support SSL
FR-CIP-TN3270S-US=	TN3270 Server - Unlimited CIP2 Support SSL
FR-CIP-TNUPG-L-S=	TN3270 Server Upgrade 2,000 Sessions To SSL
FR-CIP-TNUPG-M-S=	TN3270 Server Upgrade 5,000 Sessions To SSL
FR-CIP-TNUPG-U-S=	TN3270 Server Upgrade Unlimited Sessions To SSL
FR-CIP-TNUPG-LM-S=	TN3270 Server Upgrade From 2,000 Sessions To 5,000 SSL
FR-CIP-TNUPG-MU-S=	TN3270 Server Upgrade From 5,000 Sessions To Unlimited SSL
FR-CIP1-TN3270S-G=	CIP1: TN3270 Server Upgrade, Limited to Unlimited Version
FR-CIP2-TN3270S-G=	CIP2: TN3270 Server Upgrade, Limited to Unlimited Version
FR-CIP2-TN3270S-M=	TN3270 Server - Mid-tier 5000 session support
FR-CIP1-TN3270S-U=	TN3270 Server - Unlimited CIP1 Support
FR-CIP2-TN3270S-U=	TN3270 Server - Unlimited CIP2 Support
FR-CIP1-TNUPG-G-S=	TN3270 Server upgrade, limited to unlimited version with SSL
FR-CIP2-TNUPG-G-S=	CIP2: TN3270 Server upgrade, limited to unlimited - SSL
FR-CIP2-TNUPG-LM=	TN3270 server upgrade from 2000 to 5000 sessions
FR-CIP2-TNUPG-MU=	TN3270 server upgrade from 5000 to unlimited sessions
FR-CIP-SNASWITCH=	TN3270 Server - SNA Session Switch Feature
FR-CIP-ASSIST	TCP Assist Feature on CIP for host using Cisco IOS for S/390

NetFlow Utility Software

NDA-HPUX-3.X-UPG	Upgrade To Analyzer 3.6 For HP U/X Incl NFC 3.5
NDA-SOSU-3.X-UPE	Upgrade To Analyzer 3.6 For Solaris Incl NFC 3.5
NDA-HPUX-3.X-UPE	Upgrade To Analyzer 3.6 For HP U/X Incl NFC 3.5

Cisco 7500 RSP Feature Licenses

FR-WPP75=	Cisco IOS RSPx Series WAN Packet Protocols/Netflow License
FR-IR75=	Cisco IOS RSP Series InterDomain Routing License
FR75-AN2=	Cisco IOS 7500 Series DBConn

Cisco 7500 Series IOS Feature Licenses

FR75-APPN=	Cisco IOS RSPx Series APPN Upgrade
FR75-BS-A=	Cisco IOS RSPx Series Desktop/IBM to Enterprise
FR75-C-DS=	Cisco IOS RSPx Series IP to IP/IPX/IBM
FR75-C-BS=	Cisco IOS RSPx Series IP to Desktop/IBM
FR75-C-A=	Cisco IOS RSPx Series IP to Enterprise
FR75-DS-BS=	Cisco IOS RSPx IP/IPX/IBM to Desktop/IBM
FR75-DS-A=	Cisco IOS RSPx IP/IPX/IBM to Enterprise
FR75-40=	Cisco IOS RSPx Encryption 40 Upgrade
FR75-56=	Cisco IOS RSPx Encryption 56 Upgrade
FL75-H=	Cisco IOS 7500 Series Firewall/IDS Upgrade
FL75-K2=	Cisco IOS 7500 Series IPSEC 3DES Upgrade
FL75-L=	Cisco IOS 7500 Series IPSEC 56 Upgrade
FL75-R1=	Cisco IOS RSPx Series SNASwitch Upgrade
FL75-N-R1=	Cisco IOS 7500 Series APPN to SNASwitch Upgrade
FR-ITP-HSL=	IP Transfer Point (ITP) High Speed Link (HSL) License

Cisco 7500 Series IOS Feature Set Upgrades

FR-ITP-M3UA/SUA=	IP Transfer Point M3UA/SUA Functionality License
FR-ITP-M2PA=	IP Transfer Point M2PA Functionality Feature License

Versatile Interface Processor Port Adapters (VIP2 and VIP4)

PA-MC-8TE1+=	8 port multichannel T1/E1 8PRI port adapter

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.
2. Cisco 7200, 7400 and 7500 share many port adapters. Please see Cisco 7200, 7400 and 7500 Series Port Adapters, page 1-34 for additional part numbers.
3. Cisco 7400 and 7500 share many port adapters. Please see Cisco 7400 and 7500 Series Port Adapters, page 1-43 for additional part numbers.

For More Information

See the Cisco 7500 Series Web site: *http://www.cisco.com/go/7500*

Cisco 7600 Series

The Cisco 7600 Series combines optical WAN/MAN networking and high-volume Ethernet aggregation with a focus on line-rate delivery of high-touch IP services in large data centers and at the edge of service provider networks. It provides customers the flexibility of three different form factors: Cisco 7603, 7606, and 7609. As the most scalable system in the industry, each router offers the ability to deliver DS0 to OC-48 WAN connectivity, and 10-Mbps Ethernet to 10-Gigabit Ethernet LAN connectivity into Internet data center, metropolitan aggregation, WAN edge aggregation, and enterprise networking applications.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7603	• 3 slot (horizontal) chassis • 32 Gbps backplane bandwidth • 15 Mpps forwarding rate • NEBs Compliant
Cisco 7606	• 6 slot (horizontal) chassis • 160 Gbps backplane bandwidth • 30 Mpps forwarding rate • NEBs Compliant
Cisco 7609	• 9 slot (vertical) chassis • 256 Gbps backplane bandwidth • 30 Mpps forwarding rate • NEBs Compliant

Key Features

- Hardware accelerated IP services on each Optical Services Module (OSM), delivering up to 6 Mpps per slot
- 15 to 30 Mpps forwarding processor and up to 512 MB DRAM for Internet routing
- Modular and scalable from 32 Gbps to 256 Gbps switch fabric
- One of the widest, most complete ranges of WAN interfaces in the industry, with DS0 to OC-48 connectivity
- Leveraging the FlexWAN Module, 7x00 port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 which simplifies sparing and protects customer investment in interfaces
- Compatible with Catalyst 6500 LAN interfaces, offering 10 Mbps Ethernet to 1 Gbps

Competitive Products

• Redback: SMS-500, SMS-1800	• Unisphere: ERX700, ERX1400
• Juniper: M5, M10, M20, M40	• Extreme: Black Diamond 6808

Specifications

Feature	Cisco 7603	Cisco 7606	Cisco 7609
Fixed Ports	None	Same as Cisco 7603	Same as Cisco 7603
Expansion Slots	3 (horizontal)	6 (horizontal)	9 (vertical)
WAN Interface Range	DS0 to OC-48	Same as Cisco 7603	Same as Cisco 7603
Processor	Supervisor Engine 2 w/MSFC2 and PFC2	Same as Cisco 7603	Same as Cisco7603
Forwarding Rate	Up to 15 Mpps	Up to 30 Mpps	Up to 30 Mpps
Backplane Capacity	32 Gbps	160 Gbps	256 Gbps
Flash PCMCIA Memory	16MB (expandable to 24MB)	Same as Cisco 7603	Same as Cisco 7603
System DRAM Memory	128MB (expandable to 512MB)	Same as Cisco 7603	Same as Cisco 7603
Minimum Cisco IOS Release	12.1(8)AE3	Same as Cisco 7603	12.1(8)(A)EX
Internal Power Supply	AC or DC (1000 W)	AC or DC (1000 W)	AC or DC (1300 or 2500 W)
Redundant Power Supply Support	Yes	Same as Cisco 7603	Same as Cisco 7603
Chassis Height	4 RU	7 RU	20 RU
Rack Mountable	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack
Dimensions (HxWxD)	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	25.2 x 17.2 x 18.1 in.

Selected Part Numbers and Ordering Information[1]

Cisco 7609 Systems

CISCO7609	7609 Chassis Bundles
7609-AC-BUN	Enhanced 7609 Chassis, SUP2/MSFC2, 4000W AC P/S, 512MB DRAM
7609-DC-BUN-2500W	Enhanced 7609 Chassis, SUP2/MSFC2, 2500W DC P/S, 512MB DRAM
OSR-7609-AC	7609 Chassis, SUP2/MSFC2, 2500W AC P/S, 512MB DRAM
OSR-7609-DC	7609 Chassis, SUP2/MSFC2, 2500W DC P/S, 512MB DRAM

Cisco 7606 Systems

CISCO7606	Cisco 7606 Chassis Bundle
7606-AC-BUN	7606 Chassis, SUP2/MSFC2, 1900W AC P/S, PEM, 256MB DRAM
7606-DC-BUN	7606 Chassis, SUP2/MSFC2, 1900W DC P/S, PEM, 256MB DRAM
CISCO7606-CHASS	Cisco 7606 Chassis

Cisco 7603 Systems

CISCO7603	Cisco 7603 Chassis Bundle
7603-AC-BUN	7603 Chassis, SUP2/MSFC2, 950W AC P/S, PEM, 256MB DRAM
7603-DC-BUN	7603 Chassis, SUP2/MSFC2, 950W DC P/S, PEM, 256MB DRAM
CISCO7603-CHASS	CISCO 7603 Chassis

Cisco 7600 Optical Services Modules (OSMs)

OSM-1CHOC12/T1-SI=	1-port CHOC-12/CHSTM-4 OSM IR, to DS0 and T1/E1, w/4GE
OSM-12CT3/T1=	12-port Channelized DS-3 to DS-1/DS-0
OSM-1CHOC48/T3-SS=	1-port CHOC-48/CHSTM-16 OSM, to T3/E3, SM-SR, with 4 GE
OSM-1CHOC12/T3-SI=	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GE
OSM-1OC48-POS-SI=	1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, with 4 GE
OSM-1OC48-POS-SL=	1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, with 4 GE
OSM-1OC48-POS-SS=	1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, with 4 GE
OSM-2OC12-ATM-MM=	2-port OC-12/STM-4 ATM OSM, MM, with 4 GE
OSM-2OC12-ATM-SI=	2-port OC-12/STM-4 ATM OSM, SM-IR, with 4 GE
OSM-2OC12-POS-MM=	2-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-2OC12-POS-SI=	2-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-2OC12-POS-SL=	2-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 GE
OSM-4GE-WAN-GBIC=	4-port Gigabit Ethernet Optical Services Module, GBIC
OSM-4OC3-POS-SI=	4-port OC-3/STM-1 SONET/SDH OSM, with 4 GE
OSM-4OC12-POS-MM=	4-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-4OC12-POS-SI=	4-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-4OC12-POS-SL=	4-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 GE
OSM-8OC3-POS-MM=	8-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 GE
OSM-8OC3-POS-SI=	8-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE
OSM-8OC3-POS-SL=	8-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE
OSM-16OC3-POS-MM=	16-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 GE
OSM-16OC3-POS-SI=	16-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE
OSM-16OC3-POS-SL=	16-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE
OSM-2OC48/1DPT-SS=	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GE
OSM-2OC48/1DPT-SI	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GE

OSM-2OC48/1DPT-SL=	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GE

Cisco 7600 Line Cards

WS-F6K-DFC=	Distributed Forwarding Card
WS-X6348-RJ-45=	Catalyst 6000 48-port 10/100, Upgradable to Voice, RJ-45
WS-X6516-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6502-10GE=	Catalyst 6500 10 Gigabit Ethernet Base Module(Req OIM),Spare
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F w/DF, (Req GBICs)
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
WS-X6516-GE-TX=	Catalyst 6500 16-port Gig/Copper Module, x-bar

Cisco 7600 Memory Options

MEM-OSM-64M=	64MB ECC Memory for Optical Services Modules
MEM-OSM-128M	128 MB ECC Memory for Optical Services Modules
MEM-OSM-256M	256 MB ECC Memory for Optical Services Modules
MEM-OSM-512M	512 MB ECC Memory for Optical Services Modules

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 7600 Series Web site: *http://www.cisco.com/go/7600*

Cisco 10000 Series

The Cisco 10000 Series is the industry's only edge router that delivers consistent, high performance services for carriers deploying IP, MPLS, and broadband services to DSL and private line customers. Coupled with proven high availability and innovative adaptive network processing technology, the Cisco 10000 Series is uniquely designed to meet the service needs of carriers up to DS3/E3 aggregation speeds.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 10008	• Broadband features including PPP over ATM, PPP over Ethernet, routed bridge encapsulation, and Layer 2 Tunneling Protocol • MPLS, MPLS VPN, and MPLS Quality of Service edge features • Leased line features such as seamless integration from a dedicated access environment (TDM or SONET/SDH) to the ATM core.

Key Features

- Industry-leading high availability—nonstop performance, with a complete set of reliability features for high availability (99.999 percent uptime). Full hardware redundancy, hot-swappable elements, and seamless route processor cutover provide continuous traffic forwarding.
- Lowest total cost of ownership—the Cisco 10000 offers the highest leased-line, ATM, frame, and broadband session densities on a single platform, and its high reliability reduces network downtime and operational expenses
- Broad portfolio of line-rate IP sessions—critical service features, such as QoS, MPLS, Multilink PPP, and ACLs are hardware accelerated to deliver exceptional throughput for every connection

Cisco 10000 Series

• Industry-leading session density—the Cisco 10000 supports thousands of DS0, DS1/E1 connections, or hundreds of clear-channel DS3 connections on a single platform, providing the highest port density of DS3-and-below interfaces

Competitive Products

• Redback: SMS-10000	• Unisphere: ERX700, ERX1400
• Juniper: M5, M10, M20	

Specifications

Feature	Cisco 10008
Fixed Ports	None
Expansion Slots	8 (for interfaces)
WAN Interface Range	DS0 to OC-12
Processor	Cisco PXF Processor
Forwarding Rate	10005Up to approximately 6 Mpps
Backplane Capacity	51.2 Gbps
Flash PCMCIA Memory	48 MB (expandable to 128 MB)
System DRAM Memory	512 MB
Minimum Cisco IOS Release	12.0(9)SL
Internal Power Supply	AC or DC, dual option
Redundant Power Supply	Yes, for both AC and DC
Chassis Height	13 RU
Rack Mountable	Yes, up to 3 per rack
Dimensions (HxWxD)	21.75 x 17.5 x 12 in.

Selected Part Numbers and Ordering Information[1]

Cisco 10008 Pricing Bundles

ESR10008-1P1AC	C10000 8-slot chassis,1 PRE, 1 AC PEM
ESR10008-1P1AC+6	C10000 8-slot chassis,1 PRE, 1 AC PEM,1CT3 module
ESR10008-1P1DC	C10000 8-slot chassis,1 PRE, 1 DC PEM
ESR10008-1P1DC+6	C10000 8-slot chassis,1 PRE, 1 DC PEM,1CT3 module
ESR10008-1P1AC+4CH	C10000 8-slot chassis, 1 PRE, 1 AC PEM, 1 CH STM-1 Module
ESR10008-1P1DC+4CH	C10000 8-slot chassis, 1 PRE, 1 DC PEM, 1 CH STM-1 Module
ESR10008-2P2AC	C10000 8-slot chassis, 2 PREs, 2 AC PEMs
ESR10008-2P2AC+6	C10000 8-slot chassis,2 PREs, 2 AC PEMs,1 CT3 module
ESR10008-2P2DC	C10000 8-slot chassis,2 PREs, 2 DC PEMs
ESR10008-2P2DC+6	C10000 8-slot chassis,2 PREs, 2 DC PEMs,1 CT3 module
ESR10008-2P2AC+4CH	C10000 8-slot chassis, 2 PREs, 2 AC PEMs, 1 CH STM-1 Module
ESR10008-2P2DC+4CH	C10000 8-slot chassis, 2 PREs, 2 DC PEMs, 1 CH STM-1 Module
ESR10008-1P1DC-SK	ESR10008 BBA Starter Kit with PRE1, DC, 4-port OC3, GE

Cisco 10005 Pricing Bundles

ESR10005-1P1AC	C10000 5-slot chassis, 1 PRE, 1 AC PEM
ESR10005-1P1DC	C10000 5-slot chassis, 1 PRE, 1 DC PEM
ESR10005-1P1AC+6	C10000 5-slot chassis, 1 PRE, 1 AC PEM, 1 CT3 Module
ESR10005-1P1DC+6	C10000 5-slot chassis, 1 PRE, 1 DC PEM, 1CT3 Module
ESR10005-1P1AC+4CH	C10000 5-slot chassis, 1 PRE, 1 AC PEM, 1 CH STM-1 Module
ESR10005-1P1DC+4CH	C10000 5-slot chassis, 1 PRE, 1 DC PEM, 1 CH STM-1 Module
ESR10005-2P2AC	C10000 5-slot chassis, 2 PREs, 2 AC PEMs
ESR10005-2P2DC	C10000 5-slot chassis, 2 PREs, 2 DC PEMs
ESR10005-2P2AC+6	C10000 5-slot chassis, 2 PREs, 2 AC PEMs, 1CT3 Module
ESR10005-2P2DC+6	C10000 5-slot chassis, 2 PREs, 2 DC PEMs, 1CT3 Module
ESR10005-2P2AC+4CH	C10000 5-slot chassis, 2 PREs, 2 AC PEMs, 1 CH STM-1 Module
ESR10005-2P2DC+4CH	C10000 5-slot chassis, 2 PREs, 2 DC PEMs, 1 CH STM-1 Module
ESR10005-CHAS=	C10000 5-SLOT CHASSIS, INCL. 5xDS3 EXT CRD,ALM CRD,BWR,SPARE
ESR-PRE1	Performance Routing Engine, 512 DRAM and 32M Flash

Cisco 10000 Series Memory Options

ESR-PRE-MEM-FD48	C10000 PRE 48M Flash Disk (default)
ESR-PRE-MEM-FD128	C10000 PRE 128M Flash Disk option
ESR10005-PWR-AC	AC Power Entry Module
ESR10005-PWR-DC	DC Power Entry Module
ESR-PWR-DC=	DC POWER ENTRY MODULE FOR ESR10008
ESR-PWR-AC	AC power entry module for ESR10008
ESR-PWR-AC/R	Redundant AC power entry module for ESR10008,spare
ESR10005-PWR-AC=	AC POWER ENTRY MODULE, SPARE
ESR10005-PWR-AC/R	Redundant AC Power Entry Module
ESR10005-PWR-DC/R	Redundant DC Power Entry Module
CAB-DS-ACE	Power Cables for AC Power Option, European
CAB-DS-ACI	Power Cables for AC Power Option, Italian
CAB-DS-ACJ-TWLK	Power Cables for AC Power Option, Japan
CAB-DS-ACU	Power Cables for AC Power Option, UK
CAB-DS-120VAC	Cisco 120 VAC Power Cable, US
ESR-24CT1/E1	24port Channelized E1/T1 Line Card
ESR-8E3/DS3	8 port clear channel E3/DS3 Line Card
ESR-6CT3	6 port channelized T3 line card
ESR-1GE	1 pt Gigabit Ethernet line card (requires a GBIC)
ESR-GBIC-SX	1000base-SX GBIC, multimode,standardized for ESR
ESR-GBIC-LHLX	1000base-LH GBIC,singlemode,standardized for ESR
ESR-GBIC-ZX	1000base-ZX GBIC,singlemode,standardized for ESR
ESR-4OC3ATM-SM	4 Port OC3/STS3c/STM1c ATM Line Card, single mode
ESR-1COC12-SMI	1 pt ChOC12 (STS12) line card, single mode intermed. reach
ESR-1OC12/P-SMI	1 pt OC12/STS12c/STM4 POS, single mode, int reach
ESR-1OC12ATM-SM	1 pt OC12/STM4 ATM Line Card, Single-Mode

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 10000 Series Web site: *http://www.cisco.com/go/10000*

Cisco 10720 Series

The Cisco 10720 Internet Router is a high-performance router and a principle building block in the metro IP network. It enables service providers to offer innovative and differentiated IP services to their customers at optical speeds. Equipped with Ethernet technology for customer access and the innovative Dynamic Packet Transport (DPT)/RPR (Resilient Packet Ring) technology or Packet over SONET (POS) for metro optical connectivity, the Cisco 10720 allows service providers to offer IP services closer to the user, enabling them to better control admission to network resources. This allows service providers to bypass traditional DS1 and DS3 access options. The dual counter rotating ring technology of DPT is also cost effective, since it uses both rings and can be deployed over dark fiber and still maintain the less than 50ms restoration common in SONET/SDH systems. For multiservice applications, DPT can also be deployed over traditional SONET/SDH ADMs and wavelength division multiplexing (WDM) systems.

The Cisco 10720 is a cost-effective, reliable platform that not only supports the full suite of IP routing protocols such as IS-IS, OSPF and BGP, but also allows advanced IP features to be introduced efficiently, without compromising on performance. Although primarily designed for high-speed Internet services for multitenant and business-park applications in the metro, the Cisco 10720 Internet Router is also suitable for a range of other applications such as: Internet data center applications, intra-POP aggregation, cable multisystem operator (MSO) internetworking, and voice-over-IP (VoIP) aggregation.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 10720 Internet Router	• Any service provider planning to offer high-performance IP services as part of their business strategy by extending IP further out into the network • Any service provider wanting to simplify their current network and implement the simple, scalable, reliable features of DPT technology while maximizing fiber usage • Any customer already using DPT technology in their network, most likely with DPT cards on the 12000 Internet Router • Metro Ethernet Services such as L2 and L3 VPN with FE/GE hand off to the Customer and 50ms restoration over dark fiber using DPT.

Key Features

- Equipped with Redundant Power Supply by default
- SRP specific features—IPS with <50 ms restoration time and SRP MIB support
- Multicast support including PIM SM, PIM DM, MBGP
- L2 VPN—UTI, L2TPv3 and EoMPLS for Layer 2 to Layer 2 LAN extension; L3 VPN MPLS VPN
- QoS—Modular QoS CLI, CAR, WRED, VTMS traffic shaping, and access lists
- Ethernet features—MDI-MDI-X support, 10/100 speed auto-negotiation, HDX-FDX negotiation and time delay reflectometry (TDR) for 10/100BaseTX
- Hot Standby Routing Protocol (HSRP)/Multiple Hot Standby Routing Protocol (MHSRP)
- 64-MB built-in Flash for software and configuration load
- Optical receive power monitoring support on OC-48/STM-16 Interface and GE
- Supported management information bases (MIBs) include SNMP, SRP, SONET, Etherlike, OSPF

Competitive Products (vs. Cisco's Metro IP RPR Solution using the 10720)

• Extreme Summit: 48/Blackdiamond comb for GigE Hub & Spoke   • Riverstone: RS3000/RS8600 combo for GigE Hub & Spoke

Specifications

Feature	Cisco 10720
Security Features	Including AAA, RADIUS authentication, TACACS+, and encrypted passwords
Management	Cisco IOS CLI TACACS+ and RADIUS Configuration and administration features including Telnet and Cisco Discovery Protocol (CDP) Serial (aux) and console ports for local and remote administration Remote software download via TFTP and RCP IP over DCC for remote management of the Cisco ONS 15104 OC-48/STM-16 Optical Regenerator, where applicable
Physical Interfaces	Uplink Modules: 2-port single-mode OC-48c/STM16c DPT (SR 2 km (1.2 miles), IR 15 km (9.3 miles), LR1 40km (24 miles) and LR2 80km (50miles) Interface Modules—The Cisco 10720 Internet Router has two dedicated slots for interface modules—modules are not interchangeable or hot swappable: • Upper slot is dedicated for DPT or POS Uplink module equipped with two physical ports of OC-48c/STM16c that provide an aggregate bandwidth of approximately 5 Gbps. The cards are available in two four versions of optics, short reach (SR) and intermediate reach (IR), Long Reach1 (LR1) and Long Reach2 (LR2) with two small form-factor OC-48 ports with LC connectors. • A third option for the upper slot is the CON-AUX module, which is a depopulated uplink card equipped with Console and Auxiliary ports only: this allows the configuration of the 10720 as an "Ethernet Router" allowing the use of one or more of the Ethernet ports in the lower slot for network connectivity • Lower slot is dedicated for 24-port Fast Ethernet module—available in TX (100 m reach), FX-MM (2 km reach) or FX-SM (15 km reach). The TX module is equipped with RJ-45 connectors while the FX-SM and FX-MM modules are equipped with MT-RJ connectors. • Also available is a combination 4 Gigabit Ethernet with Small Form Factor Plug-able (SFP) Optics available in SX 550m and LH 10km plus an additional 8 Ports of Fast Ethernet 10/100 TX Copper ports. The TX and the FX-MM versions of the 24-port Fast Ethernet modules accommodate copper or multimode fiber deployments within MTUs and the FX-SM allows for deployment of the Cisco 10720 Internet Router in a central location covering Ethernet connectivity to buildings for a radius of up to 15 km.
Dimensions	3.5 x 17.25 x 18.25 in. (8.9 x 43.81 x 46.35 cm)

Selected Part Numbers and Ordering Information[1]

Cisco 10700 Series

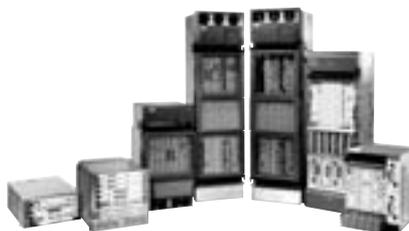|	
CISCO10720-AC-A	Cisco 10720 Internet Router with dual AC power supply
CISCO10720-DC-A	Cisco 10720 Internet Router with dual DC Power Supply
10720-FE-TX	24-port 10/100 Ethernet Access Module—RJ45 connectors
10720-FE-FX-MM	24-port 100Mbps Multimode Fiber Ethernet Access Module 2km—MTRJ connectors
10720-FE-FX-SM	24-port 100Mbps Single mode Fiber Ethernet Access Module 15km—MTRJ connectors
10720-GE-FE-TX	4-port 100Mbps SFP GE with 8-ports of 10/100 Ethernet TX-RJ45
10720-SR-LC	OC-48c/STM-16c SRP Short Reach (2km) Uplink Module—LC connectors
10720-IR-LC	OC-48c/STM-16c SRP Intermediate Reach (15km) Uplink Module—LC connectors
10720-LR1-LC	OC-48c/STM-16c SRP Long Reach 1 (40km) Uplink Module — LC
10720-LR2-LC	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module-LC connectors
10720-CON-AUX	Console and Auxiliary port that fits in the Upper Slot
10720-SR-LC-POS	OC-48c/STM-16c POS Short Reach (2km) Uplink Module-LC connectors
10720-IR-LC-POS	OC-48c/STM-16c POS Intermediate Reach (15km) Uplink Module-LC connectors
10720-LR1-LC-POS	OC-48c/STM-16c POS Long Reach 1 (40km) Uplink Module - LC
10720-LR2-LC-POS	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module-LC connectors

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 10720 Internet Router Web site: *http://www.cisco.com/go/10700*

Cisco 12000 Series

The Cisco 12000 Series Internet Router is part of Cisco's family of multimillion packets-per-second (mpps) IP and MPLS routing platforms for building profitable networks in today's communications economy. The Cisco 12000 Series is the premier high-end routing platform for service provider backbone and edge applications, enabling service providers to meet the challenge of building packet networks to satisfy services demand while increasing profitability.

The Cisco 12000 Series offers the only portfolio of 10 Gbps per slot systems and interfaces (including Packet over SONET [POS], Dynamic Packet Transport/Resilient Packet Ring [DPT/RPR], and Gigabit Ethernet [GbE]), delivering 10G economies of scale anywhere in the network. The Cisco 12000 Series provides the highest reliability, the richest set of service enablers, the lowest total cost of ownership, and the only proven investment protection, including systems that can be upgraded in the field to increase switching capacity. This innovative combination of features and capabilities enables service providers to build the most competitive IP and MPLS networks.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 12400 Internet Routers (10G)	• 10 Gbps/slot, from 80 to 320 Gbps of non-blocking switching capacity • Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-192c/STM-64c • 4 10G platforms to choose from: 12416, 320 Gbps, 16 slots, 40 RU; 12410, 200 Gbps, 10 slots, 20 RU; 12406, 120 Gbps, 6 slots, 10 RU; 12404, 80 Gbps, 4 slots, 5 RU • Support for industry-leading QoS/CoS features ideal for peering, transit, POP consolidation, and IDC bandwidth aggregation as well as latency-sensitive applications like voice and video • Support for IP or MPLS forwarding • Support for hundreds of thousands of routes • Proven carrier- class reliability and availability through enhanced features such as Online Insertion and Removal, High Availability (RPR+, NSF and SSO) and APS/MPS
Cisco 12000 Internet Routers (2.5G)	• 2.5 Gbps/slot, from 40 to 80 Gbps switching capacity • Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-48c/STM-16c • 3 chassis to choose from: 12016, 80 Gbps, 16 slots, 40 RU; 12012, 60 Gbps, 12 slots, 32 RU; 12008, 40 Gbps, 8 slots, 14 RU • The 12016 Internet Router is upgradeable to 320 Gbps via an easy, field-installed switch fabric upgrade kit—no need to pull out existing line cards
Cisco 12000 Manager	• An element management solution to increase service velocity and decrease operation costs

Key Features

- Proven investment protection, offering full forward compatibility for all line cards, and the only high-end system with a modular, replaceable switch fabric for field-installed capacity upgrades
- Only fully distributed system architecture scales to the edge, supporting backbone- or edge-optimized line cards in the same chassis
- Only platform that maximizes the value of line-rate edge applications with 10G uplinks. By deploying Cisco 12000 Series IP Services Engine (ISE) line cards in Cisco 12400 Internet Routers, Service Providers benefit from line cards optimized for edge applications, while removing the bandwidth bottleneck with full 10 Gbps uplinks using cost-effective VSR optics or 10 GbE for intra-POP connections.
- The only complete priority packet delivery solution set
- Industry's only complete IP QoS and congestion control implementation that uniquely enables premium real-time services such as VoIP and video. Its distributed architecture and class of service features such as priority based congestion control (WRED) and dedicated low latency queuing (MDRR), along with virtual output queuing (VoQ), eliminate head of line blocking (HOL) and maintain packet sequence integrity under all conditions
- Non-service—impacting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance
- High availability features such as Cisco Non Stop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption. With these features, packet forwarding remains uninterrupted before, during and after a route processor switchover on the Cisco 12000 Series. Coupled with OIR, the faulty route processor can be replaced without affecting operation
- Designed for NEBS compliance to meet service provider carrier-class requirements

Competitive Products

- Juniper: T640, M160, M40E, M40, and M20
- Avici: Stackable Switch Router (SSR)

Specifications

Feature	Cisco 12008	Cisco 12012	Cisco 12016	Cisco 12404	Cisco 12406	Cisco 12410	Cisco 12416
Switching Capacity	40 Gbps	60 Gbps	80 Gbps	80 Gbps	120 Gbps	200 Gbps	320 Gbps[1]
Capacity per slot (full duplex)	2.5 Gbps	2.5 Gbps	2.5 Gbps	10 Gbps	10 Gbps	10 Gbps	10 Gbps[1]
Chassis Size	1/3 Rack	Full Rack	Full Rack	1/8 Rack	1/4 Rack	1/2 Rack	Full Rack
Chassis Slots	8	12	16	4	6	10	16
Supported Line Cards	All Cisco 12000 Series 2.5 Gbps line cards\n\nSee Part Numbers and Ordering Information	Same as Cisco 12008	All 2.5 Gbps line cards plus all 10 Gbps line cards when upgraded	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	All Cisco 12000 Series Line Cards
Supported Protocols	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP, PIM (dense and sparse mode)	Same as Cisco 12008	Same as Cisco 12008	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP,DVMRP, PIM DM/SM
Management	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager
Dimensions	24.85 x 17.4 x 21.2 in. (63.1 x 44.2 x 53.8 cm)	56 x 17.3 x 21 in. (142.2 x 43.9 x 53.3 cm)	72.5 x 18.75 x 24 in. (184.2 x 47.6 x 61 cm)[2]	8.75 x 18.9 x 27.5 in. (22.23 x 48.01 x 69.85 cm)	18.5 x 18.9 x 28 in. (47 x 48 x 71.1 cm)[3]	37.5 x 19 x 24 in. (95.25 x 48.26 x 61 cm)[4]	72.5 x 18.75 x 24 in. (184.2 x 47.6 x 61 cm)[2]

1. The Cisco 12016 may be field upgraded to a Cisco 12416 via a Switch Fabric Upgrade kit, providing 10 Gbps full duplex capacity per slot, for an overall 320 Gbps switching capacity
2. Includes power, front cover, rack mount flanges, and cable-management system
3. Includes rack-mount flanges, power entry module pullouts, blower, and handle
4. Includes cable-management system and front cover

Selected Part Numbers and Ordering Information[1]

Cisco 12000 Series of Gigabit Switch Routers (GSR)

GSR6/120-AC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 AC Power Supply
GSR6/120-DC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 DC Power Supply
GSR8/40	Cisco12008 GSR 40Gbps;1GRP,1CSC-GSR8,3SFC-GSR8,1DC
GSR10/200-AC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 AC
GSR10/200-DC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 DC
GSR12/60	Cisco12012 GSR 60Gbps;1GRP,1CSC,3SFC,1DC
GSR4/80-AC	GSR12404- 4 slot AC System
GSR4/80-DC	GSR12404- 4 slot DC System
GSR16/80-AC-8R	Cisco 12016 80 Gpbs; 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Rails
GSR16/80-AC4-8R	Same As GSR16/80-AC-8R But W/ 4AC And Requires 8 Foot Rack
GSR16/80-DC-8R	Cisco 12016 80 Gpbs; 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Rails
GSR16/320-AC	Cisco 12416 320 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Rails
GSR16/320-AC4	Same As GSR16/320-AC-8R But W/ 4 AC And Requires 8 Foot Rack
GSR16/320-DC	Cisco 12416 320 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Rails

Cisco 12000 Series Processors

GRP-B	Route Processor, 128MB and 20MB Flash, ECC support
GRP-B/R	GSR Route Processor, Redundant Option
PRP-1	Cisco 12000 Series Performance Route Processor
PRP-1/R	Redundant PRP-1 chassis upgrade option, factory only

Cisco 12000 Series Line Cards

LC-4OC3/POS-SM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Single-Mode
LC-4OC3/POS-MM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Multi-Mode w
LC-1OC12/POS-SM	1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode
LC-1OC12/ATM-MM	1 port OC12/STM4 ATM Line Card, Multi-Mode
LC-1OC12/ATM-SM	1 port OC12/STM4 ATM Line Card, Single-Mode
LC-1OC12/POS-MM	1 port OC12/STM4 Packet Over SONET/SDH Line Card, Multi-Mode
CHOC48/DS3-SR-SC	1 port channelized oC-48 to DS3
2CHOC3/STM1-IR-SC	Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach
4CHOC12/DS3-I-SCB	4 PORT CHANNELIZED OC12 B
4OC3/ATM-IR-SC	4 port OC3/STM1 ATM Line Card intermediate reach
4OC3/ATM-MM-SC	4 port OC3/STM1 multimode ATM line card
4OC3/POS-LR-SC	4 port OC-3/STM1 SONET/SDH Long Reach LC with SC connector
4OC12/ATM-IR-SC	4 port OC-12/STM4 ATM LC Intermediate Reach
4OC12/ATM-MM-SC	4 port OC-12/STM4 ATM Line Card multimode
4OC12/POS-MM-SC-B	4OC12/POS-MM-SC-B
4OC12X/POS-M-SC-B	4-port OC12/POS Eng3 Multi-mode
4OC12/POS-IR-SC-B	4OC12/POS-IR-SC-B
4OC12X/POS-I-SC-B	4 PORT OC12 POS B
4OC48/SRP-SFP=	4 Port OC48c/STM16c SRP Linecard, SFP Optics
4OC48E/POS-LR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH LR with SC
4OC48E/POS-SR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH SR with SC
8OC03/ATM/TS-IR-B	8-port OC03/STM1 ATM IR LC with SC connector
8OC03/ATM/TS-MM-B	8-port OC03/STM1 ATM MM LC with SC Connector
OC12/SRP-IR-SC-B	OC12 SRP IR line card
OC12/SRP-LR-SC-B	OC12 SRP LR line card
OC12/SRP-MM-SC-B	OC12 SRP MM line card
OC12/SRP-XR-SC	OC12 SRP single ring linecard, single mode 1550, XR
OC48/SRP-LR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Long Reach
OC48/SRP-SR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Short Reach, GSR
OC48E/POS-LR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1550nm LR with SC
OC48E/POS-SR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1310nm SR with SC, GSR
OC48X/POS-LR-SC	CONCATENATED OC48 WITH EXTENDED FEATURES LONG REACH
OC48X/POS-SR-SC	1 port OC48 POS Extended features
8OC3/POS-MM=	8 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn Spare
8OC3/POS-SM=	8 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
1X10GE-LR-SC=	Cisco 12000 1-Port 10GE Card, 1310nm serial, 10km, SC
16OC3/POS-MM=	16 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn
16OC3/POS-SM=	16 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
16OC3X/POS-I-LC-B	16 PORT OC3 WITH EXTENDED FEATURES RELEASE B
EPA-GE/FE-BBRD	Cisco 12000 Modular GE Baseboard w/ 1GE and 3 EPA Slots
EPA-3GE-SX/LH-LC	Cisco 12000 3-Port GE Port Adapter for EPA-GE/FE-BBRD
3GE-GBIC-SC	GSR12000 three-port GE line card
GE-GBIC-SC-B	GSR12000 single port Gigabit Ethernet line card
GBIC-SX-MM	1000base-SX GBIC module, multimode,standardized for GSR12000
GBIC-LH-SM	1000base-LH GBIC module,singlemode,standardized for GSR12000
GBIC-ZX-SM	GBIC very long reach GBIC module for the GE line card
6CT3-SMB	Channelized T3 for the GSR
GLC-LH-SM	GE SFP, LC connector LH transceiver
GLC-SX-MM	GE SFP, LC connector SX transceiver
6DS3-SMB-B	6DS3-SMB-B w/ ECC
6E3-SMB	E3 line card, 6 ports
12DS3-SMB-B	12DS3-SMB-B w/ ECC
12E3-SMB	E3 line card, 12 ports
CHOC12/STS3-IR-SC=	Channelized OC-12/STM-4 with four STS-3c/STM-1 POS paths
LC-OC12-DS3	1 port Channelize OC-12 with 12 DS3s
8FE-FX-SC-B	GSR 8-port 100baseFX, SC connector, version B
8FE-TX-RJ45-B	8-port 100baseTX, RJ45 connector type, version B
OC192/POS-IR-SC	1 Port OC192c/STM64c POS, 1550nm IR, SC
OC192/POS-SR-SC	1 Port OC192c/STM64c POS, 1310nm SR, SC
OC192/POS-VSR	1 Port OC192c/STM64c POS, VSR Optics
OC192E/POS-VSR	1 Port OC192c/STM64c POS Edge Card, VSR Optics
OC192E/POS-IR-SC	1 Port OC192c/STM64c POS Edge Card, 1550nm IR, SC
OC192E/POS-SR-SC	1 Port OC192c/STM64c POS Edge Card, 1310nm SR, SC
OC192/SRP-VSR	1 Port OC192c/STM64c SRP Linecard, 850nm VSR, MTP
OC192/SRP-IR-SC	1 Port OC192c/STM64c SRP Linecard, 1550nm IR, SC
OC192/SRP-SR-SC	1 Port OC192c/STM64c SRP Linecard, 1310nm SR, SC

Cisco 12000 Series

4GE-SFP-LC=	4 port-GE line card for Cisco 12000
Cisco 12000 Series Pluggable Optic Modules	
POM-OC48-LR2-LC	1-port OC-48/STM-16 Pluggable Optic Module, 1550nm SM-LR2 LC
POM-OC48-SR-LC	1-port OC-48/STM-16 Pluggable Optic Module, 1310nm SM-SR LC

1. Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 12000 Series Web site: *http://www.cisco.com/go/12000*

Cisco SN 5400 Series Storage Router

The Cisco SN 5400 Series implements the iSCSI protocol to extend access of a Fibre Channel fabric and attached storage devices to IP servers. iSCSI (internet SCSI) combines the benefits of the TCP/IP protocol suite with SCSI, the universal standard for storage access. By utilizing iSCSI, the SN 5400 Series extends a Fibre Channel storage network to lower priced/lower performance servers in a data center and departmental servers located throughout the campus and enterprise. With the SN 5428, access to a Fibre Channel Storage Area Network (SAN) from anywhere on an IP network is as easy as accessing direct attached storage.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco SN 5428	• When a customer is moving from a DAS (Direct Attached Storage) environment to a SAN (Storage Area Network) and they do not already have a Fibre Channel switch, the SN 5428 provides a Fibre Channel switch and iSCSI ports to deliver a one system solution.
	• When the customer wants only a full function Fibre Channel switch, the SN 5428 is a very cost effective, low latency switch that will perfectly fit a Fibre Channel only implementation
	• When the customer has block level applications and wants to maintain block level access to shared storage combined with IP/Ethernet for a substantial reduction in attachment costs.

Key Features

• Provides levels of security and access control beyond what is currently available in traditional storage area networks by including layer 2 and layer 3 protection to resist against unauthorized access to your storage resources
• Uses the TCP/IP protocol suite for storage networking which protects your existing investment in storage and networking infrastructure
• Fully integrates existing management and configuration tools
• Based on industry standards, maximizes your investment and enables you to reduce total cost of ownership for the increasing storage demands on your network
• Uniquely provides standard IP networking capabilities to storage environments
• SN 5428: Designed for high-availability providing continuous access to critical data; Extensive security features to protect valuable storage resources; and, Full breadth of iSCSI drivers

Competitive Products

• Nishan	• FalconStor
• McData: Fibre Channel Switches	• Brocade: Fibre Channel switches
• Qlogic: Fibre Channel Switches	

Selected Part Numbers and Ordering Information[1]

Cisco SN 5428 Storage Router

SN5428   The SN 5428 provides two Gigabit Ethernet ports, supporting iSCSI, for connection to standard IP networks
                         and eight Fibre Channel fabric switch ports.

Cisco SN 5428 Drivers & Firmware

SN5428-FW-2.x   Cisco SN 5428 Firmware: 2.2.x minimum (2.2.1 minimum)

SN-ISCSI-DRV=   Cisco iSCSI drivers that support the Cisco SN 5428 2.2.x firmware: Windows NT, Windows 2000, Linux, Solaris,
                         HP/UX, AIX

Cisco SN 5428 SFP: Small Form Factor Pluggables

SN-SFP-FCMM-LC=   SFP for Fibre Channel Multi-mode fiber with LC connector

SN-SFP-FCMM-LC=   SFP for Fibre Channel Multi-mode fiber with connector spare

SN-SFP-FCGEMM-LC   SFP for GE/FC with LC connector

SN-SFP-FCGEMM-LC=   SFP for GE/FC with LC connector

Cisco SN 5420 Series Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-PKG10   Cisco SN 5428 Packaged SMARTnet 8x5xNBD—Category 10

For More Information

See the Cisco SN5420 Series Storage Router Web sites:
http://www.cisco.com/go/sn5428

LAN Switching

LAN Switching Products at a Glance

Product	Features	Page
Catalyst 2900 Series	Fixed-configuration Ethernet switches • 10/100 auto sensing and auto negotiating interface • Managed	2-3
Catalyst 2948G-L3	Fixed and Modular ports • Gigabit Ethernet over Fiber or Copper • High performance, Cisco Express Forwarding (CEF) Layer 2/3/4 switching up to 48 Mpps • Advanced network control with predictable performance, granular QoS, advanced security, comprehensive management	2-3
Catalyst 2900 Series XL—Modular Switches	Modular 10/100 Ethernet switches • 12 or 24 10/100 ports • 12 100BASE- FX ports (2912MF XL) • Two high-speed module slots accommodating 10/100, 100BASE-FX, Gigabit Ethernet (including 1000BASE-T), and GigaStack GBIC (2912MF XL and 2924M XL only) • Cisco switch clustering enabled • Managed	2-4
Catalyst 2950 Series	Fixed-configuration basic and Intelligent Ethernet 10/100 switches • 12/24/48 10/100 port managed switches with stackable and standalone models • Flexible uplink options: fixed 100Base FX, fixed 1000BaseT, fixed 1000BaseSX, and GBIC-based ports • Industrial-grade, rugged models (Catalyst 2955) for harsh environment deployments • Wire-speed, high performance switch • Models with the Standard Image software (SI) provide Layer 2 Cisco IOS functionality for basic data, voice, and video services at the edge of the network. • Models with the Enhanced Image software (EI) bring Layer 2-4 intelligent services such as advanced Quality of Service, rate limiting, security filtering and multicast management capabilities • Stackable up to 9 switches with Gigastack GBIC • Simplified network management through Cisco Cluster Management Suite up to 16 fixed configuration Catalyst switches	2-6
Catalyst 3500 Series XL	Fixed-configuration 10/100 and Gigabit Ethernet switches • 24 ports with 2 GBIC-based Gigabit Ethernet ports with in-line power(3524-PWR XL) • 8 GBIC-based ports (3508G XL) • Stackable up to 9 switches with GigaStack GBIC • Cisco Switch Clustering capable • Managed	2-10
Catalyst 3550 Series	Fixed-configuration Intelligent Ethernet switches in stackable 10/100, inline power, or Gigabit Ethernet configurations • Network control and bandwidth optimization via advanced Quality of Service (QoS), granular rate-limiting, Access Control Lists (ACLs), and multicast services • Network security through a wide range of authentication methods, data encryption technologies, and access restriction features based on users, ports, and MAC addresses • Network scalability through advanced routing protocols such as EIGRP, OSPF, BGP, and PIM (requires Enhanced Multilayer Software Image (EMI)) • Intelligent adaptability through Cisco Identity Based Networking Services (IBNS) offering greater flexibility and mobility to stratified users	2-12

Product	Features	Page
Catalyst 4500 Series-Modular Configuration (4503, 4506 and 4507R)	Modular, multilayer switch with integrated intelligent services for converged networks in enterprise campus wiring closets, Layer2/Layer3 distribution, and integrated LAN/WAN branch office. • Resilient architecture for mission critical applications • Up to 240 ports of Ethernet, Fast Ethernet or Gigabit Ethernet over Fiber or Copper • High performance, Cisco Express Forwarding (CEF) Layer 2/3/4 switching up to 48 Mpps • Up to 64 Gbps of switching capacity • Advanced network control with predictable performance, granular QoS, advanced security, comprehensive management • Managed	2-15
Catalyst 4000 Series— Fixed Configuration (4908G-L3 and 4912G)	High performance fixed Gigabit Ethernet switch with intelligent enterprise Cisco IOS services	2-17
Catalyst 5000 Family	Modular switch that supports a broad range of interfaces for aggregation of legacy technologies with IP technology • End of Sale Effective June 2003/End of Support effective 2008. For further information please contact your local sales representative	2-18
Catalyst 6500 Family	High-performance, multilayer switch with integrated intelligent services for enterprise campus backbones, server aggregation, or internet data centers • 10/100, 100FX Fast Ethernet, 1000BASE-T, 1000BASE-X, and Gigabit Ethernet modules • Layer 4-7 services • Up to 256 Gbps of switching capacity • Packet throughput scalable to 100+ Mpps • Managed	2-20
Catalyst 8500 Series	High-performance, modular, multimedia switch router • Wire speed, nonblocking IP, IPX, IP multicast Layer 3 switching • Multiple interface options • Managed	2-24

Cisco LAN and MAN Products Port Matrix

	Switches							
	Catalyst 2900	Catalyst 2900 XL	Catalyst 2950	Catalyst 3500 XL	Catalyst 3550	Catalyst 4500	Catalyst 6000	Catalyst 8500
Fixed Ports Only	X							
Fixed and Modular Ports		X	X	X	X	X		
Modular Ports Only							X	X
Ports								
10BASE-T Switched	X	X	X	X	X	X	X	
10BASE-FL Switched							X	
100BASE-T Switched	X	X	X	X	X	X	X	
100BASE-F Switched		X	X		X	X	X	X
10/100 Autosensing Switched	X	X	X	X	X	X	X	X
1000BASE-TX							X	
10/100/1000							X	
10GBASE-LR							X	
ATM							X	X
Gigabit Ethernet	X	X	X	X	X	X	X	X
Integrated In-Line Power				X		X	X	
Integrated Server Load Balancing							X	

Cisco Catalyst 2900 Series

The Catalyst 2948G and 2980G deliver all the Ethernet switching needed for many small to medium-sized wiring closets in a single system without the need for additional modules, cables or other interconnects. Utilizing the same industry-leading software and functionality of the Catalyst 4000, 5000, and 6000 families, the Catalyst 2948G and 2980G have consistent end-to-end services, which ensure complete interoperability with enterprise Catalyst switches.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 2980G Series	• A single box solution without additional cables, modules or configuration • Up to 80 ports of wire-speed, non-blocking performance with large MTBF reliability • End-to-end VLANs, EtherChannel, multicasting, and security • Mature/proven Catalyst software compatibility in the wiring closet and data center
Catalyst 2948G Series	• The same features as 2980G but up to 48 ports of wire-speed, non-blocking performance
Catalyst 2948G-L3	• High performance CPU with Cisco IOS software • Dedicated 48 ports of 10/100 Mbps and two ports of 1000BASEX Gigabit Ethernet with gigabit Ethernet converter (GBIC) support; all ports support Layer 3 capability

Key Features

- Powerful non-blocking performance with proven Cisco IOS services
- Wire speed 18 Million pps switching throughput
- Intelligent multilayer IOS services (security, multicast, quality of service [QoS])
- Advanced multiple queue QoS architecture
- Security (TACACS+, RADIUS, port lockdown)
- Spanning-Tree Protocol (802.1D) with enhancements (UplinkFast, PortFast) for deterministic/fast failover
- Redundant Power Supply (option)

Competitive Products

- HP Procurve: 4108gl, 4000M
- 3Com: SS3300
- Nortel/Bay: BayStack 350T and 450T
- Extreme: Summit 48si

Specifications

Feature	Catalyst 2980G	Catalyst 2948G-L3	Catalyst 2948G
Fixed Ports (connections)	80-port 10/100BASE-TX 2-port 1000BASE-X (GBIC)	48 port 10/100BASE-TX 2-port 1000BASE X (GBIC)	48-port 10/100BASE-TX 2-port 1000BASE-X (GBIC)
Backplane	24 Gbps	22 Gbps	24 Gbps
Stackable	No	No	No
Full-Duplex Capabilities	All ports	All ports	All ports
VLAN Maximum	1024	1024	1024
FEC	Yes	No	Yes
ISL	No	Yes	No
802.1Q	Yes	Yes	Yes
Management Capabilities	CiscoWorks 2000, CWSI, CiscoView, CDP, VTP, Enhanced SPAN, SNMP, Telnet Client, BOOTP, TFTP	CiscoWorks 2000, CWSI, CiscoView, CDP, VTP, Enhanced SPAN, SNMP, Telnet Client, BOOTP, TFTP	CiscoWorks 2000, CWSI, CiscoView, CDP, VTP, Enhanced SPAN, SNMP, Telnet Client, BOOTP, TFTP
Processor Speed (Type)	200 MHz (R5000 RISC)	200 MHz (R5000 RISC)	200 MHz (R5000 RISC)
Flash Memory	12 MB	16 MB	12 MB
DRAM Memory	64 MB	64 MB	64 MB

Feature	Catalyst 2980G	Catalyst 2948G-L3	Catalyst 2948G
Embedded RMON	Statistics, history, alarms, events	Statistics, history, alarm, events	Statistics, history, alarms, events
Dimensions (HxWxD)	3.5 x 17.5 x 17 in.	2.69 x 17.1 x 18 in.	2.62 x 17.5 x 15 in.
RPS	Yes (WS-C2980G-A), RPS 300	Yes, RPS 600	Yes, RPS 600

Selected Part Numbers and Ordering Information[1]

Catalyst 2900 Series Switches

WS-2948G-L3	Catalyst 2948GL3 Switch
FR2948GL3-IP	Catalyst 2948G-L3 IP Switching License
FR2948GL3-IPX	Catalyst 2948G-L3 IPX Switching License
WS-C2948G	Catalyst 2948G Switch,48 10/100Tx (RJ-45) +2 1000x (GBIC Slots)
WS-C2948G-3PACK	3 Catalyst 2948G Switches
WS-C2980G-A	Catalyst 2980G Switch,80 10/100Tx (RJ-45) +2 1000x (GBIC Slots)

Catalyst 2900 Series Modules

WS-G5484=	GBIC Module, fiber media SX
WS-G5486=	GBIC Module, fiber media LX/LH
WS-G5487=	GBIC Module, Fiber Media Zx

Mini-RMON Agent License

WS-C2948G-EMS-LIC	Catalyst 2948G RMON Agent License
WS-C2980G-EMS-LIC	Catalyst 2980G RMON Agent Agreement

Catalyst 2900 Series Accessories

WS-X2948G-RACK=	Catalyst 2948G Rack Kit (spare)
WS-X2980G-RACK=	Catalyst 2980G Rack Kit (Spare)
PWR600-AC-RPS-CAB=	Redundant Power Supply (RPS), 600 Watts (2948G only)
PWR600-AC-RPS-NCAB=	RPS 600 without Cable (2948G only)
PWR300-AC-RPS-N1=	RPS 300 with one Cable (2980G-A only)
CAB-RPS-1414=	One DC power cable for RPS 300

Catalyst 2900 Series Basic Maintenance

CON-SNT-PKG8	Catalyst 2948G, 2948G-L3, and 2980G Packaged SMARTnet Maintenance 8x5xNBD

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Catalyst 2900 Web site: *http://www.cisco.com/go/2900*

Cisco Catalyst 2900 Series XL—Modular Switches

Cisco's Catalyst 2900 Series XL is a full line of modular, 10/100 autosensing Fast Ethernet switches that combine outstanding performance, ease of use, and integrated Cisco IOS software.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 2912MF XL	• All-fiber switch to aggregate Fast Ethernet workgroups over 100BASE-FX connections in small and mid-size campus environments
	• High-speed uplinks to backbone or server via Fast Ethernet, Gigabit Ethernet
Catalyst 2924M XL	• Any combination of dedicated 10-Mbps or 100-Mbps connections to individual PCs, servers, and other systems or connectivity between existing Ethernet and Fast Ethernet workgroups
	• The option to easily increase the switch's port density and provide inexpensive high-speed uplinks through bandwidth aggregation (Fast EtherChannel and Gigabit EtherChannel technologies)
	• Gigabit Ethernet (including 1000BASE-T) modules for high-speed links
	• Hot swap insertion and removal of modules
	• Maximum flexibility

Key Features

- Switch fabric of 3.2 Gbps, a forwarding rate of more than 3.0 million packets per second, and a maximum forwarding bandwidth of 1.6 Gbps, delivering wire-speed performance across all 10/100 ports
- Support for IEEE 802.1p protocol for prioritization of mission-critical and time-sensitive applications such as voice and telephony traffic
- Cisco's switch clustering technology enables up to 16 interconnected Catalyst 1900, 2900 XL, and 3500 XL switches, regardless of geographic location, to form a flexible, single IP managed network
- Up to 250 port-based VLANs or ISL/802.1Q trunks
- Network port allows operation in networks with unlimited MAC addresses
- Autoconfiguration of multiple switches on a network from one boot server
- Up to 4 Gbps bandwidth between routers, switches, and servers with Fast EtherChannel and Gigabit EtherChannel technologies

Competitive Products

- 3Com: SuperStack III 3300
- Nortel: BayStack 350 & 450 switches

Specifications

Feature	Catalyst 2912 MF XL	Catalyst 2924M XL
Fixed Ports	12-port 100BASE-FX	24-port 10/100 autosensing
Modular Slots	2	Same as Catalyst 2912MF XL
Available Modules	4-port 10BASE-T/100BASE-TX autosensing	Same as Catalyst 2912MF XL
	2-port or 4-port switched 100BASE-FX	
	1-port Gigabit Ethernet (1000BASE-T or GBIC-based)	
Backplane	3.2 Gbps	Same as Catalyst 2912MF XL
Stackable	Yes	Same as Catalyst 2912MF XL
Full Duplex Capabilities	All 10BASE-T, 100BASE-TX, 100BASE-FX, 1000BASE-X, and 1000BASE-T	Same as Catalyst 2912MF XL
VLAN Maximum	250-port-based VLANs or ISL/802.1Q trunks	Same as Catalyst 2912MF XL
FEC	Yes	Same as Catalyst 2912MF XL
Inter-Switched Link	Yes	Same as Catalyst 2912MF XL
Flash Memory	4 MB	Same as Catalyst 2912MF XL
CPU DRAM	8 MB	Same as Catalyst 2912MF XL
Embedded RMON	History, Events, Alarms, Statistics	Same as Catalyst 2912MF XL
Dimensions (HxWxD)	3.46 x 17.5 x 12 in. (8.8 x 44.5 x 30.5 cm)	3Same as Catalyst 2912MF XL
Weight	13.5 lb (6.12 kg); 15 lb (6.8 kg) with two modules installed	Same as Catalyst 2912MF XL

Selected Part Numbers and Ordering Information[1]

Catalyst 2900 Series XL Switches

WS-C2912MF-XL	12-port 100BASE-FX, 2 module slots
WS-C2924M-XL-EN	24-port 10/100 (autosensing), 2 module slots
WS-C2924M-XL-EN-DC	24-port 10/100 (autosensing), 2 module slots, DC powered

Catalyst 2900 Series XL Switch Bundles

WS-C2924M-XL-EN-5P	Five Catalyst 2924M XL Switches

Catalyst 2900 Series XL Modules

WS-X2914-XL-V	4-port 10/100 ISL/802.1Q Module
WS-X2924-XL-V	4-port 100BASE-FX ISL/802.1Q Module
WS-X2922-XL-V	2-port 100BASE-FX ISL/802.1Q Module
WS-X2931-XL	1-port, GBIC-based, 1000BASE-X Switch Uplink Module
WS-X2932-XL	1-port 1000BASE-T Switch Uplink Module
WS-X3500-XL	GigaStack GBIC
WS-G5484=	SX GBIC; 1000BASE-SX short wavelength, multimode fiber
WS-G5486=	LX GBIC; 1000BASE-LX/LH, long wavelength/long haul, single or multimode fiber

Catalyst 2900 Series XL Accessories

CAB-GS-1M	1 meter cable for GigaStack GBIC
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Catalyst 2900 Series XL Web site: *http://www.cisco.com/go/2900xl*

Cisco Catalyst 2950 Series Intelligent Ethernet Switches

The Catalyst 2950 Series with Intelligent Ethernet Switches are fixed-configuration, standalone and stackable models that provide wire-speed Fast Ethernet and Gigabit Ethernet connectivity for small, mid-sized, service provider and industrial networks. The 2950C-24, 2950T-24, 2950G-12-EI, 2950G-24-EI, 2950G-48-EI and 2950G-24-EI-DC are part of an affordable product line that brings intelligent services, such as advanced quality of service, rate-limiting, security filters, and multicast management, to the network edge-while maintaining the simplicity of traditional LAN switching. When a Catalyst 2950 Switch is combined with a Catalyst 3550 Series Switch, the solution is capable of enabling IP routing from the edge to the core of the network. These Intelligent Ethernet Switches come with Enhanced Image (EI) software configuration only.

In addition to the range of Intelligent Ethernet switches, the Catalyst 2950 Series also includes switches with Standard Image (SI) software configuration only. The Cisco Catalyst 2950SX-24, 2950-24 and 2950-12, members of the Cisco Catalyst 2950 Series Switches, are standalone, fixed-configuration, managed 10/100 switches with Gigabit uplinks (2950SX-24 only) providing user connectivity for small to mid-sized networks. These wire-speed desktop switches come with Standard Image (SI) software features and offer Cisco IOS functionality for basic data, video and voice services at the edge of the network.

The Catalyst 2950 Series also includes the Cisco Catalyst 2955T-12, 2955C-12, and 2955S-12. The Cisco Catalyst 2955 are industrial-grade switches that provide Fast Ethernet and Gigabit Ethernet connectivity for deployment in harsh environments. With a range of copper and fiber uplink options, the Catalyst 2955 operates in environments such as industrial networking solutions (industrial Ethernet deployments), intelligent transportation systems (ITSs), and transportation network solutions. It is also suitable for many military and utility market applications where the environmental conditions or suspended solid concentrations exceed the specifications of other commercial switching products.

Embedded in all the products in the Catalyst 2950 Series is the Cisco Cluster Management Suite (CMS) Software, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches using a standard Web browser.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 2950 Series Intelligent Ethernet Switches with Enhanced Image (EI)	• Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements • Wire-speed performance • Advanced QoS, Security, High availability and STP enhancements • Cisco Cluster Management • Stackable • GBIC based uplink ports for media flexibility
Catalyst 2950G-48-EI	• Ideal for desktop connectivity • High Port Density
Catalyst 2950G-24-EI	• Ideal for desktop connectivity • Medium Port Density
Catalyst 2950G-24-EI-DC	• Ideal for Telco/DCN environments • NEBS compliant • Medium Port Density
Catalyst 2950G-12-EI	• Ideal for desktop connectivity • Low Port density
Catalyst 2950T-24	• High speed uplink flexibility with fixed 10/100/1000BaseT ports • Low price per port
Catalyst 2950C-24	• High speed uplink flexibility over extended distances with fixed 100BASE-FX connections using MT-RJ connectors • Low price per port
Catalyst 2950 Series with Standard Image (SI)	• Wire speed, high performance switches for delivering 10/100 Mbps speed connectivity to desktop PCs, servers and other systems • Layer 2-based QoS and Security features • Cisco Cluster Management • Ideal for desktop connectivity·
Catalyst 2950-12	• Low Port density
Catalyst 2950-24	• Medium port density
Catalyst 2950SX-24	• High speed uplinks with 2 fixed 1000BaseSX ports • Medium port density
Catalyst 2955 Series with Enhanced Image (EI)	• Ideal for harsh network environments • Rugged: Implements industrial-grade components, a compact form factor, convection cooling, and relay output signaling. Designed to operate at extreme temperatures and under extreme vibration and shock. • Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements • Wire-speed performance
Catalyst 2955T-12	• Twelve 10/100 ports and two 10/100/1000BASE-TX (Copper) uplinks
Catalyst 2955C-12	• Twelve 10/100 ports and two 100BASE-FX (Multimode Fiber) uplinks
Catalyst 2955S-12	• Twelve 10/100 ports and two 100BASE-LX (Singlemode Fiber) uplinks

Key Features

• Cisco Cluster Management (CMS) Software offers superior manageability, ease-of-use and ease-of-deployment and enhanced configuration wizards
• Wire-speed performance in connecting end-stations to the LAN
• Catalyst 2950: Ideal for small- and mid-sized networks
• Catalyst 2955: Ideal for harsh network environments
• Sophisticated Multicast Management via IGMP Snooping
• Scalability and high availability features
• Support for Cisco Redundant Power System 300 (RPS 300)
• Switches with Standard Image (SI) include these additional features:
  – Catalyst 2950SX-24 switch provides a cost-effective solution for Gigabit speeds over fiber, offering 2 1000BaseSX uplinks
  – QoS and Security based on Layer 2 information
  – Basic Cisco IOS Services

- Intelligent Ethernet Switches with Enhanced Image (EI) include these additional features:
  - Catalyst 2950T-24 switch is a component of the Cisco Gigabit Ethernet over copper solution, offering 10/100/1000BaseT uplinks
  - Powerful Gigabit-uplink options—GBIC-based or 1000BaseT
  - Superior control through advanced intelligent services—advanced quality of service based on Layer 2 through Layer 4 parameters
  - Superior Security features: based on Layer 2 through Layer 4 Access Control Parameters
  - Enhanced Cisco IOS Services

Competitive Products

- Hewlett Packard: Procurve 2500 /2650
- Nortel: BPS 2000/450T/420T
- 3 Com: Superstack 3300/4300/4400/4400SE/4200 series
- Extreme: Summit 24 e2e3
- Dell: Powerconnect 3024/3048/3248
- Hirshchmann
- GarretCom
- Sixnet

Specifications

Feature	Catalyst 2950G-48-EI	Catalyst 2950G-24-EI	Catalyst 2950G-24-EI-DC	Catalyst 2950G-12-EI	Catalyst 2950T-24
Fixed Ports	48 port 10/100 autosensing & 2 GBIC-based Gigabit Ethernet ports	24 port 10/100 autosensing & 2 GBIC ports	24 port 10/100 autosensing & 2 GBIC ports and DC Power	12 port 10/100 autosensing & 2 GBIC ports	26-port (24 10/100 autosensing & 2 ports 1000BaseT
Forwarding Bandwidth	13.6 Gbps	8.8 Gbps	8.8Gbps	6.4Gbps	8.8 Gbps
Forwarding Rate	10.1 Mpps	6.6 Mpps	6.6 Mpps	4.8 Mpps	6.6 Mpps
Full-Duplex Capabilities	All Ports	All Ports	All Ports	All Ports	All Ports
VLAN Maximum	250-port-based VLANS	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
FEC	Yes	Yes	Yes	Yes	Yes
802.1Q	Yes	Yes	Yes	Yes	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.11x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto)	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
Multicast	IGMP Snooping	IGMP Snooping	IGMP Snooping	IGMP Snooping	IGMP Snooping
QoS	802.1P, 4 egress queues, WRR, SPS, Expedite Queuing, Policing, Marking, Layer 3 and 4 Services, Auto QoS	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
Management Capabilities	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
Software Image	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)
Flash Memory	8 MB	8 MB	8 MB	8 MB	8 MB
CPU DRAM	16 MB	16 MB	16 MB	16 MB	16 MB
Embedded RMON	History, Events, Alarms, Statistics	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
Dimensions (H x W x D)	1.72 x 17.5 x 13 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.75 x 17.5 x 16 in.

Feature	Catalyst 2950C-24	Catalyst 2950-24	Catalyst 2950-12	Catalyst 2950SX-24	Catalyst 2955 (T-12,C-12,S-12)
Fixed Ports	26-port (24 10/100 autosensing & 2 ports100BaseFX)	24-port 10/100 autosensing	12-port 10/100 autosensing	26-port (24 10/100 autosensing & 2 ports1000BaseSX)	12 10/100 ports T-12: 2 fixed 10/100/1000BASE-T uplink ports C-12:2 fixed 100BASE-FX multimode uplink ports S-12: 2 fixed 100BASE-LX single-mode uplink ports
Forward Bandwidth	5.2 Gbps	4.8 Gbps	2.4 Gbps	8.8 Gbps	13.6 Gbps
Forwarding Rate	3.9 Mpps	3.6 Mpps	1.8 Mpps	6.6 Mpps	2 Mpps
Full-Duplex Capabilities	All Ports	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24	All Ports
VLAN Maximum	250-port-based VLANS	64-port-based VLANS	64-port-based VLANS	64-port-based VLANS	250-port-based VLANS
FEC	Yes	Yes	Yes	Yes	Yes
802.1Q	Yes	Yes	Yes	Yes	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.11x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto)	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, SNMPv3 (non-crypto)
Multicast	IGMP Snooping	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24
QoS	802.1P, 4 egress queues, WRR, SPS, Expedite Queuing, Policing, Marking, Layer 3 and 4 Services, Auto QoS	802.1P, 4 egress queues, WRR	802.1P, 4 egress queues, WRR	802.1P, 4 egress queues, WRR	802.1P, 4 egress queues, WRR
Management Capabilities	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS
Software Image	Enhanced Image (EI)	Standard Image (SI)	Standard Image (SI)	Standard Image (SI)	Enhanced Image (EI)
Flash Memory	8 MB	8 MB	8 MB	8 MB	16 MB
CPU DRAM	16 MB	16 MB	16 MB	16 MB	32 MB
Embedded RMON	History, Events, Alarms, Statistics	HSame as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24	History, Events, Alarms, Statistics
Dimensions (H x W x D)	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 9.52 in.	3.78x8.07x5.03in; connectors facing forward OR 5.03x8.07x3.78in; connectors facing downward

Selected Part Numbers and Ordering Information[1]

Catalyst 2950 Series Switches

WS-C2950G-48-EI	Catalyst 2950G-48 switch with 48 10/100 ports and 2 Gigabit Interface Converter (GBIC)-based GE ports
WS-C2950G-24-EI	Catalyst 2950G-24 switch with 24 10/100 ports and 2 GBIC ports
WS-C2950G-24-EI-DC	Catalyst 2950G-24-DC switch with 24 10/100 ports, 2 GBIC ports and DC Power
WS-C2950G-12-EI	Catalyst 2950G-12 switch with 12 10/100 ports and 2 GBIC ports
WS-C2950T-24	Catalyst 2950C-24T switch with 24 10/100 ports and two fixed 1000BaseT Uplink ports
WS-C2950C-24	Catalyst 2950C-24 switch with 24 10/100 ports and two fixed 100BaseFX Uplink ports
WS-C2950-24	Catalyst 2950-24 switch with 24 10/100 ports
WS-C2950-12	Catalyst 2950-12 switch with 12 10/100 ports
WS-C2950SX-24	Catalyst 2950SX-24 switch with 24 10/00 ports and two fixed 1000BaseSX Uplink ports

Gigabit Interface Converters (GBICs)

WS-X3500-XL	GigaStack GBIC Gigabit Ethernet stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC extended-reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC- Gigabit-Ethernet-over-copper GBIC

Redundant Power System (RPS)

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection

Cables/Accessories

CAB-RPS-1614=	1 RPS 675 connector cable 16/14
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC
STK-RACKMOUNT-1RU=	Rack mount kit for 1 RU versions of Catalyst 2950, 3500 XL, 2900 XL, 1900, and FastHub 400 switches

Packaged SMARTnet 8x5xNBD Maintenance Contract

CON-SNT-PKG3	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-12, 2950-24 and 2950-12
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-24 and 2850G-24-DC
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-48

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Catalyst 2950 Series Web site: *http://www.cisco.com/go/catalyst2950*

Cisco Catalyst 3500 Series XL

The Cisco Systems Catalyst 3500 series XL is a scalable line of stackable 10/100 and Gigabit Ethernet switches that delivers premium performance, flexibility, and manageability with unparalleled investment protection. This line of low-cost, high-performance switching solutions provides next-generation stackable switching through an independent high-speed stacking bus that preserves valuable desktop ports. Cisco's breakthrough Switch Clustering technology expands the stacking domain beyond a single wiring closet, enabling up to 16 interconnected Catalyst 3550, 2950, 3500 XL, 2950, 2900 XL and 1900 switches—regardless of geographic location—to form a flexible, single IP managed network.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 3524-PWR XL	• A stackable, wire-speed 10/100 and Gigabit Ethernet switch for delivering dedicated 10 or 100 Mbps to individual users and servers
	• Advanced QoS, high availability, and integrated in-line power enabling easy deployment of IP phones and wireless access points.
Catalyst 3508G XL	• A stackable Gigabit Ethernet switch with eight GBIC-based ports for aggregating a group of Gigabit Ethernet switches and servers through Cisco GigaStack GBICs or standard 1000BASE-X GBICs
	• Dedicated, high-speed Gigabit Ethernet performance

Key Features

- 10.8 Gbps switch fabric, up to 8 Mpps forwarding rate, and maximum forwarding bandwidth of 5.4 Gbps across all 10/100 ports
- Built-in Gigabit Ethernet ports accommodate a range of GBIC transceivers, including the Cisco GigaStack GBIC, 1000BASE-T, 1000BASE-SX and 1000BASE-LX/LH GBICs, and 1000BASE-ZX extended reach GBIC
- Low-cost, 2-port Cisco GigaStack GBIC offers a range of configurable stacking and performance options by delivering 1-Gbps connectivity in a daisy-chained connection or up to 2-Gbps in a dedicated, switch-to-switch connection
- Support for IEEE 802.1p technology for prioritization of mission-critical and time-sensitive application such as voice and telephony traffic
- 3524-PWR XL provides in-line power to IP phones and other devices

Competitive Products

- 3Com: SuperStack 3 Switch 3300 and 3900
- Hewlett Packard: ProCurve 2524, 2424M, 4000, and 8000
- Nortel: BayStack 450T and BPS 2000 switches

Specifications

Feature	Catalyst 3524-PWR XL	Catalyst 3508G XL
Fixed Ports	24-port 10/100 autosensing 2-port 1000BASE-X (GBIC)	8-port 1000BASE-X (GBIC)
Modular Slots	None	None
Backplane	10 Gbps	10 Gbps
Stackable	Yes	Yes
Full-Duplex	All ports	All ports
VLAN Maximum	250 port-based VLANs or ISL/802.1Q trucks	250 port-based VLANs or ISL/802.1Q trucks
FEC	Yes	Yes
Inter-Switch Link	Yes	Yes
In-Line Power	Yes	No
Management Capabilities	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded Cisco Visual Switch Manager, Web-based interface	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded Cisco Visual Switch Manager, Web-based interface
Processors	Cisco designed ASICs	Cisco designed ASICs
Flash Memory	4 MB	4 MB
CPU DRAM	8 MB	8 MB
Embedded RMON	History, Events, Alarms, Statistics	History, Events, Alarms, Statistics
Dimensions (HxWxD)	1.75 x 17.5 x 11.8 in	1.75 x 17.5 x 11.8 in

Selected Part Numbers and Ordering Information[1]

Catalyst 3500 Series XL Switches
WS-C3524-PWR-XL-EN   24-port 10/100 (autosensing), 2 1000X GBIC Slots, inline power
WS-C3508G-XL-EN   8 1000X GBIC Slots
Catalyst 3500 Series XL Accessories
WS-X3500-XL   GigaStack GBIC
WS-G5484=   1000BASE-SX GBIC
WS-G5486=   1000BASE- LX/LH GBIC
WS-G5487=   1000BASE- ZX extended reach GBIC
WS-G5483=   1000BASE-T GBIC
Catalyst 3500 Series XL Basic Maintenance
CON-SNT-PKG4   Catalyst 3512 XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG5   Catalyst 3524 XL and 3524-PWR XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG6   Catalyst 3548 XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG9   Catalyst 3508G XL SMARTnet 8x5xNBD Maintenance

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For More Information

See the Catalyst 3500 series XL Web site: *http://www.cisco.com/go/3500xl*

Cisco Catalyst 3550 Series Intelligent Ethernet Switches

The Cisco Catalyst 3550 Series Intelligent Ethernet
Switches is a line of enterprise-class, stackable, multilayer switches that provide high
availability, scalability, security and control to enhance the operation of the network.
With a range of Fast Ethernet and Gigabit Ethernet configurations, the Catalyst 3550
Series can serve as both a powerful access layer switch for medium enterprise wiring
closets and as a backbone switch for small networks. Now customers can deploy
network-wide intelligent services, such as advanced quality of service, rate-limiting,
Cisco security access control lists, multicast management, and high-performance IP
routing—while maintaining the traditional LAN switching.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 3550 Series	• Enterprise-class intelligent services such as ACLs, advanced QoS, and rate-limiting • Cisco Cluster Management
Catalyst 3550-48-EMI (Enhanced Multilayer Software Image)	• High performance advanced IP routing • High Port Density • Ideal as a powerful access layer switch for a medium enterprise wiring closet with routed uplinks
Catalyst 3550-48-SMI (Standard Multilayer Software Image)	• High Port Density • Ideal for a powerful access layer switch for a medium enterprise wiring closet • Basic IP routing
Catalyst 3550-24-EMI (Enhanced Multilayer Software Image)	• High performance advanced IP routing • Medium Port Density • Ideal for a powerful access layer switch for a medium enterprise wiring closet with routed uplinks
Catalyst 3550-24-SMI (Standard Multilayer Software Image)	• Medium Port Density • Ideal for a powerful access layer switch for a medium enterprise wiring closet • Basic IP routing
Catalyst 3550-24PWR-EMI (Enhanced Multilayer Software Image)	• High performance advanced IP routing • Medium Port Density • Integrated inline power to Cisco IP telephones and Cisco wireless LAN access points • Ideal for a powerful access layer switch for a medium enterprise wiring closet with routed uplinks
Catalyst 3550-24PWR-SMI (Standard Multilayer Software Image)	• Medium Port Density • Integrated inline power to Cisco IP telephones and Cisco wireless LAN access points • Ideal for a powerful access layer switch for a medium enterprise wiring closet • Basic IP routing
Catalyst 3550-24-DC-SMI (Standard Multilayer Software Image)	• Medium Port Density • DC powered, NEBS level 3 compliant • Basic IP routing
Catalyst 3550-24-FX-SMI (Standard Multilayer Software Image)	• Medium Port Density • Ideal for 100FX aggregation • Basic IP routing
Catalyst 3550-12G	• High performance IP routing • Gigabit Ethernet aggregation using fiber • Ideal for stack aggregation, server aggregation, or as a backbone switch in a mid-sized network
Catalyst 3550-12T	• High performance advanced IP routing • Gigabit Ethernet aggregation using Category 5 copper cabling • Ideal for stack aggregation, server aggregation, or as a backbone switch in a mid-sized network
CD-3550-EMI	• High performance advanced IP routing • EMI upgrade kit for standard versions of the Catalyst 3550-24, 3550-24 PWR, 3550-24-DC, 3550-24-FX, and 3550-48 switches

Key Features

- Network control and bandwidth optimization via advanced Quality of Service (QoS), granular rate-limiting, Access Control Lists (ACLs), and multicast services
- Network security through a wide range of authentication methods, data encryption technologies, and access restriction features based on users, ports, and MAC addresses
- Network scalability through advanced routing protocols such as EIGRP, OSPF, BGP, and PIM (requires Enhanced Multilayer Software Image (EMI))
- Intelligent adaptability through Cisco Identity Based Networking Services (IBNS) offering greater flexibility and mobility to stratified users
- Lower Total Cost of Ownership (TCO) for IP Telephony and Wireless LAN deployments through integrated inline power (Catalyst 3550-24 PWR only)
- Easy switch configuration and deployment of advanced services through the embedded Cluster Management Suite (CMS) Software
- Stackable up to 9 switches with the Gigastack GBIC

Competitive Products

- Extreme Networks: Summit5i, Summit 24/48, Summit 48i
- Foundry: FastIron 4802
- Nortel: BPS 2000

Specifications

Feature	Catalyst 3550-48	Catalyst 3550-24	Catalyst 3550-24PWR	Catalyst 3550-12G	Catalyst 3550-12T	Catalyst 3550-24-DC	Catalyst 3550-24-FX
Fixed Ports	48 10/100 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports 2 GBIC-based Gigabit Ethernet ports	10 GBIC-based Gigabit Ethernet ports 2 10/100/1000 ports	10 10/100/1000 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports2 GBIC-based Gigabit Ethernet port	24 100FX MMF ports 2 GBIC-based Gigabit Ethernet port
Switching Fabric	13.6 Gbps	8.8 Gbps	8.8 Gbps	24 Gbps	24 Gbps	8.8 Gbps	8.8 Gbps
VLAN Maximum	1005	1005	1005	1005	1005	1005	1005
FEC/GEC	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GBICs	Gigastack, 1000BaseT, SX, LX/LH, ZX	Gigastack, 1000BaseT, SX, LX/LH, ZX	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX	Gigastack, 1000BaseT, SX, LX/LH, ZX	Gigastack, 1000BaseT, SX, LX/LH, ZX	Gigastack, 1000BaseT, SX, LX/LH, ZX
802.1Q and ISL	Yes	Yes	Yes	Yes	Yes	Yes	Yes
In-Line Power	No	No	No	No	No	No	No
QoS	802.1p, DSCP, 4 egress Queues, WRR, Strict Priority Queuing,WRED	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
Multicast	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	IGMP Snooping, PIM, DVMRP, CGMP Server	IGMP Snooping, PIM, DVMRP, CGMP Server	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, embedded CMS	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
Flash Memory	16 MB	16 MB	16 MB	16 MB	16 MB	16 MB	16 MB
CPU DRAM	64 MB	64 MB	64 MB	64 MB	64 MB	64 MB	64 MB

Feature	Catalyst 3550-48	Catalyst 3550-24	Catalyst 3550-24PWR	Catalyst 3550-12G	Catalyst 3550-12T	Catalyst 3550-24-DC	Catalyst 3550-24-FX
Embedded RMON	History, Events, Alarms, Statistics	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
Dimensions (H x W x D)	1.75 x 17.5 x 16.3 in.	1.75 x 17.5 x 14.4 in.	1.75 x 17.5 x 17.4 in.	2.63 x 17.5 x 15.9 in.	2.63 x 17.5 x 15.9 in	1.75 x 17.5 x 14.4 in.	1.75 x 17.5 x 16.3 in.

Selected Part Numbers and Ordering Information[1]

Catalyst 3550 Series Intelligent Ethernet Switches

WS-C3550-48-SMI	Catalyst 3550-48 multilayer switch with 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-48-EMI	Catalyst 3550-48 multilayer switch with 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
WS-C3550-24-SMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-24-EMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
WS-C3550-24PWR-SMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; integrated inline power; SMI installed
WS-C3550-24PWR-EMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; integrated inline power; EMI installed
WS-C3550-24-DC-SMI	Catalyst 3550-24-DC multiplayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed; DC-powered
WS-C3550-24-FX-SMI	Catalyst 3550-24-FX multilayer switch with 24100FX multimode fiber ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-12G	10 GBIC-based Gigabit Ethernet ports and 2 10/100/1000 ports; EMI installed
WS-C3550-12T	10-10/100/1000BaseT ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
CD-3550-EMI=	EMI upgrade kit for the standard versions of the Catalyst 3550-24, 3550-48, 3550-24PWR, 3550-24-DC, and 3550-24-FX

Gigabit Interface Converters (GBICs)

WS-X3500-XL	GigaStack Stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC-short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC-long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC-extended reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC-Gigabit Ethernet over Copper GBIC

Redundant Power System (RPS)

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection

Cables/Accessories and Redundant Power Supply

CAB-RPS-1614=	1 RPS 675 connector cable 16/14
RCKMNT-3550-1.5RU=	Rack mount kit for the Catalyst 3550-12T and 3550-12G switches
RCKMNT-1RU=	Rack mount kit for the Catalyst 3550-24, 3550-48, 3550-24PWR, 3550-24-DC, and 3550-24-FX switches

Packaged SMARTnet 8x5xNBD Maintenance Contract for Two-Tier Customers

|	
CON-SNT-PKG9	Packaged SMARTnet 8x5xNBD for the WS-C3550-12T and WS-C3550-12G
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-SMI and WS-C3550-24PWR-SMI
CON-SNT-PKG5	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-DC-SMI
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-EMI, WS-C3550-24PWR-SMI and WS-C3550-48-SMI
CON-SNT-PKG7	Packaged SMARTnet 8x5xNBD for the WS-C3550-48-EMI and WS-C3550-24-FX-SMI

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For More Information

See the Catalyst 3550 Series Web site: *http://www.cisco.com/go/cat3550*

Cisco Catalyst 4500 Series

The Cisco Catalyst 4500 Series integrates nonblocking Layer 2/3/4 switching with optimal control, enabling business resilience for enterprise and metropolitan Ethernet customers deploying Internet-based business applications. A next generation Catalyst 4000 Series platform, the Cisco Catalyst 4500 Series includes three new chassis: Catalyst 4507R (7-slot: redundant Supervisor IV capable), Catalyst 4506 (6-slot) and Catalyst 4503 (3-slot). A key component of Cisco AVVID (Architecture for Voice, Video and Integrated Data), the Catalyst 4500 extends control to Enterprise wiring closets, branch office and Layer 3 distribution points. A variety of network infrastructure solutions are enabled by the Catalyst 4500 Series of switches including: Cisco IOS Network Services, IP Telephony, 10/100/1000 to the desktop, Wireless LAN, NetFlow Services and Metro Ethernet Switching.

When to Sell
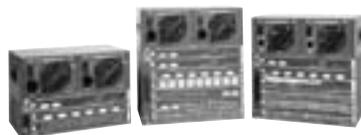
Sell This Product	When a Customer Needs These Features
Catalyst 4507R	• When network resiliency via redundant Supervisor Engines is crucial to customer success • Port density up to 240-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection • Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 64 Gbps, 48 Mpps
Catalyst 4506	• Port density up to 240-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection • Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 64 Gbps, 48 Mpps
Catalyst 4503	• Port density up to 96-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection • Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 28 Gbps, 21 Mpps

Note: Compatible sparing between Catalyst 4507R, 4506, and 4503 chassis provides investment protection with common power supplies and switching line cards. The Catalyst 4500 series also leverages the same feature set with identical software code base along with the same enterprise functionality as the Catalyst 6500 Series in the wiring closet, delivering a consistent end-to-end solution.

Key Features

- Supervisor II
  - Catalyst 4500/6500 Series CatOS Software, single IPQ—Address Management, and security (TACACS+, port lockdown, RADIUS, Kerberos)
  - Enterprise VLANs (4,096) with 802.1Q support on all ports, 16,000 MAC Addresses, and Spanning-Tree Protocol (802.1D) enhancements (UplinkFast, PortFast, and BackboneFast) for deterministic/fast failover
  - Fast and Gigabit EtherChannel aggregation (up to 8 Gbps full duplex), load balancing and failover on every port, and port filtering
- Supervisor IV
  - Capable of 1+1 redundancy in a 4507R (Single Supervisor only in Catalyst 4506 and 4503)
  - Optional NetFlow Services Card Support
  - Integrated Layer 2/3/4 CEF based switching at 64Gbps and 48Mpps
  - Feature rich and proven Cisco IOS Software
  - Port based enhanced QOS with multiple queues (16k input; 16k output), bandwidth management, policing and Access Control Lists (16k input ACL entries; 16k output entries)
  - Enterprise VLANs (4,000) with 802.1Q and ISL support on all ports, 32,000 MAC Addresses, and Spanning-Tree Protocol (802.1D), 802.3w, 802.3s

- Supports RIP I, RIP II, Open Shortest Path First (OSPF), Interior Gateway Routing Protocol (IGRP) Enhanced IGRP (EIGRP), BGP4, IS:IS, Software based IPX and Appletalk, Hot Standby Router Protocol (HSRP), Cisco Group Management Protocol (CGMP), IGMP v1 and II, Internet Control Message Protocol (ICMP), and both Protocol Independent Multicast (PIM) sparse and dense modes, and Distance Vector Multicast Routing Protocol (DVMRP) interoperability
- Optional compact flash memory cards

Competitive Products

- Extreme Networks: Alpine 3802, Alpine 3804, and Alpine 3808
- Enterasys: Matrix E-5, Matrix E-6, Matrix E-7
- Foundry: FastIron 400/800, FastIron II, II+, III, BigIron 4000
- Hewlett Packard: Procurve 5300XL, 4108GL
- Nortel: Passport 8100

Specifications

Feature	Catalyst 4507R	Catalyst 4506	Catalyst 4503
Fixed Ports	2 Gigabit uplink ports on Supervisor IV	2 Gigabit uplink ports on Supervisor Engine II, III and Supervisor IV	2 Gigabit uplink ports on Supervisor Engine II, III and Supervisor IV
Maximum Port Density	240 (10/100 Fast Ethernet) 240 (100-FX Fast Ethernet) 240 (10/100/1000BASE-T)	240 (10/100 Fast Ethernet) 240 (100-FX Fast Ethernet) 240 (10/100/1000BASE-T)	96 (10/100 Fast Ethernet) 96 (100-FX Fast Ethernet) 96 (10/100/1000BASE-T)
Modular Slots	7 (2 for Supervisors	6 (1 for Supervisor)	3 (1 for Supervisor)
Available Modules	Supervisor Engine IV	Supervisor Engine II, III, and IV	Supervisor Engine II, III, and IV
Redundant Supervisor Capable	Yes	No	No
Backplane Capacity	64 Gbps	64 Gbps	28 Gbps
Stackable	No	No	No
Hot-Swappable Power Supplies	Yes (2 bays, 1+1)	Yes (2 bays, 1+1)	Yes (2 bays, 1+1)
Embedded RMON	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events
Dimensions (H x W x D)	19.19 x 17.31 x 12.50 in 48.74 x 43.97 x 31.70 cm	17.38 x 17.31 x 12.50 in 44.13 x 43.97 x 31.70 cm	12.25 x 17.31 x 12.50 in 31.12 x 43.97 x 31.70 cm

Selected Part Numbers and Ordering Information[1]

Catalyst 4500 Series Switches

WS-C4507R	Catalyst 4500 Chassis (7-Slot),fan, no p/s, Red Sup Capable
WS-C4506	Catalyst 4500 Chassis (6-Slot),fan, no p/s
WS-C4503	Catalyst 4500 Chassis (3-Slot),fan, no p/s

Catalyst 4500 Series Common Equipment

WS-X4013=	Catalyst 4000 Supervisor Engine II, Console (RJ-45), Mgt. (RJ-45) (Spare)
WS-X4014=	Catalyst 4000 Supervisor III (2 GE), Console(RJ45)
WS-X4515=	Catalyst 4000 Supervisor IV, 2 GE, Console(RJ-45)
WS-F4531=	Catalyst 4000 NetFlow Services card for Supervisor Engine IV
PWR-C45-1000AC=	Catalyst 4500 1000W AC Power Supply (Data Only)
PWR-C45-1300ACV=	Catalyst 4500 1300W AC Power Supply with Int Voice
PWR-C45-2800ACV=	Catalyst 4500 2800W AC Power Supply with Int Voice

Catalyst 4000 Series Common Equipment

WS-C4003-S1	Catalyst 4003 Chassis (3-Slot), Supervisor Engine 1, 1-AC Power Supply, Fan Tray, Rack-Mount Kit
WS-C4006-S2	Catalyst 4006 Chassis (6-Slot), Supervisor II, (2)AC Power Supplies, Fan Tray, Rack-Mount Kit
WS-C4006-S3	Catalyst 4006 Chassis (6-slot), Supervisor III, (2) AC Power Supplies, Fan Tray, Rack-Mount Kit
WS-C4006-S4	Catalyst 4006 Chassis (6-slot), Supervisor IV, (2) AC Power Supplies, Fan Tray, Rack-Mount Kit
WS-X4008=	Catalyst 4003/4006 AC Power Supply (Spare)
WS-X4095-PEM=	Catalyst 4000 DC Power Entry Module (Spare)
WS-P4603-2PSU	Catalyst 4000 Aux. Power Shelf with 2 PSU
WS-X4608=	Catalyst 4603 Power Supply Unit for WS-P4603

Catalyst 4500 Series Line Card Modules and GBICs

WS-X4124-FX-MT=	Catalyst 4000 FE Switching Module, 24-port 100FX (MTRJ)
WS-X4148-FX-MT=	Catalyst 4000 FE Switching Module, 48-100FX MMF (MTRJ)
WS-X4148-RJ=	Catalyst 4000 10/100 Fast Ethernet Module, 48 Ports (RJ-45)
WS-X4148-RJ21=	Catalyst 4000 Telco switch module, 48-port 10/100 (4xRJ21)
WS-X4148-RJ45V=	Catalyst 4000 Inline Power 10/100, 48-port (RJ45)
WS-X4232-GB-RJ=	Catalyst 4000 E/FE/GE Module, 2-GE (GBIC), 32-10/100 FE (RJ-45)
WS-X4232-RJ-XX=	Catalyst 4000 FE Base Module, 32-10/100(RJ45)+ Modular Uplink slot
WS-X4232-L3=	Catalyst 4000 E/FE/GE L3 Module, 2-GE(GBIC), 32-10/100 (RJ45)
WS-X4306-GB=	Catalyst 4000 Gigabit Ethernet Module, 6 Ports (GBIC)
WS-X4424-GB-RJ-45=	Catalyst 4000 24 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4448-GB-RJ45=	Catalyst 4000 48 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4418-GB=	Catalyst 4000 GE Module, Server Switching 18 Ports (GBIC)
WS-U4504-FX-MT=	Catalyst 4000 FE Uplink Daughter Card, 4-port 100FX (MTRJ)
WS-X4604-GWY=	Catalyst 4000 Access Gateway Module with IP/FW software
WS-G5483=	1000BASE-T GBIC (RJ-45)
WS-G5484=	1000BASE-SX Shortwave GBIC Module (Multimode Only)
WS-G5486=	1000BASE-LX/LH Long Haul GBIC Module (Multimode or Single Mode)
WS-G5487=	1000 BASE-ZX GBIC module (Single Mode Only)

Catalyst 4500 Series Software

S4KL3-12113EW=	Cisco IOS BASIC L3 SW Cat4500 SUP 3/4(RIP,St.Routes,IPX,AT)
S4KL3E-12113EW=	Cisco IOS ENHANCED L3 SW Cat4500 SUP3/4(OSPF,IGRP,EIGRP,IS-IS)
SC4K-SUPK8-7.5.1=	Catalyst OS L2 SW Cat4500 Sup 2
WS-C4006-EMS-LIC	Catalyst 4006 RMON Agent License
WS-C4003-EMS-LIC	Catalyst 4003 RMON Agent License

Catalyst 4500 Series Basic Maintenance

CON-SNT-PKG11	Catalyst 4003 SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG12	Catalyst 4006 SMARTnet 8x5xNBD Maintenance

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Catalyst 4500 series Web site: *http://www.cisco.com/go/cat4000*

Cisco Catalyst 4000 Series — Fixed Configuration
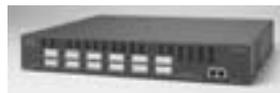
Cisco offers two dedicated Gigabit Ethernet fixed configuration switches; the Catalyst 4908G-L3 and the Catalyst 4912G. The Catalyst 4908G-L3 Switch is a fixed configuration Layer 3 Ethernet switch featuring wire-speed switching for IP, IPX and IP Multicast. It provides the high performance required for midsize campus backbones with optimum port density.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 4908G	• Cost effective dedicated Gigabit Ethernet Layer 3 backbone solution ideal for deployment in midsize networks for those customers who need wire speed Layer 3 performance but do not require Gigabit Ethernet density over 8 ports.
Catalyst 4912G	• Advanced wirespeed, non-blocking Layer 2 Gigabit Ethernet performance with intelligent Cisco IOS services and high-speed connections to workstations or servers; flexible Gigabit Interface Converter (GBIC) interfaces on all ports

Key Features

- Catalyst 4908G-L3:
  - 8 ports of 1000BASE x Gigabit Ethernet with GBIC support; Layer 3 switching and routing of IP, IPX and IP Multicast with wire speed Layer 2 switching for non routable protocols; Gigabit Etherchannel capability on every port
- Catalyst 4912G:
  - Wire-speed performance with 24 Gbps of dedicated bandwidth for nonblocking Gigabit Ethernet concentration, broad Gigabit EtherChannel availability, and GBIC flexibility on fiber port interfaces covering a wide range of cabling distances

Competitive Products

- Extreme Networks: Summit 1
- Foundry: Turbo Iron 8
- Nortel: Accellar 1200

Specifications

Feature	Catalyst 4908G-L3	Catalyst 4912G
Fixed Ports	8 (All Layer 3)	12 (All Layer 2)
Backplane Capacity	22 Gbps	24 Gbps
Stackable	No	No
VLAN Maximum	244	244
802.1Q	Yes	Yes
ISL	Yes	No
Management Capabilities	Inboard console via terminal or modem, outboard via Telnet, SNMP, CiscoView, CWSI, CiscoWorks 2000	Inboard console via terminal or modem, outboard via Telnet, SNMP, CiscoView, CWSI, CiscoWorks 2000
Dimensions (H x W x D)	2.69 x 17.1 x 18in	2.75 x 17.5 x 15 in.

Selected Part Numbers and Ordering Information[1]

Catalyst 4000 Switch Family

WS-4908G-L3	Catalyst 4908G-L3 switch
WS-C4912G	Catalyst 4912G switch, fixed 12-ports switched 1000BASE-X (GBIC)
WS-G5484=	1000BASE-SX GBIC module
WS-G5486=	1000BASE-LX/LH GBIC module
WS-G5487=	1000BASE-ZX GBIC module

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Catalyst 4000 series Web site: *http://www.cisco.com/go/cat4000*

Cisco Catalyst 5000 Family

On October 4, 2002, Cisco Systems announced the end of sale for the Cisco Catalyst 5000 and 5500 series of modular switches, including all related Cisco Catalyst 5000 and 5500 series chassis and modules. The Cisco Catalyst 5000 and 5500 series chassis and modules will be orderable through June 30, 2003.

The Catalyst 5000 family features a Gigabit Ethernet and ATM-ready platform offering users high-speed trunking technologies, including Fast EtherChannel and OC-12 ATM. This series also provides a redundant architecture, dynamic VLANs, complete intranet services support, and media-rate performance with a broad variety of interface modules.

Migration Options

When a Customer Needs These Features

Catalyst 6500 with Sup2/msfc2	• High Performance L3 wiring closet, data centre, or core feature sets • Integrated L2-7 Serices Modules • Layer 3 Routing Capabilities • Scalability to 256 Gbps • Hardware based QoS and ACLs • IOS software
Catalyst 6500 with Sup2/pfc2	• High Performance L2 wiring closet, data centre or core feature sets • Scalability to 256 Gbps • Hardware based QoS and ACLs
Catalyst 6500 with sup1A-2GE	• Low cost of entry wiring closet solution • Scalability to 32Gbps • Basic security and L2 QoS capabilities • L2 Stateful failover capabilities

Competitive Products

- Enterasys: Matrix E7, Expedition ER16
- Nortel: Passport 8100, 8600
- Extreme: Black Diamond
- Foundry: Big Iron

Specifications

Feature	Catalyst 5500	Catalyst 5505	Catalyst 5509
Modular Slots	13	5	9
Available Modules	Supervisor[1] Engine II G, III G, or III plus any combination of modules (subset listed under Part Numbers and Ordering Information)	Same as Catalyst 5500	Same as Catalyst 5500
Backplane	3.6 Gbps ATM switching: 5-Gbps backplane	3.6 Gbps	3.6 Gbps
Full-Duplex Capabilities	All Ethernet, Fast Ethernet, Token Ring, and ATM ports	Same as Catalyst 5500	Same as Catalyst 5500
VLAN Maximum	Spanning tree: Yes per VLAN 1000 VLANs	Same as Catalyst 5500	Same as Catalyst 5500
FEC	100BASE-TX; 100BASE-FX; 1000 BASE-X	Same as Catalyst 5500	Same as Catalyst 5500
Management Capabilities	Inboard console via terminal or modem, outboard via Telnet, SNMP, CiscoView, CWSIStatistics, history, alarms, events	Same as Catalyst 5500	Same as Catalyst 5500
Dimensions (HxWxD)	25.25 x 17.3 x 18.25 in.	10.4 x 17.2 x 18.14 in.	20 x 17.25 x 18.14 in.

1. Supervisor module(s) require a slot in the chassis.

Selected Part Numbers and Ordering Information[1]

Catalyst 5000 Family Switch Families

WS-C5507=	13-slot Chassis, AC Power Supply
WS-C5505-CHAC=	Catalyst 5505 Chassis, AC Power Supply
WS-C5509-CHAC=	Catalyst 5509 Spare Chassis, AC Power Supply
WS-C5509-CHDC=	Catalyst 5509 Spare Chassis, DC Power Supply

Catalyst 5000 Family Basic Maintenance

|	
CON-SNT-PKG13	Catalyst 5505 Packaged SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG16	Catalyst 5500 Packaged SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG15	Catalyst 5509 Packaged SMARTnet Maintenance 8x5xNBD

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For More Information

See the Catalyst 5500/5000 series Web site: *http://www.cisco.com/go/5000*

Cisco Catalyst 6500 Family

The Catalyst 6500 Family delivers highly
available secure converged network
services for the Enterprise and Service
Provider networks. Designed to address
the increased requirements for gigabit
scalability, high-availability, rich services, and multilayer switching in backbone,
distribution, and wiring closet topologies as well as datacenter environments, the
Catalyst 6500 Family delivers exceptional scalability and price/performance,
supporting a wide range of interface densities, performance, and integration of
powerful service modules. The Catalyst Family delivers a wide range of intelligent
switching solutions, enabling corporate intranets, extranets, and the internet for
multimedia, mission-critical data, and voice applications.

When to Sell
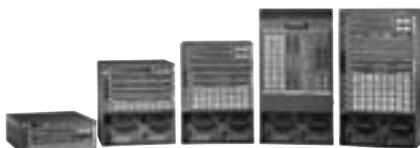
Sell This Product	When a Customer Needs These Features
Catalyst 6500 Series	• A highly scalable platform that meets requirements for a dynamic environment including very high multilayer switching performance with high Fast Ethernet and Gigabit Ethernet port densities
Catalyst 6500 Family Solutions	• Enterprise campus distribution and core—With industry-leading port densities, performance, and high availability solutions
	• Enterprise Server Farm—For Gigabit wire-speed access to mission-critical server farms
	• High-capacity wiring closets—In very large deployments, the Catalyst 6000 family delivers advanced Layer 2, 3, and 4 switching in wiring closets
	• Value wiring closets where basic L2 QoS and ACL capabilities are required in addition to 2-3 Sec L2 Stateful failover
	• WAN/LAN/MAN integration—Single integrated platform simplifies network design, decreases rack space requirements, and decreases overall administration costs
	• Advanced, integrated hardware based firewall, content switching, intrusion detection, and network analysis capabilies
	• Service Provider Networks—For all dynamic environments including e-commerce, web hosting, and co-location facilities

Key Features

- Application-aware networking with multilayer switching intelligence and support
  for CiscoAssure policy networking
- High-availability features deliver maximum uptime for mission-critical
  application support
- Extensive Quality of Service (QOS) features to support mission-critical
  applications
- Scalable performance to 210 Mpps
- Maximum 10/100 Ethernet port density: 96 (3-slot chassis), 240 (6-slot chassis),
  384 (9-slot chassis), and 576 (13-slot chassis)
- Maximum Gigabit Ethernet port density: 32 (3-slot chassis), 82 (6-slot chassis),
  130 (9-slot chassis), and 194 (13-slot chassis)

Competitive Products

• Extreme: Black Diamond	• Lucent: Cajun Switch 550
• Foundry: Big Iron	• Nortel: Passport 8600

Specifications

Feature	6503	6506	6509	6513
Modular Slots	3	6	9	13
Available Modules	8 & 16 port Gigabit Ethernet; 24 port 100FX Ethernet (multimode or single mode); 48 port 10/100TX Ethernet (RJ45); 48 port 10/100 Ethernet (RJ 21 or TELCO); 1 port Multimode OC12 ATM; 1 port Single Mode OC 12 ATM; 15 port 1000BASE T Gigabit Ethernet; 24 port 10BASE FL (MT RJ); Network Analysis Module; Flex Wan Module; 24 port FXS Analog Station Interface Module; 8 port Voice T1 or E1 Services Module; Voice Power Feature CardIntrusion Detection Module; Content Switching Module; Fabric Enabled Line Cards	Same as Catalyst 6503	Same as Catalyst 6503	Same as Catalyst 6503 plus: Switch Fabric Module 2
Backplane	Scalable to 256 Gbps	Scalable to 256 Gbps	Scalable to 256 Gbps	Scalable to 256 Gbps
Multilayer Performance	Scalable to 100+ Mpps	Scalable to 100+ Mpps	Scalable to 100+ Mpps	Scalable to 210 Mpps
VLAN Maximum	4000	4000	4000	4000
FEC/GEC	Up to 8 noncontiguous ports; supports multimode channeling.	Same as Catalyst 6503	Same as Catalyst 6503	Same as Catalyst 6503
Management Capabilities	CiscoWorks 2000, RMON, Enhanced Switched Port Analyzer (ESPAN), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP)	Same as Catalyst 6503	Same as Catalyst 6503	Same as Catalyst 6503
Dimensions	7 x 17.37 x 21.75 in.	20.1 x 17.2 x 18.1 in.	25.2 x 17.2 x 18.1 in.	33.3 x 17.2 x 18.1 in.

Selected Part Numbers and Ordering Information[1]

Catalyst 6000 Family Chassis

WS-C6503	Catalyst 6500 3 Slot Chassis
WS-C6506	Catalyst 6506 Chassis
WS-C6509	Catalyst 6509 Chassis
WS-C6509-NEB	Catalyst 6509 Chassis for NEBS Environments
WS-C6513	Catalyst 6513 Chassis

Catalyst 6500 Series Power Supplies

PWR-950-AC=	Spare 950W AC P/S for Cisco 7603/Cat 6503
PWR-950-DC=	Spare 950W DC P/S for CISCO7603/Cat 6503
PEM-15A-AC=	Spare Pwr Entry Mod for CISCO7603/Cat 6503 (950W AC Pwr Sup)
PEM-DC/3=	Spare DC Power Entry Mod for CISCO7603/Cat 6503
WS-CAC-1000W=	Catalyst 6000 1000W AC Power Supply, Spare
WS-CAC-1300W=	Catalyst 6000 1300W AC Power Supply,Spare
WS-CDC-1300W=	Catalyst 6000 1300W DC Power Supply, Spare
WS-CAC-2500W=	Catalyst 6000 2500W AC Power Supply
WS-CAC-4000W-INT=	4000W AC PowerSupply, International (cable included)
WS-CAC-4000W-US=	4000Watt AC Power Supply for US (cable attached)

Catalyst 6000 Family Supervisor Engines and Switch Fabric Modules

WS-X6K-S1A-MSFC2=	Catalyst 6000 Supervisor Engine1-A, 2GE, plus MSFC-2 & PFC
WS-X6K-SUP1A-2GE=	Catalyst 6000 Supervisor Engine1A, Enhanced QoS, 2GE
WS-X6K-SUP1A-PFC=	Catalyst 6000 Supervisor Engine1-A, 2GE, plus PFC
WS-X6K-S2-PFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus PFC-2
WS-X6K-S2-MSFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus MSFC-2 & PFC-2
WS-X6K-S2U-MSFC2=	Cat6K Sup2 with 256MB DRAM on Sup2 and MSFC2
WS-SUP720=	Cat6500 CEF720 Sup Engine - Integrated Fabric, MSFC3
WS-C6500-SFM=	Catalyst 6500 Switch Fabric Module
WS-X6500-SFM2=	Catalyst 6500 Switch Fabric Module 2, Spare

Catalyst 6500 – 10 Gigabit Ethernet

WS-X6502-10GE=	Catalyst 6500 10 Gigabit Ethernet Base Module(Req OIM),Spare

Catalyst 6500 – Gigabit Ethernet

WS-X6148-GE-TX=	Cat6500 48-port 10/100/1000 GE Module, RJ45
WS-X6316-GE-TX=	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)
WS-X6408A-GBIC=	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)
WS-X6416-GBIC=	Catalyst 6000 16-port Gig-Ethernet Mod. (Req. GBICs)
WS-X6416-GE-MT=	Catalyst 6000, 16-port Gigabit Ethernet Module, MT-RJ
WS-X6516-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6516-GE-TX=	Catalyst 6500 16-port Gig/Copper Module, x-bar
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F w/DF, (Req GBICs)

Catalyst 6500 – 10/100 Gigabit Ethernet

WS-X6024-10FL-MT=	Catalyst 6000 24-port 10BASE-FL MT-RJ Module
WS-X6148-RJ-21=	Catalyst 6500 48-Port 10/100 Upgradable to Voice, RJ-21
WS-X6148-RJ21V=	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
WS-X6148-RJ-45=	Catalyst 6500 48-Port 10/100, Upgradable to Voice, RJ-45
WS-X6148-RJ45V=	Catalyst 6500 48-port 10/100 Inline Power, RJ-45
WS-X6324-100FX-MM=	Catalyst 6000 24-port 100FX, Enh QoS, MT-RJ, MMF
WS-X6324-100FX-SM=	Catalyst 6000 24-port 100FX, Enh QoS, MT-RJ, SMF
WS-X6348-RJ21V=	Catalyst 6000 48-port 10/100, Inline Power, RJ-21
WS-X6348-RJ-45=	Catalyst 6000 48-port 10/100, Enhanced QoS, RJ-45
WS-X6348-RJ-45V=	Catalyst 6000 48-port 10/100, Inline Power, RJ-45
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar

Catalyst 6500 Services Modules

WS-SVC-CMM=	COMMUNICATION MEDIA MODULE
WS-SVC-CMM-6T1=	6-PORT T1 INTERFACE PORT ADAPTER
WS-SVC-CMM-6E1=	6-PORT E1 INTERFACE PORT ADAPTER
WS-SVC-CSG-1=	Content Services Gateway
WS-SVC-FWM-1-K9=	Firewall blade for Catalyst 6500
WS-SVC-IPSEC-1=	IPSec VPN Security Module for 6500 and 7600 series
WS-SVC-NAM-1=	Catalyst 6500 Network Analysis Module-1
WS-SVC-NAM-2=	Catalyst 6500 Network Analysis Module
WS-SVC-SSL-1-K9=	SSL Module for Catalyst 6500
WS-X6066-SLB-APC=	Catalyst 6500 Content Switching Module
WS-X6381-IDS=	Catalyst 6000 Intrusion Detection System Module
WS-X6608-E1=	Catalyst 6000 8-port Voice E1 and Services Module
WS-X6608-T1=	Catalyst 6000 8-port Voice T1 and Services Module
WS-X6624-FXS=	Catalyst 6000 24-port FXS Analog Station Interface Module

Catalyst 6500 FLEXWAN and OSM Modules

WS-X6101-OC12-MMF=	Catalyst 6000 1-port Multimode OC-12 ATM Module, Spare
WS-X6101-OC12-SMF=	Catalyst 6000 1-port Single-Mode OC-12 ATM Module, Spare
WS-X6182-2PA=	Catalyst 6000 Flex WAN Module (Supports 2 Port Adapters)
WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
Catalyst 6500 Optics	
WS-G5484=	1000BASE-SX Short Wavelength GBIC (Multimode only)
WS-G5486=	1000BASE-LX/LH long haul GBIC (single mode or multimode)
WS-G5487=	1000Base-ZX extended reach GBIC (single mode)
WS-G6483=	Cat 6500 10GBASE-ER Serial 1550nm extended reach OIM (spare)
WS-G6488=	Catalyst 6500 10GBASE-LR Serial 1310nm long haul OIM (spare)

Catalyst 6500 Bundles

WS-C6503-2GE	Cat6503 chassis w/ Sup1A-2GE (Requires Power Supply)
WS-C6503-PFC2	Cat6503 chassis w/ Sup2-PFC2 (Requires Power Supply)
WS-C6506-2GE	Cat6506 chassis w/ Sup1A-2GE (Requires Power Supply)
WS-C6506-PFC2	Cat6506 chassis w/ Sup2-PFC2 (Requires Power Supply)
WS-C6509-2GE	Cat6509 chassis w/ Sup1A-2GE (Requires Power Supply)
WS-C6509-PFC2	Cat6509 chassis w/ Sup2-PFC2 (Requires Power Supply)
WS-C6509-6816-16	Cat6509 w/S2-MSFC2,SFM2,WS-X6816-GBIC (Req Purch 2 2500W)
WS-C6509-6816-32	Cat6509 w/S2-MSFC2,SFM2,2xWS-X6816-GBIC (Req Purch 2 2500W)
WS-SVC-SSL-CSM-K9=	Catalyst 6500 SSL and CSM Bundle
WS-C6503-FWM-K9	Cisco Catalyst 6503 Firewall Security System
WS-C6506-FWM-K9	Cisco Catalyst 6506 Firewall Security System
WS-C6506-IPSEC-K9	Cisco Catalyst 6506 IPSec VPN System

Cisco Catalyst 6500 Family

WS-C6503-IPSEC-K9   Cisco Catalyst 6503 IPsec VPN System
WS-C6506-IPSEC-K9   Cisco Catalyst 6506 IPSec VPN System

Catalyst 6000 Family Accessories

WS-F6K-MSFC2=   Catalyst 6000 Multilayer Switch Feature Card (MSFC)II, Spare
WS-F6K-VPWR=   Catalyst 6000 Voice Power Feature Card for WS-X6348-RJ-45
WS-F6K-DFC=   Distributed Forwarding Card
WS-C6X09-RACK=   Catalyst 6x00 Rack Mount Kit and Cable Organizer
WS-C6K-6SLOT-FAN=   Catalyst 6000, Fan Tray for 6-slot Systems
WS-C6X06-RACK=   Catalyst 6x06, Rack Mount Kit and Cable Organizer

Catalyst 6000 Family Software and Element Management Software (EMS)

WS-C6513-EMS-LIC=   Catalyst 6513 RMON Agent License
WS-C6X09-EMS-LIC   Catalyst 6x09 RMON Agent License
WS-C6X06-EMS-LIC   Catalyst 6x06 RMON Agent License (also available for Cat6x09)
FRC6-MSM-IPX=   Catalyst 6000 MSM IPX Feature Set License, Spare
FR-IRC6=   Catalyst 6000 Family InterDomain Routing Feature License
S6MSFC2A-12102E=   Catalyst 6000 MSFC2 IOS Enterprise (also available in images with VIP, Desktop, IP/IPX, etc.)
SC6K-SUP2-6.1.1   Catalyst 6000 Supervisor 2 Flash Image, Rel 6.1(1)
SC6K-SUP2CV-6.1.1   Cat6K Supervisor 2 Flash Image w/CiscoView, Rel 6.1(1)
SC6K-SUP2K9-6.1.1   Catalyst 6000 Supervisor 2 Flash Image w/SSH, Rel 6.1(1)
SC6K-S2K9CV-6.1.1   Cat6K Sup 2 Flash Image w/CiscoView & w/SSH, Rel 6.1(1)
S6SUP22A-12105E   Catalyst 6000 Sup2/MSFC IOS Enterprise (also available in images with Desktop, IP, IP/IPX)
SC6K-SUP-5.4.4=   Catalyst 6000 Supervisor Flash Image, Release 5.4(4)
EMS-6500-025C-1.0=   6500 EMS 25 Chassis RTU License-6750 Per Chassis List
EMS-6500-100C-1.0=   6500 EMS 100 Chassis RTU License-6000 Per Chassis List
EMS-6500-250C-1.0=   6500 EMS 250 Chassis RTU License-5250 Per Chassis List
EMS-6500-500C-1.0=   6500 EMS 500 Chassis RTU License-4500 Per Chassis List

Catalyst 6000 Family Memory Options

MEM-C6K-FLC16M=   Catalyst 6000, Supervisor PCMCIA 16MB Flash Memory Card
MEM-C6K-FLC24M=   Cat 6000 Sup PCMCIA Flash Memory Card, 24 MB Spare
MEM-MSFC-128MB=   Catalyst 6000 MSFC Mem, 128 MB DRAM Option
MEM-C6K-WAN-128M=   Catalyst 6000 WAN Module Memory, 128 MB
MEM-MSFC2-256MB=   MSFC2 256MB Memory Option (also available in 512 MB)
MEM-DFC-256MB=   Catalyst 6500 256 MB spare for DFC
MEM-DFC-512MB=   Catalyst 6500 512 MB option for DFC
MEM-S2-256MB=   256 MB DRAM spare for Sup2

Catalyst 6000 Family Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-PKG12   Catalyst 6503 L2 Bundle SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG14   Catalyst 6506 L2 Bundle SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG15   Catalyst 6509 L2 Bundle SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG16   Catalyst 6006 and 6506, Packaged SMARTnet Maintenance 8x5xNBD
CON-SNT-PKG17   Catalyst 6009 and 6509, Packaged SMARTnet Maintenance 8x5xNBD

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Catalyst 6000 Family Web site: *http://www.cisco.com/go/6000*

Cisco Catalyst 8500 Multiservice Switch Routers

The Catalyst 8500 family multiservice switch routers integrate
multiservice ATM switching with wire-speed multiprotocol routing
for Gigabit Ethernet and Fast Ethernet into a single platform that
also supports advanced Cisco IOS services for QoS and security.
This family delivers enterprise MAN/WAN and Service Provider
multiservice edge solutions with scalable performance, lower cost
of ownership, and offer multiple interface options in a modular
chassis. The Catalyst 8500 series consists of the modular Catalyst
8510 (10-Gbps, 5-slot) switch and the modular Catalyst 8540
(40-Gbps, 13-slot) switch. Both switches implement Cisco IOS
Software to provide a variety of network services including reliability, security,
management, and QoS with CiscoAssure policy networking.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 8540 and Catalyst 8510	• Integrated 10/100 FE, GE, and ATM • Flexible ATM interfaces (T1/E1, IMA, DS3/E3, OC-3, OC-12, and OC-48) • Frame relay and circuit emulation services • Wire-speed performance • Multiservice MAN/WAN applications • Multiservice Edge solutions • Voice, data, and video solutions • MPLS VPN

Key Features

- Ideal for integrated multiservice ATM switching with wire-speed multiprotocol
  routing for gigabit Ethernet (L3eATM or Layer 3 enabled ATM)
- Ideal for aggregating multiprotocol traffic from multiple wiring closets or from
  workgroup switches such as the Catalyst 5000 or distribution/server aggregation
  switches such as the Catalyst 6000 Family
- Provides nonblocking routing for IP, IPX, and IP multicast while also offering
  wire-speed Layer 2 switching for nonroutable protocols such as NetBIOS and
  DECnet local-area transport (LAT)
- Aggregate throughput of up to 24 million packets per second (pps) for
  non-blocking, wirespeed Layer 3 switching

Competitive Products

- Foundry: Big Iron
- Lucent: PSAX 1250 and 2300
- Marconi: ASX 1000, 1200, and 4000
- Alcatel: Omniswitch

Specifications

Feature	Catalyst 8510	Catalyst 8540
Modular Slots	5	13
Available Modules	See Part Numbers and Ordering information for a partial parts list	
Backplane	10 Gbps	40 Gbps
Throughput Performance	6 Mpps	24 Mpps
MAN / WAN	POS / ATM Uplink	POS / ATM Uplink
Dimensions (HxWxD)	10.5 x 17.2 x 18.14 in.	25.25 x 17.3 x 18.25 in.

Selected Part Numbers and Ordering Information[1]

Catalyst 8540—Common Equipment

C8540MSR-SKIT-AC	C8540 MSR Starter Kit w/ Stratum 4 Clock Module—AC Power (also available in DC Power)
C8545MSR-MRP4CLK=	C8540 MSR Multiservice Route Processor (spare)
C8545MSR-MRP3CLK=	C8540 MSR Route Processor Stratum 3 (spare)
C8546MSR-MSP-FCL=	C8540 MSR Switch Processor with ATM FC (spare)
C8540CSR-SKIT-AC	Catalyst 8540 CSR Starter Kit with AC Power (also available in DC Power)
C8541CSR-RP=	Catalyst 8540 CSR Route Processor (spare)
C8542CSR-SP=	Catalyst 8540 CSR Switch Processor (spare)
C8540-CHAS13=	Catalyst 8540 - Chassis (spare)
C8540-PWR-AC=	C8540 Power Supply—AC (also available in DC Power)

Catalyst 8510—Common Equipment

C8510MSR-SKIT-AC	Catalyst 8510 MSR Starter Kit with AC Power (also available as -DC for DC Power
C8515-MSRP=	C8510 Multiservice Switch Route Processor (spare)
C8510CSR-SKIT-AC	Catalyst 8510 CSR Starter Kit with AC Power (also available as -DC for DC Power)
C8510-SRP=	C8510 Layer 3 Switch Route Processor (spare)
C8510-CHAS5=	Catalyst 8510 - Chassis (spare)
C8510-PWR-AC=	C8510 power supply, AC (spare) (also available in DC power)

Catalyst 8500 Family—ATM Router Module Equipment

C8540-ARM-64K=	C8540 ATM Router Module 64K (also available for 8510)
C8540-ARM2=	C8540 Enhanced ATM Router Module (spare)

Catalyst 8500—Layer 3 Modules and ATM Interface Modules and Uplinks

C85EGE-2X-16K=	C8540 2-port Enhanced GE 16K (also available in 64K and 256K)
C85GE-8X-64K=	C8540 8-port GE 64K
C85FE-16TACL-64K=	C8540 16-port 10/100 RJ-45 w/ACL 64K
C85FE-16FACL-64K=	C8540 16-port 100-FX MT-RJ w/ACL 64K
C8540-ACL=	C8540 ACL Daughter Card (also available for C8510/LS1010)
C85GE-1X-16K=	C8510/LS1010 1-port Gigabit Ethernet 16K (also available in 64K)
C85FE-8T-64K=	C8510/LS1010 8-port 10/100 RJ-45 64K
C85FE-8F-64K=	C8510/LS1010 8-port 100-FX MT-RJ 64K
C85MS-1F4S-OC48SS=	C8540 1-port OC-48c/STM-16 SMF-IR+4-port OC-12 SMF
C85MS-1F4M-OC48SS=	C8540 1-port OC-48c/STM-16 SMF-IR+4-port OC-12 MMF
C85MS-4F-OC12SS=	C8540 4-port OC-12c/STM-4 SMF
C85MS-4F-OC12MM=	C8540 4-port OC-12c/STM-4 MMF
C85MS-16F-OC3MM=	C8540 16-port OC-3c/STM-1 MMF (spare)
C85MS-16F-OC3SM=	C8540 16-port OC-3c/STM-1 SMF-LR (spare)

Catalyst 8500—Port Adapter Modules

C85MS-SCAM-2P=	C8540 SuperCAM for Port Adapter Modules (spare)
C8510TSCAM-2P=	CS8510/LS1010 Traffic Shaping Carrier Access Modules (spare)
WATM-CAM-2P=	C8510 / LS1010 Carrier Modules (spare)
WAI-T1C-4RJ48=	4 Port T1 (circuit emulation) RJ-48 PAM (also available in EI and in E1 BNC)
C85MS-4E1-FRRJ48=	C8500 4-port E1 Frame-Relay/FUNI PAM (spare)
WAI-OC3-4MM=	4 Port OC-3c/STM-1 MMF PAM (also available in SMF-IR & SMF-LR)
WAI-OC3-1S3M=	OC-3c/STM-1 Mix PAM, 1-port SMF-IR + 3-port MMF (spare)
WAI-OC12-1MM=	1 Port OC-12c/STM-4c MMF PAM (also available in SMF-IR and SMF-LR)
WAI-T3-4BNC=	4 Port DS-3 PAM (spare and in E3 BNC)
C85MS-8T1-IMA=	C8500MSR/LS1010 8-port TI IMA PAM (also available in E1 120 ohm)
WAI-T1-4RJ48=	4 Port T1 (ATM) RJ-48 PAM (spare also available in E1 and E1 BNC E1)

Catalyst 8500 Software Feature License Options

FR-8510-TAGSW=	C8510 Tag Switching upgrade license (also available with HPNNI and HPNNI + Tag Switching)
FR-8540MSR-HPNNI=	Cat 8540MSR—Hierarchical PNNI License (also available with Tag Switching)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Catalyst 8500 series Web site: *http://www.cisco.com/go/8500*

Wireless LAN Products

Wireless LAN Products at a Glance (IEEE 802.11b)

Product	Features	Page
Cisco Aironet 1200 Series Access Points	• Offers investment protection and a smooth migration path to future technologies through a dual band radio design • Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite • Industry-leading security, network management, throughput and software feature set • Support for both line power over Ethernet and local power	3-2
Cisco Aironet 1100 Series Access Point	• Single 802.11b radio, upgradable to 802.11g • Provides end-to-end solution support for Intelligent Network Services • Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite • Support for both line power over Ethernet and local power • Cost effective, yet feature-rich	3-5
Cisco Aironet 5 GHz 54 Mbps Wireless LAN Client Adapter	• IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands • Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require	3-6
Cisco Aironet 350 Series Client Adapters	• Superior range and throughput • Secure network communications • World mode for international roaming • PCMCIA card and PCI form factors • IEEE 802.11b	3-8
Cisco Aironet 350 Series Workgroup Bridge	• Driverless installation of up to eight Ethernet-enabled devices • Optimum wireless performance and range • Standards-based centralized security • IEEE 802.11b	3-10
Cisco Aironet 350 Series Wireless Bridge	• High-speed, high-power radios, delivering building-to-building links of up to 25 miles (40.2 km) • A metal case for durability and plenum rating • Supports both point-to-point and point-to-multipoint configurations • Broad range of support antennas • Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection • IEEE 802.11b	3-12
Cisco Aironet Antennas and Accessories	• A wide array of options • FCC-approved directional and omni-directional antennas • Low-loss cable, mounting hardware, and other accessories available	3-14
CiscoWorks Wireless LAN Solution Engine	A hardware-based wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges. • Monitors LEAP authentication servers • Enhances security management through mis-configuration detection on access points and bridges	9-23

Sample Wireless LAN Solution Overview—In-Building or Site-to-Site

Enterprise, Small/Medium Business Applications

Service common areas for mobile workers

Support employees working in multiple offices

Cost effective, quick network deployment for temporary or leased offices

Sample Vertical Markets

Healthcare, retail, government

Public Access

Multiple Tenant/Dwelling Units

Airports, Hotels, Convention Centers

Education: K-12 and Universities

Cisco Aironet 1200 Series Access Points

The Cisco Aironet 1200 Series Access Point sets the enterprise standard for next-generation high performance secure, manageable, and reliable wireless local-area networks (WLANs) while also providing investment protection because of its upgrade capability and compatibility with current standards. The modular design of the Cisco Aironet 1200 supports IEEE 802.11a and 802.11b technologies in both single-and dual-mode operation. You can configure the Cisco Aironet 1200 to meet customer-specific requirements at the time of purchase and then reconfigure and upgrade the product in the field as these requirements evolve.

The Cisco Aironet 1200 Series protects current and future network infrastructure investments. Compliant with IEEE 802.11a and 802.11b standards, The 802.11a radio supports data rates of up to 54 Mbps and eight non-overlapping channels that offer high performance as well as maximum capacity and scalability. The 802.11b radio provides data rates up to 11 Mbps and three non-overlapping channels to support widely deployed 802.11b clients. The Mini-PCI form factor of the 802.11b radio allows for upgrade to higher-speed 2.4 GHz technologies such as the draft IEEE 802.11g standard.The Cisco Aironet 1200 Series extends end-to-end intelligent networking to the wireless access point with support for enterprise-class virtual LANs (VLANs) and quality of service (QoS). An ideal choice for enterprise installations, the Cisco Aironet 1200 Series can manage up to 16 VLANs, which allows customers to differentiate LAN policies and services, such as security and QoS, for different users. Traffic to and from wireless clients with varying security capabilities can be segregated into VLANs with varying security policies.

Wireless LAN security is a primary concern. The Cisco Aironet 1200 Series secures the enterprise network with a scalable and manageable system featuring the award-winning Cisco Wireless Security Suite. Based on the 802.11x standard for port-based network access, the Cisco Wireless Security Suite takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 1200 Series Access Point	• IT Professionals or business executives want mobility within the enterprise to increase productivity, as an addition or alternative to wired networks. • Business owners or IT directors need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas. • Any company whose site is not conducive to LAN wiring because of building or budget limitations, such as older buildings, leased space or temporary sites.

Key Features

- Offers investment protection because of its upgrade capability and compatibility with current standards
- Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite
- Industry-leading security, network management, and software feature set
- Support for both inline power over Ethernet or local power
- Simultaneous support for both IEEE 802.11b and IEEE 802.11a

Specifications

Feature	Cisco Aironet 1200 Series Access Points with 802.11a radio installed	With 802.11b radio installed	With both 802.11a and 802.11b radio installed
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, 54 Mbps	1, 2, 5.5, and 11 Mbps	Same as 802.11a and 802.11b combined
Uplink	Autosensing 802.3 10/100BaseT Ethernet	Autosensing 802.3 10/100BaseT Ethernet	Same as 802.11a and 802.11b combined
Form Factor	CardBus (32-bit)	Mini-PCI	Same as 802.11a and 802.11b combined
Frequency Band	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2), 5.15 to 5.25 GHz (TELEC),5.15 to 5.25 GHz (Singapore),5.25 to 5.35 GHz (Taiwan)	2.412 to 2.462 GHz (FCC),2.412 to 2.472 GHz (ETSI),2.412 to 2.484 GHz (TELEC),2.412 to 2.462 GHz (MII),2.422 to 2.452 GHz (Israel)	Same as 802.11a and 802.11b combined
Wireless Medium	Orthogonal Frequency Division Multiplexing (OFDM)	Direct Sequence Spread Spectrum (DSSS)	Same as 802.11a and 802.11b combined
Modulation	(OFDM subcarrier);BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps;64-QAM @ 48 and 54 Mbps	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps	Same as 802.11a and 802.11b combined
Operating Channels	FCC: 8;TELEC (Japan): 4; Singapore: 4; Taiwan: 4	ETSI: 13; Israel: 7; North America: 11; TELEC (Japan): 14; MII: 11	Same as 802.11a and 802.11b combined
Nonoverlapping Channels	Eight (FCC only); Four (Japan, Singapore, Taiwan)	Three	Eleven
Available Transmit Power Settings[1]	40 mW (16 dBm);20 mW (13 dBm);10 mW (10 dBm);5 mW (7 dBm); Maximum power setting will vary according to individual country regulations.	100 Mw (20 dBm); 5 Mw (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm); Maximum power setting will vary according to individual country regulations	Same as 802.11a and 802.11b combined
Range (typical @ maximum power setting, 2.2 dBi gain diversity dipole antenna)	Omni directional Antenna: Indoor: 60 ft (18m)@ 54 Mbps, 130 ft (40m) @ 18 Mbps, 170 ft (52m) @ 6 Mbps; Outdoor: 100 ft (30m) @ 54 Mbps, 600 ft (183m) @ 18 Mbps, 1000 (304m) ft @ 6 Mbps; Patch Antenna: Indoor: 70 ft (21m) @ 54 Mbps, 150 ft (45m) @ 18 Mbps, 200 ft (61m) @ 6 Mbps; Outdoor: 120 ft (36m) @ 54 Mbps, 700 ft (213m) @ 18 Mbps; 1200 ft (355m) @ 6 Mbps	IIndoor:130 ft (40m) @ 11 Mbps; 350 ft (107m) @ 1 Mbps Outdoor: 800 ft (244m) @ 11 Mbps; 2000 ft (610m) @ 1Mbps	Same as 802.11a and 802.11b combined
SMTP Compliance	MIB I and MIB II	MIB I and MIB II	MIB I and MIB II
Antenna	Integrated 6 dBi diversity patch (55 degree horizontal, 55 degree vertical beamwidths, 5 dBi diversity omnidirectional with 360 degree horizontal and 40 degree vertical beamwidths	Two RP-TNC connectors (antennas optional, none supplied with unit)	5 GHz: Integrated 6 dBi diversity patch (55 degree horizontal, 55 degree vertical beamwidths, 5 dBi diversity omnidirectional with 360 degree horizontal and 40 vertical beamwidths; 2.4 GHz: Two RP-TNC connectors (antennas optional, none supplied with unit)

Feature	Cisco Aironet 1200 Series Access Points with 802.11a radio installed	With 802.11b radio installed	With both 802.11a and 802.11b radio installed
Security architecture client authentication	Cisco Wireless Security Suite including: Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS, and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	Cisco Wireless Security Suite including: Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS, and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	Same as 802.11a and 802.11b combined
Software Image Network and Inventory support	CiscoWorks RME[2], CiscoWorks SWIM[3]	CiscoWorks RME[2], CiscoWorks SWIM[3]	CiscoWorks RME[2], CiscoWorks SWIM[3]
Remote configuration support	BOOTP, DHCP, Telnet, HTTP, FTP, TFTP, and SNMP	Telnet, HTTP, FTP, TFTP, and SNMP	Telnet, HTTP, FTP, TFTP, and SNMP
Local configuration	Direct consoled port (RJ-45 interface)	Direct consoled port (RJ-45 interface)	Direct consoled port (RJ-45 interface)
Environmental	-4° to 122°F (-20° to 50ºC), 10 to 90% humidity (noncondensing)	-4° to 131°F (-20° to 55ºC), 10 to 90% humidity (noncondensing)	-4° to 122°F (-20° to 50ºC), 10 to 90% humidity (noncondensing)
Input Power Requirements	90 to 240 VAC +/- 10% (power supply);48 VDC +/- 10%(device)	90 to 240 VAC +/- 10% (power supply);48 VDC +/- 10%(device)	90 to 240 VAC +/- 10% (power supply);48 VDC +/- 10%(device)
Power Draw	8 watts, RMS	6 watts, RMS	11 watts, RMS
Warranty	One year	One year	One year

1. Management Information Base
2. CiscoWorks Resource Manager Essentials
3. Software Image Manager

Selected Part Numbers and Ordering Information[1]

1200 Series Access Points

AIR-AP1200	AP Platform, Cardbus and MPCI Slots (no radio), Enet Uplink
AIR-AP1220B-A-K9	802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1220B-E-K9	802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1220A-J-K9	802.11a AP w/Avail MPCI Slot, Enet Uplink, TELEC Cnfg
AIR-AP1220B-J-K9	802.11b AP w/Avail CBus Slot, Japan Cnfg

1230 Series Access Points

AIR-AP1210	IOS based AP Platform, Cardbus and MPCI Slots (no radio), Enet Uplink
AIR-AP1230B-A-K9	IOS based 802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1230B-E-K9	IOS based 802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1230A-J-K9	IOS based 802.11a AP w/Avail MPCI Slot, Enet Uplink, TELEC Cnfg
AIR-AP1230B-J-K9 I	OS based 802.11b AP w/Avail CBus Slot, Japan Cnfg

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: http://www.cisco.com/dprg (limited country availability)

For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet 1100 Series Access Points

The Cisco Aironet® 1100 Series Access Point provides a secure, affordable, and easy-to-use wireless LAN solution that combines mobility and flexibility with the enterprise-class features required by networking professionals.

Taking advantage of the Cisco Wireless Security Suite for the strongest enterprise security available and of Cisco IOS® Software for ease-of-use and familiarity, the Cisco Aironet 1100 Series Access Point delivers manageability, performance, investment protection, and scalability in a cost-effective package with a low total cost of ownership. The Cisco Aironet 1100 Series features a single, upgradable 802.11b radio, integrated diversity dipole antennas, and an innovative mounting system for easy installation in a variety of locations and orientations.

The first access point based on Cisco IOS Software, the Cisco Aironet 1100 Series extends end-to-end intelligent networking to the wireless access point. Cisco command-line interface (CLI) allows customers to quickly and consistently implement extended capabilities available in Cisco IOS Software. Customers can manage and standardize their networks using tools they have developed internally for their Cisco routers and switches.

Enterprise-class features including virtual LANs (VLANs), quality of service (QoS), and proxy mobile Internet Protocol (IP) make the Cisco Aironet 1100 Series ideal for enterprise installations. The Cisco Aironet 1100 Series also supports standard Cisco Aironet features such as hot-standby and load balancing, allowing enterprises to implement intelligent, reliable network services.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 1100 Series Access Point	• A cost-effective and upgradable WLAN solution that combines the mobility and flexibility of a WLAN solution with the enterprise-class features required by a business LAN. Want an off the shelf WLAN solution that does not require simultaneous dual band operation, or the additional range offered by high-gain antennas.

Key Features

- Single 802.11b radio, upgradable to 802.11g
- Provides end-to-end solution support for Intelligent Network Services
- Variety of mounting options
- Cost effective, yet feature-rich

Specifications

Feature	Cisco Aironet 1100 Series Access Points
Data Rates Supported	1, 2, 5.5, 11 Mbps
Network standard	IEEE 802.11b
Uplink	Autosensing 802.3 10/100BaseT Ethernet
Frequency Band	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.422 to 2.452 GHz (Israel); 2.412 to 2.484 GHz (TELEC)
Network architecture type	Infrastructure, star topology
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Modulation	DBPSK @ 1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	ETSI: 13; Israel: 7; Americas: 11; TELEC (Japan): 14
Nonoverlapping Channels	Three
Receive sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm;11 Mbps: -85 dBm

Feature	Cisco Aironet 1100 Series Access Points
Available Transmit Power Settings[1]	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
	Maximum power setting will vary according to individual country regulations
Range (typical @ maximum power setting, 2.2 dBi gain diversity dipole antenna)	Indoor: 150 ft (45 m) @ 11 Mbps·; 400 ft (122 m) @ 1 MbpsOutdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
SMTP Compliance	MIB I and MIB II
Antenna	Integrated 2.2 dBi diversity dipole antennas
Security architecture client authentication	Cisco Wireless Security Suite including:Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms
	Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation
Software Image Network and Inventory support	CiscoWorks CiscoView, Resource Manager Essentials, and Campus Manager
Remote configuration support	BOOTP, DHCP, Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions	4.1 in. (10.4 cm) wide; 8.1 in. (20.5 cm) high; 1.5 in. (3.8 cm) deep
Weight	10.5 oz. (297 g)
Environmental	·32° to 104° F (0° to 40° C); 10-90% humidity (noncondensing)
System Memory	16 MB RAM; 8 MB Flash
Input Power Requirements	100 to 240 VAC 50 to 60Hz (power supply); 33 to 57 VDC (device)
Power Draw	4.9 watts, RMS
Warranty	One year

1. Management Information Base

For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter

The Cisco Aironet® 5 GHz 54 Mbps Wireless LAN client adapter is an Institute of Electrical and Electronic Engineers (IEEE) 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands. The client adapter complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require.

Wireless LAN client adapters can increase productivity by enabling mobile users to have network and Internet access anywhere within a building that is equipped with a wireless network infrastructure. Wireless client adapters connect a variety of devices to a wireless network either in ad hoc peer-to-peer mode or in infrastructure mode with access points. With this client adapter, you can quickly add new employees to a network, support temporary workgroups, or enable Internet access in conference rooms or other meeting spaces. And the Cisco Aironet client solution is easy to use, making the benefits of wireless mobility completely transparent.

With Cisco, you can confidently deploy a wireless solution that provides robust enterprise-class security. All Cisco Aironet products feature the award-winning Cisco Wireless Security Suite, which is based on the IEEE 802.11x standard for port-based network access.

The Cisco Wireless Security Suite takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication. It supports a variety of 802.11x authentication types including EAP Cisco Wireless (LEAP) and EAP-Transport Layer Security (EAP-TLS).

The Cisco Aironet Client Utility (ACU), with an intuitive graphical user interface, provides an easy way to configure, monitor, and manage the Cisco Aironet 5 GHz Wireless LAN Client Adapter. The ACU includes site-survey tools that present easy-to-understand detailed graphical information to assist in the placement of access points. Profile Manager allows you to create specific profile settings for various environments, such as the office or home, making it simple for telecommuters and business travelers to move from one environment to another.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 5 GHz 54Mbps Wireless LAN Client Adapters	• Industry leading security: IEEE 802.11x support, including LEAP and EAP-TLS, for mutual authentication and dynamic per-user, per session WEP keys • Multiple transmit power settings (20 mW/(13 dBm), 10 mW/(10 dBm), and 5 mW (7 dBm) • End-to-end Cisco branded solution

Key Features

• IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands

• Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require

Specifications

Feature	Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter
Form Factor	CardBus Type II
Interface	32-bit CardBus (PCI)
Operational voltage	3.3 V (+/- 0.33 V)
LED	Status (green) and Activity (amber)
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, 54 Mbps (configurable as fixed or auto selecting to extend range)
Network Standard	IEEE 802.11a
Frequency Band	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.15 to 5.25 GHz (TELEC); 5.15 to 5.25 GHz (Singapore); 5.25 to 5.35 GHz (Taiwan)
Network architecture type	Infrastructure, star topology
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Wireless Medium	Orthogonal Frequency Division Multiplexing (OFDM)
Modulation	(OFDM sub-carrier): BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps
Operating Channels	FCC: 8 channels (UNII-1 4 channels and UNII-2 4 channels); 4 channels for Japan, Singapore, and Taiwan
Available Transmit Power Settings[1]	20 mW (13 dBm);10 mW (10 dBm); 5 mW (7 dBm) Maximum power setting will vary according to individual country regulations.
Current steady state (typical)	·Transmit: 520 mA; Receive: 580 mA; Sleep: 20 mA
Range	Omni directional Antenna: Indoor: 60 ft (18m)@ 54 Mbps, 130 ft (40m) @ 18 Mbps, 170 ft (52m) @ 6 Mbps Outdoor: 100 ft (30m) @ 54 Mbps, 600 ft (183m) @ 18 Mbps, 1000 (304m) @ 6 Mbps Patch Antenna: Indoor: 70 ft (21m) @ 54 Mbps, 150 ft (45m) @ 18 Mbps, 200 ft (61m) @ 6 Mbps Outdoor: 120 ft (36m) @ 54 Mbps, 700 ft (213m) @ 18 Mbps, 1200 ft (355m) @ 6 Mbps
Power Management	3 levels of power consumption available, including: CAM (Constantly Awake Mode), Fast PSP (Power Save Mode), Max PSP (Maximum Power Savings)
Antenna	Integrated 5dBi gain patch antenna

Feature	Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter
Security architecture client authentication	Cisco Wireless Security Suite including: Authentication: 802.11x support for LEAP and EAP-TLS to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms
	Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation
Drivers	Windows, 98/98SE, Windows ME, Windows 2000 and Windows XP
Environmental	-30º to 70ºC; 95% humidity (noncondensing)
Warranty	One year

1. Management Information Base

For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet 350 Series Client Adapters

Wireless client adapters are the key to adding mobility and flexibility to an enterprise—increasing productivity by enabling users to have network and Internet access anywhere within a building without the limitation of wires. The Cisco Aironet 350 Series 802.11b Client Adapters are a complement to Aironet 350 Series infrastructure devices, providing an enterprise-ready solution that combines mobility with the performance, security, and manageability that people have come to expect from Cisco. Wireless client adapters connect a variety of devices to a wireless network either in ad hoc peer-to-peer mode or in infrastructure mode with Access Points. Available in PC Card (PCMCIA) and Peripheral Component Interconnect (PCI) form factors, Cisco Aironet 350 Series Client Adapters quickly connect desktop and mobile computing devices wirelessly to all network resources. With this product, you can instantly add new employees to the network, support temporary workgroups, or enable Internet access in conference rooms or other meeting spaces.

Cisco Aironet 350 Series Client Adapters deliver superior range, reliability, and performance for business users needing information access anytime, anywhere. Combined with Cisco Aironet unique security services, this product ensures that business-critical information is secure. Most importantly, the Cisco client solution is easy to use, making the benefits of wireless mobility completely transparent.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 350 Series Client Adapters	• IT Professionals or business executives want mobility within the enterprise to increase productivity, as an addition or alternative to wired networks.
	• Business owners or IT directors need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas.
	• Any company whose site is not conducive to LAN wiring because of building or budget limitations, such as older buildings, leased space or temporary sites.

Key Features

- Superior range and throughput for IEEE 802.11b networks
- Secure network communications
- World mode for international roaming
- Full-featured utilities for easy configuration and management
- Compliance with the IEEE 802.11b high-rate standard
- Support for all popular operating systems

Specifications

Feature	Cisco Aironet 350 Series Client Adapters
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Network Standard	IEEE 802.11b
System Interface	AIR-PCM35x: PC Card (PCMCIA) Type II AIR-PCI 35x: peripheral component interconnect (PCI) Bus
Frequency Band	2.4 to 2.4897 GHz
Network Architecture Types	Infrastructure and ad hoc
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm 2 Mbps: -91 dBm 5.5 Mbps: -89 dBm 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings[1]	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards
Operating Systems Supported	Windows 95, 98, NT 4.0, 2000, ME, XP, CE 2.11, CE 3.0, Mac OS 9.x, and Linux
Antenna	AIR-PCM35x: Integrated diversity dipoles AIR-LMC35x: Two MMCX connectors (antennas optional, none supplied with unit) AIR-PCI35x: External, removable 2.2 dBi Dipole with RP-TNC Connector
Encryption Key Length	128-bit
Authentication Type	EAP-Cisco Wireless LEAP
Status Indicators	Link Status and Link Activity
Dimensions (W x D x H)	AIR-PCM35x: 2.13 in. (5.4 cm) x 4.37 in. (11.1 cm) x 0.1 in. (0.3 cm) AIR-LMC35x: 2.13 in. (5.4 cm) x 3.31 in. (8.4 cm) x 0.1 in. (0.3 cm) AIR-PCI35x: 6.6 in. (16.8 cm) x 3.9 in. (9.8 cm) x .5 in. (1.3 cm)
Weight	AIR-PCM35x: 1.6 oz (45g) AIR-LMC35x: 1.4 oz (40g) AIR-PCI35x: 4.4 oz (125g)
Environmental	AIR-PCM35x and AIR-LMC35x: -22° to 158° F (-30° to 70° C) AIR-PCI35x: 32° to 131° F (0° to 55° C) 10 to 90% (noncondensing)
Input Power Requirements	+5 VDC =/- 5%
Typical Power Consumption (at 100 mW transmit power setting)	Transmit: 450 mA; Receive: 270 mA; Sleep mode: 15 mA

1. Maximum power setting will vary according to individual country regulations.

Selected Part Numbers and Ordering Information[1]

Cisco Aironet 350 Series Client Adapters

AIR-PCM352	350 Series PC Card with Diversity Antennas & 128-bit WEP
AIR-PCI352	350 Series PCI Card with 2.2 dBi Dipole Antenna & 128-bit WEP

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability)

For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet 350 Series Workgroup Bridge

Designed to meet the needs of remote workgroups, satellite offices, and mobile users, the Cisco Aironet 350 Series Workgroup Bridge brings the freedom and flexibility of wireless connectivity to any Ethernet-enabled device. The 802.11b workgroup bridge quickly connects up to eight Ethernet-enabled laptops or other portable computers to a wireless LAN (WLAN), providing a link from these devices to any Cisco Aironet Access Point (AP) or Wireless Bridge (line-of-sight).

Any Ethernet-ready device, including printers, copiers, PCs, point-of-sale devices, or monitoring equipment, can be placed directly at the point of work using the workgroup bridge—without the expense or delay of cabling. For temporary classrooms or temporary office space, the workgroup bridge provides flexible, easy network access for up to eight devices through the use of a standard eight-port Ethernet hub. Equipment can be easily moved as workgroups change in number or location, lowering facilities costs.

The Cisco Aironet 350 Series Workgroup Bridge supports Wired Equivalent Privacy (WEP) security architecture and provides up to 128-bit encryption. The Cisco Aironet security architecture is based upon an IEEE 802.11x standard utilizing the Extensible Authentication Protocol (EAP), an open standard that enables wireless manufacturers and RADIUS server vendors to independently develop interoperable hardware and software. For authentication of devices attached to the workgroup, a username and password may be stored in the workgroup bridge in either static or dynamic memory. When authenticated, the workgroup bridge receives a single-session, single-user encryption key from the Remote Access Dial-In User Service (RADIUS) server via the associated AP. With this centralized and standards-based architecture, wireless security scales to meet the requirements of any enterprise.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 350 Series Workgroup Bridge	• Connectivity to a network for remote workgroups located in an area that may be difficult or not practical for wiring. • Supports up to eight Ethernet-based devices (with use of Ethernet hub)

Key Features

- Driverless installation of up to eight Ethernet-enabled devices
- Optimum wireless performance and range
- Standards-based centralized security
- Two versions for a range of application requirements
- Full-featured utilities and robust management

Specifications

Feature	Cisco Aironet 350 Series Workgroup Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Client Interface	10BaseT Ethernet
Clients Supported	Direct: One
	Via hub: Eight
Network Architecture Types	Infrastructure (via Cisco Aironet Access Point or Bridge)
Frequency Band	2.4 to 2.4897 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings[1]	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps
	Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with EN 300.328 standards
SNMP Compliance	MIB I and MIB II
Antenna	AIR-WGB352C: One nonremovable 2.2-dBi dipole
	AIR-WGB352R: Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	AIR-WGB352x: 128-bit
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions (W x D x H)	6.30 in. (16 cm) x 4.72 in. (12 cm) x 1.45 in. (3.7 cm)
Weight	12.3 oz (350g)
Environmental	Temperature: 32° to 122° F (0° to 50° C); 10 to 90% (Noncondensing)
Input Power Requirements	North American: 120 VAC @ 60 Hz; Universal: 90 to 264 VAC @ 47 to 63 Hz

1.   Maximum power setting will vary according to individual country regulations.

Selected Part Numbers and Ordering Information[1]

Cisco Aironet 350 Series Workgroup Bridge

AIR-WGB352C   350 Series Workgroup Bridge with Captured Antenna & 128-bit WEP
AIR-WGB352R   350 Series Workgroup Bridge with Dual RP-TNC & 128-bit WEP

1.   This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability)

For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet 350 Series Wireless Bridge

The Cisco Aironet 350 Series Wireless Bridge enables high-speed long-range outdoor links between buildings and is ideal for installations subject to plenum rating and harsh environments. It is designed to meet the requirements of even the most challenging applications. The 802.11b wireless bridge delivers high data rates and superior throughput for data-intensive, line-of-sight applications. The bridges connect hard-to-wire sites, noncontiguous floors, satellite offices, school or corporate campus settings, temporary networks, and warehouses. They can be configured for point-to-point or point-to-multipoint applications and allow multiple sites to share a single, high-speed connection to the Internet. For functional flexibility, the wireless bridge may also be configured as an access point.

The Cisco Aironet 350 Series Wireless Bridge features an extended operating temperature range of -20° to 55° C, allowing for placement outdoors in a NEMA enclosure or in harsh indoor environments such as warehouses and factories. With a durable metal case, the Cisco Aironet 350 Series Wireless Bridge is UL 2043 certified, and designed to achieve plenum rating as defined by various municipal fire codes.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Aironet 350 Series Ethernet Bridge	• Any company who needs to connect sites into a single LAN, even when separated by obstacles such as freeways, railroads and bodies of water that are normally inaccessible via cabling.
	• Business owners who want a low-cost, easy-to-deploy solution for connecting line-of-sight networks located in different buildings.
	• Business owners or IT directors who want multiple buildings on a campus to share a single high-speed line to the Internet.

Key Features

- High-speed (11-Mbps), high-power (100-mW) radios, delivering building-to-building links of up to 25 miles (40.2 km)
- A metal case for durability and plenum rating and an extended operating temperature rating for harsh environments
- Supports both point-to-point and point-to-multipoint configurations
- Broad range of supported antennas
- Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection

Specifications

Feature	Cisco Aironet 350 Series Wireless Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Frequency Band	2.4 to 2.497 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps
	DQPSK @ 2 Mbps
	CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings[1]	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical, contingent upon antenna selected)	18 miles (28.9 km) @ 11 Mbps
	Up to 25 miles (40.2 km) @ 2 Mbps
Compliance	Operates license-free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards; complies with UL 2043 (The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations. For further information, contact your local industry Canada office.)
SNMP Compliance	MIB I and MIB II
Antenna	Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	128-bit
Security	128-bit WEP in bridge mode
	IEEE 802.11x (includes EAP and RADIUS) in AP mode
Status Indicators	Three indicators on the top panel provide information concerning association status, operation, error/warning, firmware upgrade, and configuration, network/modem, and radio status
Automatic Configuration Support	BOOTP and DHCP
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Local Configuration	Direct console port (with supplied serial cable)
Bridging Protocol	Spanning Tree
Dimensions	6.74 x 6.25 x 1.31 in. (17.1 x 15.9 x 3.3 cm)
Weight	1.43 lbs (.648 kg)
Environmental	Temperature: -4× to 131× F (-20× to 55× C)
	10 to 90% (noncondensing)
Enclosure	Metal case (for plenum rating); UL 2043 certified
Input Power Requirements	24VDC 10% to 60 VDC (Ethernet line power)

1. Maximum power setting will vary according to individual country regulations

Selected Part Numbers and Ordering Information[1]

Cisco Aironet 350 Series Wireless Bridge
AIR-BR350-x-K9   350 Series 11Mbps DSSS Bridge with 128-bit WEP
Cisco Aironet 350 Series Wireless Bridge Basic Maintenance
CON-SNT-PKG2   SMARTnet Maintenance for AIR-BR350-A-K9

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For More Information

See the Cisco Aironet Web site: *http://www.cisco.com/go/aironet*

Cisco Aironet
Antennas and Accessories

Every wireless Local Area Network (LAN)
deployment is different. When engineering an
in-building solution, varying facility sizes,
construction materials, and interior divisions
raise a host of transmission and multipath
considerations. When implementing a
building-to-building solution, distance,
physical obstructions between facilities, and number of transmission points involved
must be considered.
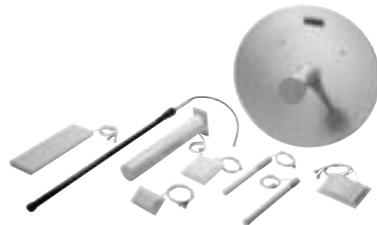
Cisco is committed to providing not only the best access points, client adapters, and
bridges in the industry—it is also committed to providing a complete solution for any
wireless LAN deployment. That is why Cisco has the widest range of antennas, cable,
and accessories available from any wireless manufacturer.

With the Cisco FCC-approved directional and omnidirectional antennas, low-loss
cable, mounting hardware, and other accessories, installers can customize a wireless
solution that meets the requirements of even the most challenging applications.

Key Features

- Client Adapter Antennas—Cisco Aironet wireless client adapters come complete
  with standard antennas that provide sufficient range for most applications at
  11 Mbps. To extend the transmission range for more specialized applications, a
  variety of optional, higher-gain antennas are provided that are compatible with
  selected client adapters

- Access Point Antennas—Cisco Aironet access point antennas are compatible with
  all Cisco RP-TNC-equipped access points. The antennas are available with
  different gain and range capabilities, beam widths, and form factors. Coupling the
  right antenna with the right access point allows for efficient coverage in any
  facility, as well as better reliability at higher data rates

- Bridge Antennas—Cisco Aironet bridge antennas allow for extraordinary
  transmission distances between two or more buildings. Available in directional
  configurations for point-to-point transmission and omnidirectional configuration
  for point-to-multipoint implementations, Cisco has a bridge antenna for every
  application

- Low-loss cable extends the length between any Cisco Aironet bridge and the
  antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides
  installation flexibility without a significant sacrifice in range

Specifications

Client Adapter Antennas

Feature	AIR-ANT3351
Description	POS diversity dipole[1]
Application	Indoor diversity antenna[2] to extend the range of Aironet LMC client adapters
Approximate Indoor Range at 1 Mbps[3]	350 ft (107m)
Approximate Indoor Range at 11 Mbps[3]	100 ft. (51 m)
Cable Length	5 ft. (1.5m)
Dimensions	Base: 7 x 2 in. (18 x 5 cm)
	Height: 8 in. (20 cm)
Weight	9.2 oz. (261g)

1. A type of low-gain (2.2 dBi) antenna consisting of two (often internal) elements.

2. A ratio of decibels to an isotropic antenna that is commonly used to measure antenna gain. The greater the dBi value, the higher the gain and, as such, the more acute the angle of coverage.

3. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Access Point Antennas

Feature	AIR-ANT5959	AIR-ANT3195	AIR-ANT2012	AIR-ANT3213
Description	Diversity omni-directional ceiling mount	3 dBi Patch Wall Mount Antenna	Diversity patch wall mount	Pillar mount diversity omni
Application	Indoor unobtrusive antenna, best for ceiling mount. Excellent throughput and coverage solution in high multipath cells and dense.	Indoor/Outdoor directional antenna	Indoor/Outdoor, unobtrusive medium range antenna	Indoor, unobtrusive medium-range antenna
Approximate Indoor Range at 1 Mbps[1]	350 ft. (105m)	Access Point: 271 ft. (82m) Bridge: .5 miles (.9 km)	547 ft. (167m)	497 ft. (151m)
Approximate Indoor Range at 11 Mbps[1]	130 ft. (45m)	Access Point: 80 ft. (24m) Bridge: 950 ft. (290m)	167 ft. (51m)	142 ft. (44m)
Cable Length	3 ft. (0.91m)	12 ft.	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions	5.3 x 2.8 x 09. in. (13.5 x 7.1 x 2.3 cm)	4 x 5 in. (9.7 x 13 cm)	4.78 x 6.66 x .82 in. (12.14 x 16.92 x 2.08 cm)	10 x 1 in. (25.4 x 2.5 cm)
Weight	0.3 lbs. (0.14kg)	4.9 oz. (139g)	9.6 oz. (272g)	1 lb. (460g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Access Point Antennas (cont.)

Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT3549	AIR-ANT1729
Description	High gain omnidirectional ceiling mount	2.2 dBi dipole antenna	Patch wall mount	Patch wall mount
Application	Indoor medium-range antenna, typically hung from crossbars of drop ceilings	Indoor omni-directional coverage	Indoor, unobtrusive, long-range antenna (may also be used as a medium-range bridge antenna)	Indoor, unobtrusive, medium-range antenna (may also be used as a medium-range bridge antenna)
Approximate Indoor Range at 1 Mbps[1]	497 ft. (151m)	350 ft.	Access Point: 700 ft. (213m) Bridge: 2.0 miles (3.2 km)	Access Point: 542 ft. (165m) Bridge: 1.1 miles (1.8 km)
Approximate Indoor Range at 11 Mbps[1]	142 ft. (44m)	130 ft.	Access Point: 200 ft. (61m) Bridge: 3390 ft. (1032m)	Access Point: 155 ft. (47m) Bridge: 1900 ft. (580m)
Cable Length	3 ft. (0.91m)	N/A	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions	Length: 9 in. (22.86 cm) Diameter: 1 in. (2.5 cm)	5.5 in.	5 x 5 in. (12.4 x 12.4 cm)	4 x 5 in. (9.7 x 13 cm)
Weight	4.6 oz. (131g)	1.1 oz.	5.3 oz. (150g)	4.9 oz. (139g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Bridge Antennas

Feature	AIR-ANT2506	AIR-ANT4121	AIR-ANT1949	AIR-ANT3338
Description	Omnidirectional Mast mount	High-gain omnidirectional Mast mount	Yagi mast mount	Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-multipoint applications	Outdoor medium-range directional connections	Outdoor long-range directional connections
Approximate Indoor Range at 1 Mbps[1]	5000 ft. (1525m)	4.6 miles (7.4 km)	6.5 miles (10.5 km)	25 miles (40 km)
Approximate Indoor Range at 11 Mbps[1]	1580 ft. (480m)	1.4 miles (2.3 km)	2.0 miles (3.3 km)	11.5 miles (18.5 km)
Cable Length	3 ft. (0.91m)	1 ft. (0.30m)	1.5 ft. (0.46m)	2 ft. (0.61m)
Dimensions	Length: 13 in. (33 cm) Diameter: 1 in. (2.5 cm)	Length: 40 in. (101 cm) Diameter: 1.3 in. (3 cm)	Length: 18 in. (46 cm) Diameter: 3 in. (7.6 cm)	Diameter 24 in. (61 cm)
Weight	6 oz. (17g)	1.5 lb. (0.68 kg)	1.5 lb. (0.68 kg)	11 lb. (5 kg)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Low-Loss/Ultra Low-Loss Antenna Cable

Feature	AIR-CAB020LL-R	AIR-CAB050LL-R	AIR-CAB100ULL-R	AIR-CAB150ULL-R
Cable Length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)	150 ft. (46m)
Transmission Loss	1.3 dB	3.4 dB	4.4 dB	6.6 dB

Cisco Aironet Accessories

Feature	AIR-ACC2537-060	AIR-ACC3354	AIR-ACC2662
Description	60 in. (152 cm) bulkhead extender	Lightning arrestor	Yagi articulating mount
Application	Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity	Adds swiveling capability to mast-mounted yagi antennas

Selected Part Numbers and Ordering Information[1]

Cisco Aironet Accessories

AIR-ACC2662	Yagi Antenna Articulating Mount
AIR-ACC3354	Lightning Arrestor w/ grounding ring
AIR-CAB020LL-R	20 ft. (6m) low-loss antenna cable
AIR-CAB050LL-R	50 ft. (15m) low loss antenna cable
AIR-CAB100ULL-R	100 ft. (30m) low loss antenna cable
AIR-CAB150ULL-R	150 ft. (46m) low loss antenna cable

Cisco Aironet Antennas

AIR-ANT1728	5.2 dBi Omni Ceiling Mount Antenna
AIR-ANT1729	6 dBi Patch Wall Mount Antenna
AIR-ANT1949	13.5 dBi Yagi Mast Mount Antenna
AIR-ANT2012	6.5 dBi Diversity Patch Wall Mount Antenna
AIR-ANT2506	5.2 dBi Omnidirectional Mast Mount Antenna
AIR-ANT3195	3 dBi Patch Wall Mount Antenna
AIR-ANT3213	5.2 dBi Pillar-Mount Diversity Omni Antenna
AIR-ANT3338	21 dBi Solid Dish Antenna
AIR-ANT3351	2.2 dBi POS Diversity Dipole Antenna
AIR-ANT3549	8.5 dBi Hemispherical Patch Antenna
AIR-ANT4121	12 dBi Omnidirectional Mast Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
AIR-ANT5959	2.0dBi Diversity Omni Ceiling Mount Antenna

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For More Information

See the Aironet Antennas & Accessories Web site *http://www.cisco.com/go/antenna*

IP Telephony, Video, & Web Collaboration

Campus IP Telephony, Video, & Web Collaboration at a Glance

Product	Features	Page
Cisco IP Phones IP 7900 Series	An exciting, distinctively stylish, and pure Voice over IP phone portfolio to meet the wide range of business communication needs at affordable prices • Display-based technology provides ease-of-use • Integrated inline power and 2-port Ethernet Switch provides end-to-end infrastructure integration • Rich application environment enabled by open APIs based on XML	4-3
Cisco CallManager 3.3	• The software-based call processing and call control component of Cisco's IP Telephony solution • Resides on Cisco Media Convergence Servers (MCS), Cisco ICS7750, or selected third-party servers (CallManager 3.3)	4-4
CiscoWorks IP Telephony Environment Monitor	A suite of management applications that helps ensure the readiness and manageability of converged networks that are supporting VoIP and IP telephony traffic and applications. The bundle includes: • Voice Health Monitor • Default Fault Manager • CiscoView • CCO Downloadable Modules: – IP Phone Information Utility – IP Phone Help Desk Utility. – Fault History Manager	9-18
Cisco IP Contact Center (IPCC) Enterprise Edition	Cisco IP Contact Center (IPCC) Enterprise Edition delivers intelligent call routing, network-to-desktop CTI, and multi-channelmedia contact management to contact center agents over an IP network. It includes several applications, including the following: • CallManager • Cisco Intelligent Contact Manager (ICM) • Cisco IP IVR/-IP Queue Manager	4-8
Cisco IP IVR	Cisco IP IVR, a new world interactive voice response (IVR) solution, provides a feature-rich foundation for the creation of an IP-based IVR that is open and expandable. Cisco IP IVR has the following key features: • Provides a multimedia (voice/data/Web) IP-empowered application-generation environment • Can be deployed anywhere in the IP network • Offers Web-based activation and administration	4-10
Cisco IP Contact Center Express Edition (Formerly IP ICD)	• Cisco IPCC Express is a software-based ACD, IVR, and CTI application for mid-sized contact centers with Cisco IP Telephony networks based on Cisco AVVID. • Cisco IPCC Express is an open systems platform allowing ease of configuration. • It has a graphically driven workflow editor providing a common interface for creating interactions, or call flows, and creates business logic between IVR and ACD functions.	4-9
Cisco Unity—Unified Messaging and Voice Mail	Voicemail and unified messaging system delivers all messages into single inbox for access via phone, email or Internet	4-11
Cisco Personal Assistant	Software application allows users to browse voicemail, dial by name, and conference from any phone using voice commands instead of telephone keypad via speech recognition	4-13
IP Telephony Applications	• Cisco Survivable Remote Site (SRS) Telephony Software—IOS software that runs on local branch office router provides IP Telephony backup redundancy for IP phones in that office when IP phones detect that WAN is down or/and CallManager is unreachable • Cisco IP Phone Messenger—sends Instant Messages (IM) between Cisco IP Phones and Lotus Sametime or MS Messenger desktop IM clients • Cisco IP SoftPhone—Windows-based application for PC, allows users to make and receive calls from PC without a dedicated phone • Cisco Conference Connection (CCC)—enables enterprises to bring geographically dispersed employees and customers together to facilitate meetings and collaboration. CCC provides a cost-effective and time-efficient method of doing business without the hassle of travel.	4-14

Product	Features	Page
Cisco MCS 7800 Series Media Convergence Servers	High availability server platform for Cisco IP telephony systems • Turnkey solution, includes CallManager or other software • For large- and medium-sized enterprise IP telephony deployments	4-17
Cisco ICS 7750 Integrated Communications System	• A branch office/midmarket business with standalone IP telephony needs from 35-500 users • An end-user customer or partner who wants a single "box" (or platform) IP telephony solution to ease deployment and/or to standardize on voice configurations across multiple sites • An existing multiservice data network customer who wants to add IP telephony functionality to create a converged network solution	4-18
Cisco IAD 2400 Series Integrated Access Device[1]	Business class fixed-configuration Integrated Access Device (IAD) • Delivers packet or TDM voice and data over single WAN uplink • IOS Telephony Service (ITS) provides local IAD-based call processing to offer key switch functionality, ideal for small offices (5-24 phones) • IP-based keyswitch functionality, ideal for small offices (5-20 phones) who do not need Cisco CallManager capabilities • Supports standard phones and IP phones on a single platform • 8 FXS/16 FXS/16FXS+8FXO analog voice ports and 1 T1 digital voice port models • WAN Interfaces: T1- PPP, FR, ATM and DSL-ADSL and G.SHDSL	4-18
Cisco Voice Gateways[2]	The Cisco VG248 dedicated voice gateway provides connectivity between IP networks and legacy telephony systems/PSTN • Support various types of interfaces, including T1 and E1 • Fully manageable by Cisco CallManager, a CLI interface via Telnet, or via SNMP	4-22
Cisco IP/VC 3500 Series Videoconferencing Products	• Videoconferencing over IP solution • Cost-effective, easy-to-manage • Translates between H.323 and H.320 systems • Management and Quality of Service	4-22
Cisco IP/TV 3400 Series Video Servers	• High-quality video communications over enterprise networks • Support live and scheduled video, video on demand • Enable training, corporate communications, business TV, and distance learning	4-23
Cisco Web Collaboration Option	• Web-based collaboration, • Share any Windows desktop application • Ideal for both sales- and service-oriented customer service organizations	4-24
Cisco E-mail Manager	• Automates the process of tracking and responding to inbound email. • Automatically assigns email requests to the most appropriate agent • Graphical rules engine makes it easy to define custom rules for the processing of email	4-25
Cisco Emergency Responder	• Works with Cisco CallManager to automatically provide E9-1-1 features in North America, and is compatible with any emergency number including 112 in Europe, 999 in UK, and 000 in Australia. • Dynamically tracks the location of IP phones, routes emergency calls to the appropriate E9-1-1 network, and provides the current location information to E9-1-1 call center dispatchers. • Provides real-time alert notifications to on-site or contracted security groups, to facilitate a timely response to emergency situations.	4-25
Cisco ATA Series of Analog Telephone Adaptors	Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines. • Interoperable with multiple standards including H.323, SIP, MGCP and SCCP • Enables analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal	4-27
Cisco CTE-1400 Series Content Transformation Engine	Transforms Web content for display and interaction on small screen mobile devices and IP Telephones • Supports a broad range of devices • Transforms existing content • GUI/Console Administrative Tool	6-13

1. IP Keyswitch capabilities also available with 2600/2600XM and 3600 series routers; see IP Keyswitch Web site: http://www.cisco.com/go/keyswitch

2. Cisco's full line of multiservice routers also provide analog and digital voice gateway functionality through use of network modules and voice interface cards. Please see the 1700, 2600XM, 3600, 7200, 5x00 series in Chapter 1—Routers, as well as Chapter 7—Access Products.

Cisco 7900 Series IP Phones

Cisco IP Phones provide unmatched levels of integrated business functionality and converged communications beyond today's conventional voice systems. The Cisco IP Phone7960G "manager set" addresses the communication needs of the professional, with a high or busy amount of phone traffic. The Cisco IP Phone 7940G "business set" addresses the communication needs of a transaction type worker, in a office cubicle environment, who conducts medium to high telephone traffic. The Cisco IP Phone 7912G, 7910G+SW, 7910G, and 7905G "basic sets" address the communication needs of a cubicle worker who conducts low to medium telephone traffic. The Cisco IP Phone 7902G "entry set" addresses voice communication needs of a lobby, lab, manufacturing floor, and other areas where only a minimal amount of features are required. Cisco IP Phone Expansion Module 7914 extends the Cisco IP Phone 7960G with additional buttons and LCD, increasing the total number of buttons to 20 with one module, or 34 with two modules. Cisco IP Conference Station 7935, a high-quality hands-free conference station, is designed for use on desktops and offices and in small to medium-sized conference rooms.

Key Features

- Dynamic soft keys make the telephone simpler to use by presenting calling options based on context
- Open APIs using XML to deliver applications to the display
- Automatic phone discovery, VLAN configuration, and registration
- Quality of Service (QoS) is provided via support of 802.1pq, in addition to configurable DIFFSERV and TOS
- Voice-activity detection, silence suppression, comfort-noise generation, and error concealment
- G.711a, G.711u, G.729ab audio-compression coder-decoders (codecs)
- Software upgrade support via Trivial File Transfer Protocol (TFTP) server
- Microsoft NetMeeting enabled—features such as application sharing and video conferencing are available simply by pressing a button on your Cisco IP telephone
- Integrated Ethernet Switch supporting Ethernet connectivity for a downstream PC
- Integrated Inline power support allows the phone to receive power over the LAN
- A hearing-aid-compatible handset

Specifications

Feature	Cisco IP Phone 7902G	Cisco IP Phone 7905G	Cisco IP Phone 7910G and 7910G+SW	Cisco IP Phone 7912G	Cisco IP Phone 7940G	Cisco IP Phone 7960G	Cisco 7914 Expansion Module	Cisco IP Conference Station 7935
Display	None	Pixel-Based	Character-Based	Pixel-based	Pixel-Based	Pixel-Based	Pixel-based	Character-Based
Dynamic Soft Keys	0	4	0	4	4	4	N/A	0
Inline Power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
10/100Base-T Ethernet Switch	No	No	Yes, 7910G+SW No, 7910G	Yes	Yes	Yes	N/A	No
Lines	1	1	1	1	2	6	14	1

Feature	Cisco IP Phone 7902G	Cisco IP Phone 7905G	Cisco IP Phone 7910G and 7910G+SW	Cisco IP Phone 7912G	Cisco IP Phone 7940G	Cisco IP Phone 7960G	Cisco 7914 Expansion Module	Cisco IP Conference Station 7935
Speaker Phone	No	Monitor Only	Monitor Only	Monitor Only	Yes	Yes	N/A	Yes
Headset Jack	No	No	No	No	Yes	Yes	N/A	No
3Rd Party XML Applications	No	No	No	No	Yes	Yes	N/A	No

Selected Part Numbers and Ordering Information[1]

Cisco 7900 Series IP Power and Phones

CP-7960G	Cisco IP Phone 7960G, Manager Set
CP-7940G	Cisco IP Phone 7940G, Business Set
CP-7912G	Cisco IP Phone 7912G, Basic Set w/ Switch
CP-7910G+SW	Cisco IP Phone 7910G+SW, Basic Set w/ Switch
CP-7910G	Cisco IP Phone 7910G, Basic Set
CP-7905G	Cisco IP Phone 7905G, Basic Set
CP-7902G	Cisco IP Phone 7902G, Entry Set
CP-7935	Cisco IP Conference Station
CP-7914=	Cisco 7914 IP Phone Expansion Module for the 7960 IP Phone
CP-SINGLFOOTSTAND=	Single module footstand
CP-DOUBLFOOTSTAND=	Double module footstand
CP-WALLMOUNTKIT=	Non-Locking Wall Mount Kit for 7910/40/60G series IP phones
CP-LCKNGWALLMOUNT=	Locking Wallmount Kit for the 7910/40/60G series IP phones
CP-PWR-CUBE=	IP Phone power transformer for 7900 series IP phones
WS-PWR-PANEL	Catalyst 48 port Inline Power Patch Panel

1. This is only a small subset of all parts. Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco IP Telephones Web site: *http://www.cisco.com/go/iptel*

Cisco CallManager 3.3

Cisco CallManager call-processing software extends enterprise telephony features and capabilities to enterprise LANs and packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through CallManager's open telephony application programming interfaces (API). Cisco CallManager is installed on the Cisco Media Convergence Server (MCS) and selected third-party servers. It ships with a suite of integrated voice applications and utilities, including the Cisco Attendant Console—a software-only manual attendant console; a conferencing application; and administrative reporting tools. For more VoIP network management features, see the CiscoWorks Manager IP Telephony Environment Monitor, page 9-18.

Cisco CallManager version 3.3 provides a scalable, distributable, and highly available enterprise IP telephony call-processing solution. Multiple servers are clustered and managed as a single entity; yielding scalability of up to 30,000 users per cluster. By interlinking multiple clusters, system capacity can be increased to as many as one million users in a 100-site system. Clustering aggregates the power of multiple,

distributed Cisco CallManagers, enhancing the scalability and accessibility of the servers to phones, gateways, and applications. Triple call-processing server redundancy improves overall system availability.

The benefit of this distributed architecture is improved system availability and scalability. Call admission control ensures that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternative Public Switched Telephone Network (PSTN) routes when WAN bandwidth is not available. A Web-browsable interface to the configuration database enables remote device and system configuration.

Key Features

- Cisco CallManager includes a suite of integrated voice applications that perform voice conferencing and manual attendant console functions, eliminating the need for special-purpose voice processing hardware
- Supplementary and enhanced services such as hold, transfer, forward, conference, multiple line appearances, automatic route selection, speed dial, last-number redial, and other features are extended to IP phones and gateways
- Capabilities enhancements are achieved though software upgradeability, avoiding expensive hardware costs traditional to legacy PBX systems
- Cisco CallManager Attendant Console—This Web-enabled application supports the traditional role of a manual attendant console and allows the attendant to quickly accept and dispatch calls to enterprise users. An integrated directory service provides traditional busy lamp field (BLF) and direct station select (DSS) functions for any line in the system. It monitors the state of every line in the system without requiring hardware-based line monitoring devices, thereby saving costs
- Software-only applications such as the Cisco Interactive Voice Response system, Cisco IP Contact Center, Cisco Automated Attendant, and Cisco SoftPhone are applications that interact with the CallManager through telephony APIs

Specifications

Feature	Cisco CallManager 3.3[1]
Platforms	Media Convergence Server (MCS)
	Integrated Communications Server (ICS-7750)
	Selected third-party servers
Pre-Installed Software	Cisco CallManager version 3.3 (call processing and call-control application)
	Cisco CallManager version 3.3 configuration database (contains system and device configuration information, including dial plan)
	Cisco CallManager Administration software
	Cisco Conference Bridge
	Cisco Attendant Console
	Bulk Administration Tool (BAT)
	CDR Analysis and Reporting (CAR) tool
	Real Time Monitoring Tool RTMT
Sample Subset of System Capabilities	H.323 scalability improvements - 1,000 H.323 calls per CallManager server in cluster
	Virus checker certification
	Cisco Intrusion Detection System (IDS) Host-Based Sensor certification

Feature	Cisco CallManager 3.3[1]
Summary of Administrative Features	Application discovery and registration to SNMP manager
	Automated Alternate Routing Groups
	Bulk Administration
	Call Back
	Call Detail Records (CDR)
	Call forward reason code delivery
	Centralized, replicated configuration database, distributed Web-based management viewers
	Configurable and default ringer WAV files per phone
	Configuration database API
	Database automated change notification
	Date/time display format configurable per phone
	Debug information to common syslog file
	Device addition through wizards
	Device downloadable feature upgrades—Phones, hardware transcoder resource, hardware conference bridge resource, VoIP gateway resource
	Device groups and pools for large system management
	Device mapping tool-IP address to MAC address
	Distinctive ring per line
	Dynamic Host Configuration Protocol (DHCP) block IP assignment-phones and gateways
	Dialed number translation table (inbound/outbound translation)
	Dialed Number Identification Service (DNIS)
	Enhanced 911 service
	H.323-compliant interface to H.323 clients, gateways, and gatekeepers
	Individual line Call Waiting Alert Configuration
	JTAPI 1.2 computer telephony interface
	LDAP version 3 directory interface to selected vendor's LDAP directories
	• Active Directory
	• Netscape Directory Server
	Manager Assistant
	Mappable softkeys
	MGCP signaling and control to selected Cisco VoIP gateways
	Multilevel Administration Access (MLA)
	Native supplementary services support to Cisco H.323 gateways
	Network Specific Facilities Paperless phone DNIS-display driven button labels on phones
	Performance monitoring SNMP statistics from applications to SNMP manager or to operating system
	Performance Monitor
	QoS statistics recorded per call
	Q.SIG Support
	Redirected DNIS (RDNIS), inbound, outbound (to H.323 devices)
	Select specified line appearance to ring; Select specified phone to ring
	Single CDR per cluster
	Single point system/device configuration
	Sortable component inventory list by device, user, or line
	System event reporting-to common syslog or operating system event viewer
	TAPI 2.1 computer telephony interface
	Time-zone configurable per phone
	XML API into IP phones (794X/6X)
	Zero cost automated phone moves; Zero cost phone adds

Feature	Cisco CallManager 3.3[1]
Summary of User Features	Answer/answer release
	Auto-answer/[2]intercom
	Call connection
	Call coverage
	Call forward-all (off-net/on-net); Call forward-busy; Call forward-no answer
	Call hold/retrieve
	Call park/pickup; Call pickup group-universal
	Call status per line (state, duration, number)
	Call waiting/retrieve
	Calling Line Identification (CLID); Calling party name identification (CNID)
	Calling Line Identifiation Restriction (CLIR)
	Direct inward dial (DID; Direct outward dial (DOD)
	Directory dial from phone-corporate, [2]personal
	Directories-missed, placed, received calls list stored on selected IP phones
	Distinctive ring (on-net vs. off-net); Distinctive ring per phone
	Drop last conference party (ad-hoc conferences)
	Extension mobility support
	Hands-free, full-duplex speakerphone
	HTML help access from phone
	Last number redial (off-net/on-net)
	Message waiting indication
	Multiparty conference-Ad-hoc with add-on, Meet-me
	Multiple line appearances per phone
	Music-on-hold
	Mute capability from speakerphone and handset
	On-hook dialing
	Operator attendant-Web-browser interface, loop key notification, logon/logoff, busy/available, left/right hand access, headphone access, busy lamp field, direct station select, drag and drop transfer, call status (state, duration, and number)
	Privacy
	Real-time QoS statistics through http browse to phone
	Recent dial list-calls to phone, calls from phone, auto-dial, and edit dial
	Single button data collaboration on SoftPhone-chat, whiteboard, and app sharing
	Single directory number, multiple phones-bridged line appearances
	Speed dial-multiple speed dials per phone
	Station volume controls (audio, ringer)
	Transfer-with consultation hold
	User-configured speed dial and call forward through Web access
	Web services access from phone
	Wideband audio codec support—proprietary 16-bit resolution, 16 kHz sampling rate codec

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco CallManager 3.3.

2. Indicates new feature or service for Cisco CallManager version 3.3

For More Information

See the Cisco CallManager Web sites: *http://www.cisco.com/go/callmgr*

Cisco IP Contact Center (IPCC) Enterprise Edition

Cisco IP Contact Center (IPCC) Enterprise Edition delivers intelligent contact routing, call treatment, network-to-desktop computer telephony integration (CTI), and multi-channel contact management over an IP infrastructure. By combining multi-channel automatic call distributor (ACD) functionality with IP telephony in a unified solution, Cisco IPCC Enterprise enables companies to rapidly deploy a distributed contact center infrastructure.

Cisco IPCC Enterprise Edition segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise. The software profiles each customer using contact-related data such as dialed number and calling line ID, caller-entered digits, data submitted on a Web form, and information obtained from a customer profile database lookup. At the same time, the system knows which resources are available to meet the customer's needs based on real-time conditions (agent skills and availability, interactive voice response [IVR] status, queue lengths, and so on) continuously gathered from various contact center components.

Cisco IPCC Enterprise provides a state of the art VoIP contact center solution that allows seamless integration of inbound and outbound voice applications with Internet applications including real-time chat, Web collaboration and e-mail. This integration allows for unified capabilities, enabling a single agent to support multiple interactions simultaneously regardless of the communications channel the customer has chosen. Since each interaction is unique and may require individualized service, Cisco provides contact center solutions to manage each interaction based on virtually any contact attribute.

Furthermore, Cisco can bridge the gap between TDM and IP infrastructures, providing a seamless integration of voice, chat, e-mail, and Web collaboration applications over both of these technology platforms. This allows companies to preserve the value of their existing investments in call center products such as ACDs, IVRs, PBXs, etc. while leveraging Cisco's wide range of solutions to support the same contact center requirements in a converged network environment.

Key Features[1]

- Full Scalability from less than a hundred to thousands of seats
- Multi-channel interaction—Web collaboration with chat and callback, email, voice mail and fax routing
- Multi-site Contact Centers support; CRM Integration
- Cradle-to-grave contact call detail records
- Common agent and supervisor desktops across all Cisco customer interaction management products
- Pre-defined and custom historical reports; Real-time reports integrated in the agent and supervisor desktops
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging
- Standard screen pop allows any caller-entered information to be popped to the agent
- Full support for agent/supervisor interaction via chat
- Ability to pre-define agent-supervisor messages

1. *Abbreviated list of IPCC Features*

Selected Part Numbers and Ordering Information[1]

Cisco IP Contact Center

IPC-Bundle	Includes - ICM, 1 Call Manager PG, 1 IVR PG, 24 Agent Desktop Licenses, 1 Supervisor Desktop License, 1 System Manager AWS – full, 1 full documentation set plus on-line documentation
IPC-AGTCTD-L	Cisco Toolkit Desktop For IPCC License
IPC-SUPCTS-L	Cisco Toolkit Supervisor For IPCC License
IPC-AGTCAD-L	Cisco Agent Desktop For IPCC License
IPC-AGTCADCTI-L	Cisco Agent Desktop For IPCC With CTI License
IPC-SUPCSD-L	Cisco Supervisor Desktop For IPCC License

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco IPCC Enterprise Edition Web site: *http://www.cisco.com/go/ipcc*

Cisco IPCC Express Edition (Formerly IP ICD)

Cisco IPCC Express Edition is an inexpensive, easy-to-install, and easy-to-use automatic call distributor (ACD) for enterprise organizations. It is seamlessly integrated with all other customer response applications, including Cisco IP Interactive Voice Response (IP IVR) and Cisco IP Automated Attendant (IP AA). Key benefits of IPCC Express include: it provides a low-cost, entry-level ACD that is easy to install, administer, and use; it supports multimedia (voice, data, and Web) access when used with Cisco IP IVR; it provides complete customization tools for call flow scripts; and it supports seamless integration with Cisco customer response applications.

Cisco IPCC Express is available as two packages: Cisco IPCC Express Standard and Cisco IPCC Express Enhanced. The Standard version is priced for entry-level users, allowing you to capture opportunities in the small and medium-size business market segment. The Enhanced version offers a full-featured ACD for entry- to mid-size contact centers. The Enhanced version also provides a migration pathway to Cisco IP Contact Center (IPCC), Cisco's premier contact center product.

Key Features[1]

- Browser-based Cisco IPCC Express administration is fully integrated with Cisco CallManager browser-based administration
- Cradle-to-grave contact call detail records
- Standard screen allows any caller-entered information to be popped to the agent
- Pre-defined or custom historical reports
- Real-time reports within the agent and supervisor desktops
- Common agent and supervisor desktops across all Cisco customer interaction management products including Cisco IPCC Express Standard, Enhanced and Cisco IP Contact Center Enterprise (formerly IPCC)
- Localization
- Full support for agent/supervisor interaction via chat; Ability to pre-define agent-supervisor messages
- Full IP call queue points and prompt; Collect voice interaction capabilities
- Optional Automatic Speech Recognition (ASR) and Text to Speech (TTS) capabilities
- Support for custom call treatment such as music for calls in queue

1. Abbreviated list of IPCC Features

Selected Part Numbers and Ordering Information[1]

Cisco IP Integrated Contact Distribution (ICD)

ICD-3.0-STD-BS SW	Standard ICD 3.0 Standard Bundle
ICD-3.0-STD-BB	Bid Set ICD 3.0 Standard Bundle
ICD-3.X-S-AGT1	1 Cisco Standard Agent Desktop ICD 3.X
ICD-3.X-S-AGT5	5 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT10	10 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT25	25 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT50	50 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-SUP1	1 Cisco Standard Supervisor Desktop ICD 3.X
ICD-3.X-S-HIST1	1 Cisco Standard Historical Reporting ICD 3.X
ICD-3.0-ENH-BS	ICD 3.0 Enhanced Bundle
ICD-3.X-E-AGT1	1 Cisco Enhanced Agent Desktop ICD 3.X
ICD-3.X-E-AGT5	5 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT10	10 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT25	25 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT50	50 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-SUP1	1 Cisco Enhanced Supervisor Desktop ICD 3.X
ICD-3.X-E-HIST1	1 Cisco Enhanced Historical Reporting ICD 3.X

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco IP Integrated Contact Distribution Web site:
http://www.cisco.com/go/icd

Cisco IP IVR

Cisco IP IVR, an interactive voice response (IVR) solution, provides a feature rich foundation for the creation of an IP-based Cisco IP IVR that is open and expandable. Written in Java to provide customer flexibility, IVR includes the following features:

- Multimedia (voice/data/Web) IP-empowered application-generation environment
- Support for optional Automated Speech Recognition (ASR) and Text-to-Speech (TTS)
- Support for VoiceXML
- Multiple Language support
- Cisco IP IVR can be located in anywhere the IP network
- Offers web-based activation and administration
- Flows (the IP IVR applications) are stored in an industry standard LDAP directory
- Cisco IP IVR is sold with Cisco CallManager and can be co-resident on the same server as CallManager or can function on a separate, dedicated media convergence servers (MCSs) or Cisco-approved customer provided server
- Packages available to scale up to 60 ports
- Cisco IP IVR offers enhanced scalability

Cisco Unity—Unified Messaging and Voice Mail

Cisco Unity is a powerful Unified Communications server that provides advanced, convergence-based communication services and integrates them with the desktop applications business professionals use everyday, improving customer service and productivity. Designed for enterprise-scale organizations, Cisco Unity delivers unified messaging that gives subscribers the ability to access and manage messages and calls from anywhere, at any time, regardless of device or media type. Subscribers can listen to e-mail over the telephone, check voice messages from the Internet, and if a fax server is present, forward faxes to any local fax machine. Cisco Unity voice messaging features robust automated attendant functionality that includes intelligent routing, and easily customizable call screening and message notification options. Cisco Unity supports localized versions in multiple languages and supports multiple languages on a single system.

Cisco Unity's optional digital networking module enables connectivity to other Cisco Unity servers at the same site via the LAN or remotely via WAN. Digital networking gives users the ability to send subscriber-to-subscriber messages anywhere in the world.

Cisco Unity supports both Cisco CallManager and leading legacy telephone systems—even simultaneously—to help smooth the transition to IP telephony and protect existing infrastructure investments. Built on a scalable platform, it uses streaming media and an intuitive HTML browser-style system administration interface. Costs are minimized when Cisco Unity's server architecture is truly unified with an organization's data network.

Key Features

- Architecture allows IT staff to set one back-up procedure, one message storage policy, and one security policy
- Enhanced scalability allows up to 72 ports per server; up to 7,500 subscribers per server; or a total of 250,000 users in an Exchange environment or 100,000 users in a Domino environment
- Support for Exchange 2000/Active Directory as the single message store and directory; AMIS-A and VPIM interoperability for Exchange systems
- Enhanced networking for large deployments—support for complex TDM telephone networks (multiple dialing domains)
- Support for multiple CCM clusters; ability to light Message Waiting Indicators
- With Exchange/Domino off-line, utilizes pre-MTA queue to take messages and give basic message access; Support for Lotus Domino as the single message store
- Fault-tolerant system tools—robust security, file replication, event logging, and optional software RAID levels 0-5
- Support for Windows 2000[1] in a mixed/native mode
- Unity Inbox/VMI (Visual Messaging Interface) is an Internet Explorer-based voice mail inbox providing unified messaging
- Unity Bridge provides advanced message interchange functionality with legacy Avaya/Octel voice mail systems—unlocking proprietary networking to deliver open standards-based IP migration

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1. *Unity will not support Windows NT on the Unity server, although it can be installed into an NT environment.*

Specifications

Feature	Cisco Unity 3.1
Unity Voice Mail (VM) and	16, 32 and Max sessions
Unified Messaging (UM) Possible Configurations	Configured for CallManager or configured for legacy PBX/dual integration[1]
Options	Voice Mail; Voice Mail with Multi-lingual option; Unified Messaging with Text-to-Speech (TTS) option Unified Messaging with Multi-lingual option; Exchange or Domino; AMIS for Exchange; VPIM for Exchange; Unity Inbox/Visual Messaging Interface; Failover for Exchange; Unity Bridge for Exchange

1. Contact your Cisco Software Sales Representative for integration information.

Selected Part Numbers and Ordering Information[1]

Cisco Unity Servers

UNITY-SVR1400-1A	Dell 1400; rack-mountable; (W2K included)
UNITY-SVR2500A-1A	Dell 2500; rack-mount; 512MB; RAID 1 (W2K included)
UNITY-SVR2500C-2A	Dell 2500; rack-mount; 1GB; RAID 5, 2nd CPU, Win2K
UNITY-SVRX232-1A	IBM x232 rack; 512MB; RAID 1 (W2K included)
UNITY-SVRX232-2A	IBM x232 rack; 1GB; RAID 5, 2nd CPU (W2K included)
UNITY-SVRL570-1A	Compaq ML570 rack; 2GB; RAID 1(x2), RAID 5, Dual CPU, Win2K
UNITY-SVRL570-2A	Compaq ML570 rack; 4GB; RAID 1(x2), RAID 5, Quad CPU, Win2K
UNITY-SVR7827-1A	MCS 7827 rack:(W2K included)
UNITY-SVR7837-1A	MCS 7837 rack; 512MB; RAID 1 (W2K included)
UNITY-SVR7847-2A	MCS 7847 rack; 1GB; RAID 5, 2nd CPU (W2K included)
UNITY-EXP-CHAS=	Expansion chassis

Cisco Unity 3.1 Unified Messaging and Voicemail Software

UNITYU50-4-3.1=	Unity Unified Messaging, 50 users (includes 4 sessions)
UNITYU100-8-3.1=	Unity Unified Messaging, 100 users (includes 8 sessions)
UNITYU200-12-3.1=	Unity Unified Messaging, 200 users (includes 12 sessions)
UNITYU300-16-3.1=	Unity Unified Messaging, 300 users (includes 16 sessions)
UNITYU500-24-3.1=	Unity Unified Messaging, 500 users (includes 24 sessions)
UNITYU875-32-3.1=	Unity Unified Messaging, 875 users (includes 32 sessions)
UNITYU1175-40-3.1=	Unity Unified Messaging, 1175 users (includes 40 sessions)
UNITYU1600-48-3.1=	Unity Unified Messaging, 1600 users (includes 48 sessions)
UNITYU2200-60-3.1=	Unity Unified Messaging, 2200 users (includes 60 sessions)
UNITYU2950-72-3.1=	Unity Unified Messaging, 2950 users (includes 72 sessions)
UNITYV50-4-3.1=	Unity Voice Messaging, 50 users (includes 4 sessions)
UNITYV100-8-3.1=	Unity Voice Messaging, 100 users (includes 8 sessions)
UNITYV200-12-3.1=	Unity Voice Messaging, 200 users (includes 12 sessions)
UNITYV300-16-3.1=	Unity Voice Messaging, 300 users (includes 16 sessions)
UNITYV500-24-3.1=	Unity Voice Messaging, 500 users (includes 24 sessions)
UNITYV875-32-3.1=	Unity Voice Messaging, 875 users (includes 32 sessions)
UNITYV1175-40-3.1=	Unity Voice Messaging, 1175 users (includes 40 sessions)
UNITYV1600-48-3.1=	Unity Voice Messaging, 1600 users (includes 48 sessions)
UNITYV2200-60-3.1=	Unity Voice Messaging, 2200 users (includes 60 sessions)
UNITYV2950-72-3.1=	Unity Voice Messaging, 2950 users (includes 72 sessions)

Cisco Unity Languages and Real Speak TTS

UNITY-RS-2ML=	Unity, 2-port Real Speak TTS, US Eng, UK, Fr, Ger, Euro Sp
UNITY-RS-4ML=	Unity, 4-port Real Speak TTS. US Eng, UK, Fr, Ger, Euro Sp
UNITY-RS-6ML=	Unity, 6-port Real Speak TTS. US Eng, UK, Fr, Ger, Euro Sp
UNITY-MULTILANG=	Multiple Language support
UNITY-TWOLANG=	Add support for a second language
UNITY-AMIS=	Unity, AMIS-A networking

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco Unity site: *http://www.cisco.com/go/unity*

Cisco Personal Assistant

Cisco Personal Assistant streamlines communications with personal call rules, speech recognition, and productivity services for IP phones. As an integral part of Cisco AVVID (Architecture for Voice, Video and Integrated Data), it interoperates with Cisco CallManager and scales to meet the present and future needs of your employees. Users can access voice mail, dial by name, and conference from any telephone using speech recognition instead of the telephone keypad. The Web-based and telephone user administration interfaces allow users to forward and screen calls in advance or in real time. The phone services enable users to check e-mail, voice mail, calendar, and personal contact information using the large, pixel-based LCD and interactive soft keys on the Cisco IP Phone 7940 or 7960.

Key Features

- Ubiquitous Access: Cisco Personal Assistant with Speech Recognition and IP Phone Productivity Services integrate with Cisco CallManager, Cisco Unity, and Microsoft Exchange within Cisco AVVID to streamline communications
- Automatic Speech Recognition (ASR): Speech recognition interface allows users to utilize simple voice commands to perform tasks such as retrieval, replying, recording, and deletion of voice messages; Entries can be dialed from personal address books or the corporate enterprise Lightweight Directory Access Protocol (LDAP) directory; Users can synchronize their Microsoft Exchange contact lists with their personal address books for quick name-dialing and ad-hoc group conferencing; Access to sensitive features such as voice mail is controlled by user authentication
- Manage Inbound and Outbound Calls (Rules-Based Routing): Using a Web interface to create rules, users can forward and screen calls based on caller identification, time of day, and meeting schedules; With "follow me," a special rule that uses speech recognition, users can forward all calls to a phone number immediately; Users can activate sets of pre-created rules from any telephone
- CalendarView: Users can keep track of appointments right on the IP phone, directly from the Microsoft Exchange server with no synchronization necessary. In addition, users can choose to be notified of an upcoming event on the phone display or by pager
- MailView: Cisco Personal Assistant presents users with access to e-mail and Cisco Unity voice-mail messages in the inboxes on the corporate messaging server. Users can access messages from a conference room, lobby phone, or colleague's phone, as well as their own. Any operation performed on the messages using MailView is automatically reflected in Microsoft Exchange and Cisco Unity; Cisco Personal Assistant interfaces with Microsoft Exchange and IMAP 4 message stores for MailView features.

Specifications

Feature	Cisco Personal Assistant
Platform	Cisco Media Convergence Server MCS-7825H-2.2-EVV1 and MCS-7835H-2.4-EVV1
Web Server Requirements for IP Phone Productivity Services Platform	Basic Web Server: Microsoft IIS 4.0 or later Separate server for Cisco Personal Assistant Server and Speech Recognition Server
Software Compatibility	Cisco CallManager 3.1+. 3.2+, and 3.3+ Cisco Unity 2.46+,3.0+, and 4.0+ for voice-mail features Microsoft Exchange 5.5 and Exchange 2000 for calendar, e-mail, contact synchronization features

Selected Part Numbers and Ordering Information[1]

Cisco Personal Assistant

SW-PASR1.3-SVR2S	Cisco Personal Assistant 1.2 Server Software with Speech Recognition[2]
SW-PERSPROD-USR=	Personal Productivity User License
SW-PERSPROD-USR10=	Personal Productivity 10 User License
SW-PASR1-KX=	Cisco Personal Assistant 1.2, Expansion Speech Recognition Session[3]

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

2. Cisco Personal Assistant can be purchased with an MCS-7825H-2.2-EVV1 or an MCS-7835H-2.4-EVV1 media convergence server.

3. Various session combinations available.

For More Information

See the Cisco Personal Assistant Web site: *http://www.cisco.com/go/personalassist*

Additional Cisco IP Telephony Applications

Cisco SRS Telephony

Survivable Remote Site Telephony (SRS Telephony) provides key backup telephony functions at remote branch office routers if connectivity to the centrally-located Cisco CallManager fails (i.e. WAN link is interrupted). In this case the SRS Telephony-enabled router will take over and provide basic telephony service (including off-net calls to 911). Introduced in Cisco IOS Release 12.1.5YD, the application is ideal for enterprise organizations looking to cost-effectively deploy IP telephony in their branch office location. Cisco IOS Release 12.2(13)T added SRS Telephony 2.0 features on Cisco 1751, 1760, 2600, 2600 XM, 2691, 3600, 3725/3745, IAD 2400, Catalyst 4000 AGM, and Cisco 7200 series of routers. SRS Telephony 2.1 features are available in 12.2(11)YT on Cisco 1751, 1760, 2650, 2600XM, 2691, 3640/3640A, 3660, and Cisco 3725/3745 routers.

SRS Telephony 2.0 features: Huntstop support; Music/Tone on Hold; Class of Restriction; Distinctive Ringing; Global forwarding to voicemail across PSTN during Cisco CallManager fallback; TCL based simple AA and IVR on local gateway (SRS Telephony router); Transfer across H323 network of Cisco endpoints; Alias lists for single number to be designated for unregistered phones

SRS Telephony 2.1 features: International language support; Call forward no-answer/busy to Unity server with Personal Greeting; Cisco 7914 and 7935 support; VG248 support

For More Information

See the Cisco SRS Telephony Web site: *http://www.cisco.com/go/srs*

Cisco IP Phone Messenger

The Cisco IP Phone Messenger (IPPM) is a productivity application, providing enhanced, real-time collaboration for Cisco AVVID IP Communications systems. Cisco IPPM extends the benefits of Instant Messaging and Presence to Cisco CallManager networks, allowing users to send and receive instant messages on Cisco 7940 and 7960 IP phones. Cisco IPPM interworks with IBM Lotus Sametime and MSN Messenger clients and supports the IETF SIMPLE (RFC-3428) protocol for instant messaging and presence. IPPM 1.1 requires Cisco CallManager release 3.2 or later and is supported on the Cisco 7825 and 7835 Series Media Convergence Servers.

For More Information

See the Cisco IP Communications Web site:
http://www.cisco.com/go/ipcommunications

Cisco IP SoftPhone

Cisco IP SoftPhone 1.3 is a PC based application that allows you to use your phone extension from wherever you connect to your corporate IP network, even over the Internet when using a VPN client.

It's dual mode operation allows you to either control a physical IP phone, or perform all the functions of a phone in standalone mode using your PC's soundcard or a USB audio handset or headset.

Selected Part Numbers and Ordering Information[1]

Cisco Survivable Remote Site Telephony (SRS Telephony) Licenses

FL-SRST-SMALL	SRS Telephony Site License for the Cisco IAD 2400/2600/3620/Catalyst 4224 (up to 24 phones)
FL-SRST-MEDIUM	SRS Telephony Site License for the Cisco 3640 (up to 48 phones) or order multiple licenses for the Cisco 3660 (up to 144 phones, each supports up to 48 phones)

Cisco IP SoftPhone

SW-IPSOFTPHONE25=	Cisco IP Softphone CD; 25 licenses (licenses also available for 1, 50, and 100 users)

For More Information

See the Cisco IP SoftPhone Web site: *http://www.cisco.com/go/softphone*

Cisco IP Manager Assistant[1]

Cisco IP Manager Assistant is a tool that allows an assistant to provide call coverage for up to five managers simultaneously. When a user is configured as an IPMA manager, they are associated with a primary and secondary assistant. The configured manager is always logged onto the service and selects the preferred assistant from the 7960 services menu. Features available to the manager are initiated from softkeys on the manage's phone. Assistant user features are initiated and managed from a PC-based application named the Assistant Console.

1. IP Manager Assistant is available as part of Cisco CallManager 3.3 for no additional charge.

Key Features

• Manager tools: 7960 IP phone—selection of assistant from pre-configured list; Divert All, Immediate Divert, Transfer to Voice Mail, Intercept, DND, SetWatch, Assistant Watch, Call Filtering feature invocation; display of toggled feature status for Divert All, Filtering, DND, Assistant Watch and Assistant availability; speed dial and line appearance configuration for intercom functionality; Manager Desktop—secure, browser-based access to configuration for default assistant assignment, Divert All target, Immediate Divert target and filter list (CLID) configuration.

• Admin Assistant Tools: 7960 IP Phone/7914 line extender—speed dial and line appearance configuration for intercom functionality; 7960 IP phone—invocation of new softkey features including Transfer to Voice Mail and Immediate Divert, speed dial to manager's intercom line; Assistant Console application—Windows application installed on assistant PC. GUI consistent with CallManager Attendant Console application. User-sizable application window and panes

Specifications

Feature	Cisco IP Manager Assistant
Platform	Media Convergence Server (MCS)
Software Compatibility	Cisco CallManager version 3.3
	Assistant Console Application—Microsoft Windows 98, NT desktop, ME, 2000 Desktop and XP

For More Information

See the Cisco Media Convergence Server Web site: *http://www.cisco.com/go/ipma*

Cisco Conference Connection

Cisco Conference Connection (CCC) is designed for small to medium enterprises and remote offices of larger enterprises. Cisco Conference Connection facilitates relevant participation regardless of location, enables faster decisions, and eliminates travel cost and time and disruptions caused by requirements for a physical conference room presence. Typical applications include service calls, project management, sales reviews, corporate announcements, customer and employee training, and other business meetings. This application is ideal for enterprieses trying to increase productivity while reducing expense. Simple web-based interface enables employees to manage their conference schedules and eliminates the service charges to conference service providers.

For More Information

See the Cisco Conference Connection Web site:
http://www.cisco.com/en/US/products/sw/voicesw/ps752/index.html

Cisco MCS 7800 Series Media Convergence Servers

Cisco MCS 7815I-2000

The Cisco MCS 7815I-2000 provides an entry
level tower server equipped with an Intel
Pentium™ 4 2000MHz processor, 40GB ATA
hard drive and single non-hot swap power
supply. An optional tape backup is available
on some models of the MCS 7815I-2000.

Cisco MCS 7825H-2266

The Cisco MCS 7825H-2266 provides an entry level rack mount server that occupies
only one rack mounting space. This server is equipped with an Intel Pentium™ 4
2266MHz processor, 40GB ATA hard drive and a single non-hot swap power supply.
An optional tape backup is available on some models of the MCS 7825H-2266.

Cisco MCS 7835H-2400 and Cisco MCS 7835I-2400

These Cisco MCS platforms provide a highly available mid-level rack mounted server
solution that is equipped with an Intel Prestonia Xeon™ 2400MHz processor, up to six
hot-swap Small Computer Systems Interface (SCSI) hard disks, a Redundant Array of
Independent Disks (RAID) 1/0 Controller, hot swap fans and redundant hot swap
power supplies. An optional tape backup is available for some models of the MCS
7835H-2400 and MCS 7835I-2400.

Cisco MCS 7845H-2400 and Cisco MCS 7845I-2400

These Cisco MCS platforms provide a powerful and highly reliable high level rack
mounted server solution that is equipped with two Intel Prestonia Xeon™ 2400MHz
processors, up to six hot-swap SCSI hard disks, RAID 1/0 controller, redundant hot
swap fans and redundant hot swap power supplies. An optional tape backup is
available for some models of the MCS 7845H-2400 and MCS 7845I-2400.

Specifications

Cisco MCS-7815I-2000	Cisco MCS-7825H-1266	Cisco MCS-7835H-2400	Cisco MCS-7835I-2400	Cisco MCS 7845H-2400	Cisco MCS 7845I-2400
Intel Pentium® 4 2000-MHz processor 512KB L2 Cache	Intel Pentium® 2266-MHz processor 512KB L2 Cache	Intel Xeon® 2400-MHz processor 512KB Cache	Intel Xeon® 2400-MHz processor 512KB Cache	Dual Intel Xeon® 2400-MHz processor 512KB Cache	Dual Intel Xeon® 2400-MHz processor 512KB Cache
512MB SDRAM	SDRAM is configuration dependant	SDRAM is configuration dependant	SDRAM is configuration dependant	SDRAM is configuration dependant	SDRAM is configuration dependant
40GB ATA/100 Hard Disk	Hard Disk is configuration dependant	Hard Disk is configuration dependant	Hard Disk is configuration dependant	Hard Disk is configuration dependant	Hard Disk is configuration dependant
1.44MB Floppy Disk	1.44MB Floppy Disk	SCSI Controller.	SCSI Controller.	SCSI Controller.	SCSI Controller.
DVD Drive	DVD Drive	Dual 10/100/1000 Ethernet NIC2U Rack Mount System.	Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual 10/100/1000 Ethernet NIC2U Rack Mount System
Integrated ATA Controller	Hard Disk Controller is configuration dependant				
Single 10/100/1000 Ethernet NIC	Dual 10/100/1000 Ethernet NIC1U Rack Mount System				
Tower System with optional rack mount kit.					

Selected Part Numbers and Ordering Information[1]

Cisco Media Convergence Server 7815I-2000[1]
MCS-7815I-2.0-EVV1; CS-7815I-2.0-ECS1   Cisco Media Convergence Server 7815I-2000

Cisco Media Convergence Server 7825H-2266
MCS-7825H-2.2-EVV1; MCS-7825H-2.2-ECS1   Cisco Media Convergence Server 7825H-2266

Cisco Media Convergence Server 7835H-2400
MCS-7835H-2.4-EVV1; MCS-7835H-2.4-ECS1   Cisco Media Convergence Server 7835H-2400

Cisco Media Convergence Server 7835I-2400
MCS-7835I-2.4-EVV1; MCS-7835I-2.4-ECS1   Cisco Media Convergence Server 7835I-2400

Cisco Media Convergence Server 7845H-2400
MCS-7845H-2.4-EVV1;   Cisco Media Convergence Server 7845H-2400
MCS-7845H-2.4-ECS1; MCS-7845H-2.4-ECS2

Cisco Media Convergence Server 7845I-2400
MCS-7845I-2.4-ECS1; MCS-7845I-2.4-ECS2   Cisco Media Convergence Server 7845I-2400

Cisco Media Convergence Server 7855I-1500
MCS-7855I-1.5-ECS1; MCS-7855I-1.5-ECS2   Cisco Media Convergence Server 7855I-1500

Cisco Media Convergence Server 7865I-1500
MCS-7865I-1.5-ECS1; MCS-7855I-1.5-ECS2   Cisco Media Convergence Server 7865I-1500

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco Media Convergence Server Web site: *http://www.cisco.com/go/mcs*

Cisco ICS 7750 Integrated Communications System

The Cisco Integrated Communications System (ICS) 7750 is a versatile IP telephony and services solution that brings the benefits of converged IP services to midmarket businesses and enterprise branch offices. Call processing, voice applications, voice gateways and multiservice IP routing are integrated within the system chassis to deliver true convergence while enhancing system manageability. The modular system architecture enables expansion of call processing redundancy, voice gateway capacity, routing capacity, and IP services to deliver system availability and scalability. The ICS 7750 offers quick and cost-effective deployment of powerful applications including unified messaging, integrated Web call centers, and data/voice collaboration.

The Cisco ICS 7750 includes Cisco CallManager software, and combines an IOS-based multiservice router/voice gateway, application servers running core voice applications, Web-based management, and seamless connectivity to Cisco Catalyst switches.

Cisco Systems also offers four Cisco ICS 7750 voice packages for convenient and cost-effective entry points for customers to deploy IP telephony solutions in their LAN networks. These ICS voice packages are pre-configured to simplify ordering of the necessary voice components including voice mail for a mid-market business or branch site.

When to Sell

Sell This Product	When a Customer Needs These Features
ICS 7750 Integrated Communications System	• A branch office/midmarket business with standalone IP telephony needs from 35-500 users • An end-user customer or partner who wants a single "box" (or platform) IP telephony solution to ease deployment and/or to standardize on voice configurations across multiple sites • An existing multiservice data network customer who wants to add IP telephony functionality to create a converged network solution

Key Features

- Integrated Functionality (includes CallManager for call-processing, multiservice router/voice gateway, Web-based management, and core voice applications)
- Modular chassis architecture features 6 universal slots with hot swapability
- Modular industry-proven Cisco IOS-based Multiservice Route Processor (MRP) delivers data routing and voice trunking; ensures end-to-end QoS
- Industry-leading selection of WAN Interfaces
- World wide selection of voice interfaces
- Optional redundant power supply and uninterruptible power supply
- Optional integrated voice applications including Unity voice/unified messaging, IVR, contact center
- Integrated Web/GUI-based system management tool for simple monitoring and troubleshooting; Console and Telnet access to CLI system management
- Automated inventory, discovery, and configuration of desktop devices and applications
- Automated fault management, auto-notification of problems via e-mail or pager
- Compatible with SNMP-based management tools including CiscoWorks 2000
- N+1 CallManager clustering enables a backup Cisco CallManager to improve system availability

Specifications

Feature	Cisco ICS 7750
System Switch Processor	Fixed slot card; 10/100BaseT autosensing data switch; Two-port RJ-45 connectors; Included with each ICS 7750 system
System Alarm Processor	Fixed slot card; Two serial ports; One console port; Resource Cards; Included with each ICS 7750 system
System Processing Engine	Universal slot card; Intel Pentium III 700 MHz CPU;1 GB SRAM; 40 GB hard disk drive
Multiservice Route Processor	Universal slot card; Standard memory: 64 MB DRAM (max.128 MB); Memory upgrade (option): 16, 32, 64 MB DRAM; Standard flash memory: 16 MB Flash SIMM (max. 80 MB); Flash upgrade (options): 16, 32, 64 MB Flash; modular voice/WAN interface (VWIC) card slots per card; Advanced data networking feature support, including: VPN, IPSec 56 and 3DES, Firewall
Dimensions and Weight (HxWxD)	15.75 x 17.25 x 12.5 in. (40.005 x 43.815 x 31.75 cm)Basic configuration-1 MRP, 1 SPE, 1 SSP, 1 SAP (a total of 4 cards = 2 fixed cards + 2 universal cards) and 1 power supply): 42 lb (18.9 kg)
Mounting Options	19 in rack-mount; Standalone

Selected Part Numbers and Ordering Information[1]

Cisco ICS 7750 Voice Packages

ICS-7750-M1V	Cisco ICS 7750 FXO-M1 Analog Voice Package provides eight Foreign Exchange Office (FXO) analog voice interfaces, four analog FXS/DID ports, 25 Cisco Unity Voice Messaging mailboxes and support for up to 50 Cisco CallManager devices.
ICS-7750-TV	Cisco ICS 7750 T1 Digital Voice Package provides 24 digital voice channels (DS0s), 8 analog FXS interfaces, 50 Cisco Unity Voice Messaging mailboxes and support for up to 500 Cisco CallManager devices.
ICS-7750-BV	Cisco ICS 7750 ISDN BRI Voice Package provides four ISDN BRI interfaces (eight B channels), 50 Cisco Unity Voice Messaging mailboxes and support for up to 500 Cisco CallManager devices.
ICS-7750-EV	Cisco ICS 7750 E1 Digital Voice Package provides 30 digital voice channels (DS0s), 50 Cisco Unity Voice Messaging mailboxes and support for up to 500 Cisco CallManager devices.

Cisco ICS 7750[1]

ICS-7750	Six-slot ICS chassis, SPE310, SSP, SAP, Power Supply & DOC-CD
SPE310=	System Processing Engine 310 (512MB RAM and Windows 2000)
MRP300=	Multiservice Route Processor 300 with two VIC/WIC slots
MRP3-8FXOM1=	Multiservice Route Processor with 8-ports FXO-M1 and one VIC/WIC slot
MRP3-8FXS=	Multiservice Route Processor with 8-ports FXS and one VIC/WIC slot
MRP3-16FXS=	Multiservice Route Processor with 16-ports FXO-M1
UPS-BASE-UNIT=	UPS with Standard Battery Pack, Ethernet Card (120 V for North America)
UPS-BATT-PACK=	Additional External Battery Pack for UPS Base Unit
PWR-AC-7750=	AC Power Supply for ICS 7750 Chassis
FAN-TRAY-7750=	Fan Tray for ICS-7750
ICS-7750-CHASSIS=	ICS-7750 Six-slot chassis & Fan Tray
SAP-7750=	System Alarm Processor for ICS 7750
SSP-7750=	System Switch Processor for ICS 7750

Cisco ICS 7750 WAN Interface Card (WIC) Modules (for MRP cards)

WIC-1DSU-T1=	1-Port T1/Fractional T1 DSU/CSU WAN Interface Card
WIC-1T=	1-Port Serial (T1/E1) Async/Sync WAN Interface Card
WIC-2T=	2-Port Serial (T1/E1) Async/Sync WAN Interface Card
WIC-2A/S=	2-Port low-speed Serial (up to 128kbps) Async/Sync WAN Interface Card spare
WIC-1DSU-56K4=	1-Port 4-Wire 56Kbps DSU/CSU WAN Interface Card
WIC-1B-S/T=	1-Port ISDN BRI S/T WAN Interface Card (dial and leased line)
WIC-1B-U=	1-Port ISDN BRI U with NT-1 WAN Interface Card dial and leased-line

Cisco ICS7750 Voice Interface Card (VIC) Modules (for MRP cards)

VIC-2FXS	Two-port FXS voice/fax interface card
VIC-4FXS/DID	Four-port FXS or DID voice/fax interface card (ports can be configured for either FXS or DID)
VIC-2DID	Two-port DID voice/fax interface card
VIC-2FXO	Two-port FXO voice/fax interface card
VIC-2FXO-M1	Two-port FXO voice/fax interface card with battery reversal and caller ID (for North America)
VIC-2FXO-M2	Two-port FXO voice/fax interface card with battery reversal and caller ID (for Europe)
VIC-2FXO-M3	Two-port FXO voice/fax interface card with battery reversal and caller ID (for Australia)
VIC-4FXO-M1	Four-port FXO voice/fax interface card with battery reversal and caller ID (for N. America)
VIC-2E/M	Two-port E&M voice/fax interface card
VIC-2BRI-NT/TE	Two-port IDSN BRI (NT & TE) voice interface card
VWIC-1MFT-T1	One-port T1/fractional T1 multiflex trunk with CSU/DSU (for CAS or PRI)
VWIC-2MFT-T1	Dual-port T1/fractional T1 multiflex trunk with CSU/DSU (for CAS or PRI)
VWIC-1MFT-E1	One-port E1/fractional E1 multiflex trunk with CSU/DSU (for PRI)
VWIC-2MFT-E1	Dual-port E1/fractional E1 multiflex trunk with CSU/DSU (for PRI)

Cisco ICS 7750 Packet Voice/Fax DSP Modules (for MRP cards)

PVDM-256K-4=	4-Channel Packet Voice/Fax DSP Module
PVDM-256K-8=	8-Channel Packet Voice/Fax DSP Module
PVDM-256K-12=	12-Channel Packet Voice/Fax DSP Module
PVDM-256K-16=	16-Channel Packet Voice/Fax DSP Module
PVDM-256K-20=	20-Channel Packet Voice/Fax DSP Module

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the ICS 7750 Web site: *http://www.cisco.com/go/ics7750*

Cisco IAD 2400 Series Integrated Access Device with IOS Telephony Service (ITS)[1]

The Cisco IAD 2400 Series integrated access devices (IADs) combine data, voice, and video services over IP and ATM networks to provide cost-effective and efficient means of delivering high-speed Internet and voice services to small- and medium-sized business customers—all in a small (1 RU) system. When configured with optional ITS software, the IAD 2400 is ideal for delivering converged LAN IP telephony in small office environments (5-20 phones) that do not require CallManager functionality.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco IAD 2400 Series	Business-class, fully integrated access device
	• IOS Telephony Service (ITS), ideal for small offices (5-20 phones) that do not need Cisco CallManager capabilities
	• Support for standard phones and IP phones on a single platform
	• 8 FXS/16 FXS/16FXS+8FXO analog voice ports and 1 T1 digital voice port models
	• T1-PPP, FR, HDLC, ATM, ADSL and G.shdsl WAN interfaces

Key Features

• Combines high-speed Internet access and toll-quality voice services on single IOS-based platform (ITS introduced in Cisco IOS Release 12.1(5)YD)

• Offers TDM, VoIP, and VoATM (AAL2) on a single platform

• Seamless migration of customers from TDM-based GR-303 to packet-based GR-303 networks or to call agent-based networks

• Automated remote installation and configuration enabled via Simple Network-enabled Auto Provisioning (SNAP) and the Cisco Configuration Express tool

Competitive Products

• Adtran: TA850, TA750, TA600	• RAD: LA-110, LA-140
• Carrier Access: Adit 600	• Verilink (formerly Polycom): NetEngine 6200, 7200
• Coppercom: MXR 400	• Wave7 Optics: LMG-B

Specifications

Feature	IAD 2421	IAD 2423	IAD 2424
Fixed LAN Ports	1-port Ethernet (10BASE-T)	Same as IAD 2421	Same as IAD 2421
Fixed WAN Ports	1-port T1	1-port ADSL	1-port G.SHDSL
Voice Ports	Analog: 8FXS, 16FXS, 16FXS+8FXO; Digital: 1 T1	Analog: 8FXS	Analog: 8FXS, 16FXS, 16FXS+8FXO; Digital: 1 T1
Processor Speed (type)	80 MHz (RISC)	Same as IAD 2421	Same as IAD 2421
Flash Memory	16 MB (Default); 32 MB (Max)	16 MB (Default); 32 MB (Max)	16 MB (Default); 32 MB (Max)
DRAM Memory	64 MB	64 MB	64 MB
Dimensions (HxWxD)	1.7 x 17.5 x 11.3 in.	Same as IAD 2421	Same as IAD 2421

For More Information

See the Cisco IAD 2400 Web site: *http://www.cisco.com/go/2400*

1. IP Keyswitch capabilities also available with 2600 and 3600 series routers; see IP Keyswitch Web site: http://www.cisco.com/go/keyswitch

Cisco Voice Gateways

Voice Gateways interface directly to PBXs or public telephone networks to carry voice traffic across IP networks—by converting IP calls to standard telephony calls and vice versa. They provide connectivity between packet telephony and legacy telephony such as PSTN, PBX, fax machines, and other devices.

Cisco's full line of multiservice routers can also add analog and digital voice gateway functionality through the use of network modules and voice interface cards[1], such as the Catalyst 6000 Family FXS Analog Interface Module.

Cisco offers the Cisco VG248 dedicated voice gateway.

Cisco VG248 Voice Gateway

The Cisco VG248 Voice Gateway is a 1 unit high rack mountable device allowing 48 analog devices (phones, fax machines & modems) to be used with Cisco Call Manager. It enables organizations with large numbers of analog phones (hotels, universities, hospitals, etc.) to deploy IP Telephony while maintaining the investment in legacy handsets. The analog lines are full featured (caller id, message waiting lights, feature codes) and the price per port is competitive with a legacy PBX.

The VG248 will generate SMDI for the attached analog ports allowing connection to a Cisco Call Manager network through legacy voicemail systems. It shares existing SMDI based voicemail systems between the Cisco Call Manager and the legacy PBX.

Selected Part Numbers and Ordering Information

Cisco VG 248 Voice Gateway
VG248   48 Port Voice over IP analog phone gateway

For More Information

See the Cisco Voice Gateways Web site: *http://www.cisco.com/go/voicegate*

Cisco IP/VC 3500 Series Videoconferencing Products

The IP/VC 3500 series is for enterprises and service providers who want a reliable, easy-to-manage, cost-effective network infrastructure for videoconferencing over their IP networks. They consist of the IP/VC 3511 Multipoint Control Unit (MCU, also known as a "video bridge"), the IP/VC 3521 and 3526 H.320 to H.323 Gateways and the IP/VC 3540-Series Videoconferencing System. The Cisco IP/VC product family works with H.323-standards-based videoconference client devices from a variety of vendors and integrates with legacy H.320 networks.

• The Cisco IP/VC 3511 Multipoint Control Unit (MCU) is a 1RU stack/rack-mount system enabling adhoc videoconferences between three or more endpoints. Multiple participants in multiple locations attend the same meeting with real-time interactivity. It is suitable for small to medium enterprises and remote branch offices in larger enterprises

• The IP/VC 3521 and the IP/VC 3526 Videoconferencing Gateways are also 1RU stack/rack-mount systems that translate between H.320 and H.323 protocols. The IP/VC 3521 provides up to four BRI interfaces and the IP/VC 3526 provides one ISDN T1/E1 PRI interface

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1. Please see the 1700, 2600, 3600, 7200, 5x00 series in Chapter 1—Routers, Chapter 7—Access Products.

- The IP/VC 3540 Videoconferencing System integrates multipoint control units, and gateways I onto a single platform for cost-effective deployment of IP-centric videoconferencing networks. In addition, the IP/VC 3540 platform offers T.120 data conferencing through an optional collaboration server. Customers can add the Rate Matching module which enhances the video composition of any multipoint conference. Enhanced features such as Rate Matching, a number of robust Continuous Presence formats and audio transcoding are available
- The Multimedia Conference Manager (MCM) software is part of Cisco IOS Software and available across a wide range of Cisco router platforms, including the Cisco 2600/2600XM, 3600, 3700, and 7200 series. As a gatekeeper/proxy, it enables network managers to control and secure bandwidth and priority settings for H.323 videoconferencing services

Selected Part Numbers and Ordering Information[1]

Cisco IP/VC 3500 Series Videoconferencing Products

IPVC-3511-MCU	IP/VC 3511 H.323 Videoconference Multipoint Control Unit
IPVC-3521-GW-4B	IP/VC 3521 H.320-H323 Videoconferencing Gateway with 4 BRI ports
IPVC-3526-GW-1P	IP/VC 3526 H.320-H.323 Videoconferencing. Gateway-1 PRI
IPVC-3540-MC03A	IP/VC 3540 MCU Module - 30 Sessions - (also available in 60 and 100 session capacities)
IPVC-3540-XAM03	IP/VC 3540 Audio Transcoder for 30 session MCU (also available for 60 session MCU)
IPVC-3540-RM	IP/VC 3540 Rate Matching Module (allows different rates in the same conference)
IPVC-3540-GW2P	IP/VC 3540 H.320 to H.323 Gateway Module
IPVC-3540-XAG	IP/VC 3540 Gateway Audio Transcoder
IPVC-3540-AS	IP/VC 3540 Application Server (CPU required for T.120 Data Conferencing Server
IPVC-3540-DS03	IP/VC 3540 T.120 Data Conferencing Server software (also available in 60 sessions)
MCM Images	IP/H323 (Routers: 2600, 3600, 3700)
IOS 12.2(11)T	Enterprise Plus/ H323 MCM (Routers: 2600, 3600, 3700)
	Enterprise MCM (Routers: 7200)

1. This is only a small subset of all parts available. Some parts have restricted access or are not available through distribution channels.

For More Information

See the IP/VC 3500 series Web site: *http://www.cisco.com/go/ipvc*

Cisco IP/TV 3.4

Cisco IP/TV® 3.4 delivers a complete, highly scalable, bandwidth-efficient solution for high-quality video communications over enterprise networks. Cisco IP/TV supports live video, scheduled video, video on demand (VOD), synchronized presentations and screen captures, and a wide range of video management functions. The solution enables a broad spectrum of applications for enterprise communications including training, corporate communications, business TV, and distance learning.

Cisco IP/TV 3.4 are purchased as Cisco IP/TV 3400 Series Server appliances or software for third party servers. The Cisco IP/TV 3400 Series servers contain pre-configured software, preinstalled capture cards, network interface cards, and device drivers. The Cisco IP/TV 3400 Series includes the IP/TV 3412 Control Server, the IP/TV 3425 and 3425A Broadcast Servers, the IP/TV 3432 Archive Server, and the IP/TV 3417 Video Starter System. This product family offers a range of choices to best suit large-scale enterprise applications, performance requirements, and bandwidth availability.

Selected Part Numbers and Ordering Information[1]

Cisco IP/TV 3400 Series Video Servers

IPTV-3412-CTRL	Cisco IP/TV 3412 Control Server
IPTV-3425-BCAST-M	Cisco IP/TV 3425 MPEG-1, MPEG-2 Full D1 Broadcast Server
IPTV-3425A-BCAST-M	Cisco IP/TV 3425 MPEG-1 Broadcast Server
IPTV-3432-ARCH	Cisco IP/TV 3432 Archive Server
IPTV-3417-START-M	Starter Kit
Cisco IP/TV Software	
IPTV-CM-3.4	IP/TV Content Manager
IPTV-SERV-3.4	Broadcast/Archive Server
IPTV-SERV-MP4-3.4	Server w/ MPEG-4 card & license
IPTV-START-HD1-3.4	Starter Kit

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the IP/TV 3400 series Web site: *http://www.cisco.com/go/iptv*

Web Collaboration—Cisco Web Collaboration Option

The Cisco Web Collaboration Option enables businesses to combine the personal value of human interaction with the information value of the Web-creating a powerful environment for driving increased sales, exceptional service, and customer satisfaction.

The Cisco Web Collaboration Option allows you to add "click-for-help" buttons on your Web site that enable customers to interact with your contact center agents over the Web while conducting a voice conversation (PSTN or Voice over IP [VoIP]) or text chat. Contact center agents and callers can share Web pages-including personalized or dynamically generated pages, complete forms in a collaborative fashion, and share any Windows desktop application using nothing more than a Web browser. By facilitating effective, personalized assistance designed to greatly enhance the customer experience, the Cisco Web Collaboration Option is an ideal solution for both sales- and service-oriented contact centers.

The Cisco Web Collaboration Option can be deployed in a pure IP environment or can be seamlessly integrated with your organization's existing telephony infrastructure to provide automated, blended delivery of phone and Web-based inquiries.

Selected Part Numbers and Ordering Information[1]

Cisco IP/TV 3400 Series Video Servers

CCS-CCSSVR	Cisco Web Collaboration and Media Blender Software

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco Collaboration Server Web site: *http://www.cisco.com/go/ccs*

E-Mail Response Management—Cisco E-mail Manager

Cisco E-Mail Manager is a comprehensive, enterprise-class solution for managing high volumes of customer inquiries submitted to your company mailboxes or Web site. Based on customizable business rules, Cisco E-Mail Manager accelerates the response process by automatically directing messages to the right agent or support team, categorizing and prioritizing messages, suggesting relevant response templates, and, if desired, sending automated replies. A full-featured, browser-based interface provides your agents with the productivity tools and knowledge resources they need to provide fast, accurate and personalized responses to your customers. Cisco E-Mail Manager gives managers the queue management, reporting and outbound marketing tools they need to ensure that desired service standards are met, gain valuable insight into customer needs and generate new revenue opportunities.

Whether you are building a customer support system from the ground up or integrating with existing organizational structures and legacy systems, Cisco E-Mail Manager's uniquely flexible, extensible and scalable design delivers a cost-effective, easy-to-implement strategy for building customer relationships over the Internet.

Selected Part Numbers and Ordering Information[1]

Cisco Email Manager

CEM-SVR-W	Cisco Email Manager Server (Win 2K)
CEM-AGT	Cisco Email Manager Agent License

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Cisco Emergency Responder

Cisco Emergency Responder revolutionizes enterprise telephony support for E9-1-1 in North America, E1-1-2 in Europe, and other emergency telephone services across the globe. Traditional PBX E9-1-1 implementations in North America support "automatic location identification" of emergency callers through daily manual database update processes, which limit the frequency of location updates and increase the likelihood of update errors. The Cisco Emergency Responder software application works with Cisco CallManager to automatically track the location of Cisco IP phones in enterprise campuses, route emergency calls to an appropriate public safety answering point (PSAP), and provide the location of the caller to the Public Safety Answering Point (PSAP).

Cisco ER performs these functions without requiring tedious manual database updates after phone moves/adds/changes, which significantly reduces the time, headcount, and costs associated with traditional PBX E9-1-1 maintenance. While some vendors may automate location updates, they still require manual PBX configuration changes to trigger the updates. The Cisco ER solution, when coupled with the automated phone moves/adds/changes features in Cisco CallManager, is the first in the industry to completely automates the phone move process while maintaining E9-1-1 and location data integrity.

In addition, Cisco ER can use email/pager messaging, telephone calls, and auto-refreshing webpage updates to notify on-site security operations personnel and third-party agencies of emergency calls in progress.

Key Features

- Meets and exceeds traditional E9-1-1 requirements
- Automates all user and phone moves, adds, and changes; Enables users and phones to move an unlimited number of times per day
- Avoids the expense and burden of daily PS-ALI record uploads
- Avoids daily error-prone documentation and database updates
- Enables quicker and more effective emergency response from onsite personnel and public agencies
- Provides configuration auditing to facilitate responsible change management and investigative or legal processes
- Provides call history logs for capacity planning, management of emergency call abuse, and incident documentation
- Compatible with any emergency number

Specifications

Feature	Cisco Emergency Responder
Supported Platform	Cisco Media Convergence Server, MCS-7835-1266 and MCS-7825-1133
System Capacity	A single Cisco Emergency Responder server supports 10,000 phones and 30,000 Ethernet switch ports. Additional scalability parameters include 500 Emergency Response Locations (ERLs)- locations that can be uniquely identified to a Public Safety Answering Point (PSAP)- as well as 500 manually entered endpoints such as analog or proprietary phones or H.323 clients. Cisco recommends a second Emergency Responder server to form a fully redundant Cisco Emergency Responder Group with the same capacity and increased availability compared with a single Cisco Emergency Responder server. Larger campuses and distributed systems are supported via a network of Cisco Emergency Responder groups called a Cisco Emergency Responder Cluster.
Configurable Elements	
Cisco CallManager	Call routing and digit manipulation to forward user-initiated emergency calls and PSAP return calls to and from Cisco Emergency Responder as appropriate
Cisco Emergency Responder	System administration interface-for access to all configuration components or oversight of outsourced vendors
	LAN administration interface-for IT LAN group or an outsourced vendor
	Emergency Response Location (ERL) administration interface-for IT telecom group or an outsourced vendor
Other Components	Configure e-mail account on a Simple Mail Transfer Protocol (SMTP) Internet mail server for use by Cisco Emergency Responder
	Configure an email-to-pager gateway, or use an email paging service
	Configure a PS-ALI transfer application provided by the PS-ALI database service provider (often requires a dialup modem connection)
	Provision an E9-1-1 capable voice trunk (Centralized Automated Message Accounting [CAMA] or Primary Rate Interface [PRI]) through a local exchange carrier
Supported Switches[1]	Cisco Catalyst 2950, 3500, 3550, 4000, 4500, 6500 Series

1. Check for updates on CCO, and following is list of tested switch platforms at time of printing

Selected Part Numbers and Ordering Information[1]

Cisco Emergency Responder

SW-ER1.1-SVR	Cisco Emergency Responder software (MCS platforms), including 100 user licenses
SW-ER1.1-SVR-CPQ=	Cisco Emergency Responder software (Compaq platforms), including 100 user licenses
SW-KEY-ER1.1-USER=	Incremental single-user license key for Cisco Emergency Responder

1. Redundant user licenses are not required when ordering redundant CER servers for a single CER group.

For More Information

See the Cisco Emergency Responder Web site: *http://www.cisco.com/go/cer*

Cisco ATA Series of Analog Telephone Adaptors

The Cisco ATA 186 and 188 Analog Telephone Adaptors bring analog telephones into the networked world. The Cisco ATA series of products address the low-end product portfolio need by targeting the enterprise, business local services, small-office environment and the emerging managed voice services market. These cost effective handset-to-Ethernet adaptors enable analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services. The Cisco ATA 186 is equipped with, and a single RJ-45 Ethernet port. The Cisco ATA 188 has two RJ-11 voice ports and two RJ-45 ports. The internal Ethernet switch allows for a direct connection to a 10/100BASE-T Ethernet network and connectivity to a co-located PC or other Ethernet-based device via the RJ-45 ports.

Both models ship with a bootload image and must be upgraded to a signaling firmware image available on Cisco.com before deployment. Cisco ATAs can be configured[1] to use the standards-based Voice over IP (VoIP) protocols H.323, Session Initiation Protocol (SIP), Media Gateway Control Protocol (MGCP) and Skinny Client Control Protocol (SCCP).

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco ATA Series of Analog Telephone Adaptors	• Enable analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal • Continue use of existing analog phones with IP network

Key Features

- Auto-provisioning with Trivial File Transfer Protocol (TFTP) provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask via Dynamic Host Configuration Protocol (DHCP)
- Optional web configuration through built-in Web server
- Optional touch-tone telephone keypad configuration with voice prompt
- Administration password to protect configuration and access
- Advanced pre-processing to optimize full-duplex voice compression
- High performance line-echo cancellation eliminates noise and echo
- Voice activity detection (VAD) and comfort noise generation (CNG) save bandwidth by delivering voice, not silence
- Dynamic network monitoring to reduce jitter artifacts such a packet loss

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1. *Two softrware image combinations are available on Cisco.com: H.323/SIP and MGCP/SCCP. MGCP/SCCP image includes the letters, ms, in its name.*

Specifications

Feature	Cisco ATA 186	Cisco ATA 188
Telephone and network interfaces	2 RJ-11 FXS ports 1 RJ-45 interface for network connection	2 RJ-11 FXS ports 1 RJ-45 interface for network connection 1 RJ-45 "switch port" for connection to PC or another downstream Ethernet port
Dimensions (H x W x D)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x14.6 cm)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x14.6 cm)
Weights	15 oz (425 gm)	15 oz (425 gm)
Voice-over-IP (VoIP) protocols	H.323 v2; H.323 v4; SIP (RFC 2543); MGCP 1.0 (RFC 2705); MGCP 1.0/network-based call signaling (NCS) 1.0 Profile; MGCP 0.1; SCCP	H.323 v2; H.323 v4; SIP (RFC 2543); MGCP 1.0 (RFC 2705); MGCP 1.0/network-based call signaling (NCS) 1.0 Profile; MGCP 0.1; SCCP

Selected Part Numbers and Ordering Information[1]

Cisco ATA Series of Analog Telephone Adaptors

ATA186-I1	Cisco ATA 186 2-port adaptor, 600 ohm impedance
ATA186-I2	Cisco ATA 186 2-port adaptor, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)
ATA188-I1	Cisco ATA 188 2-port adaptor with switch, 600 ohm impedance
ATA188-I2	Cisco ATA 188 2-port adaptor with switch, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)

Cisco ATA Series of Analog Telephone Adaptors Power Supply Cables

ATACAB-NA	ATA power supply cable for North American-style power systems
ATACAB-EU	ATA power supply cable for Continental European-style power systems
ATACAB-UK	ATA power supply cable for United Kingdom
ATACAB-AR	ATA power supply cable for Argentina
ATACAB-JP	ATA power supply cable for Japan

1. Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.

For More Information

See the Cisco ATA Series Web site: *http://www.cisco.com/go/ata186*

VPN and Security Products

VPN and Security Products at a Glance

Product	Features	Page
Cisco PIX Firewall	Market-leading, purpose-built appliances which provide broad range of integrated security services	5-2
	• Robust stateful inspection firewalling with application awareness	
	• Highly scalable remote access and site-to-site VPN	
	• Intrusion protection with for real-time response to network attacks	
	• Award-winning stateful failover for enterprise-class resiliency	
Cisco IOS Firewall	• Tightly integrated with IOS VPN and advanced routing technologies	5-5
	• Stateful packet filtering via context-based access control (CBAC)	
	• Inline Intrusion detection for real-time response to network attacks	
	• Dynamic, network-to network, per-user authentication and authorization via TACACS+ and RADIUS	
Firewall Blade for Catalyst 6500	Firewall Module is a high performance integrated stateful firewall solution for Catalyst 6500 family of switches with performance exceeding 5GB. It is based on proven PIX technology while providing the following benefits to the customers	2-20
	• Investment protection	
	• Low cost of ownership	
	• Ease of use	
	• Operational Consistency	
	• Scalability	
	See the Catalyst 6500 Series Switch in Chapter 2: LAN Switching, page 2-20 , for more information	
Cisco VPN 3000 Family	Remote access Virtual Private Network platform	5-6
	• Has models for all size companies, from small to large enterprise organizations	
	• Reduces communications expenditures	
	• Enables users to easily add capacity and throughput	
Cisco IDS Network Sensor	Network-based, real-time intrusion detection system capable of monitoring an entire enterprise network:	5-8
	• Distributed intrusion detection system capable of directing and forwarding alarms between local, regional, and headquarters-based monitoring consoles	
	• Scalable architecture to allow the deployment of large numbers of sensors in order to provide comprehensive security coverage in large networks with performance requirements from T1 to gigabit environments	
	• Cisco IDS Module enables customers to perform both security monitoring and switching functions within the same chassis	
	• CTR (Cisco Threat Response) delivers patented adaptive scan techniques to minimize false alarms	
Cisco Security Agent	The Cisco Security Agent provides threat protection for desktop and server computing systems by identifying and preventing malicious activity. By acting on threats or attacks before they can occur, Cisco Security Agent removes known and unknown security risks to enterprise networks and applications:	5-10
	• The Cisco Security Agent aggregates and extends multiple endpoint security functions by providing host intrusion prevention, distributed firewall, malicious mobile code protection, operating system integrity assurance, and audit log consolidation all within a single agent package	
	• Protects against know and unknown attacks on both servers and desktops	
Cisco 7100 Series	Large branch and central site VPN router	5-11
	• Comprehensive suite of VPN services, including encryption, tunneling, firewall, and bandwidth management	
	• Embedded I/O for ease of deployment	
	• Service module slot for IPSec and PPTP encryption coprocessing	
	• Dedicated Site-to-Site VPN router	

Product	Features	Page
Cisco Secure Access Control Server (ACS) for Windows	Controls the authentication, authorization, and accounting (AAA) of users and administrators to network devices and services • Operates as a centralized Remote Access Dial-In User Service (RADIUS) or Terminal Access Controller Access Control System (TACACS+) server • Supports LDAP user authentication • Data replication and backup services • Flexible user and group policy controls • Support for Cisco 802.11x Catalyst Switch and Wireless solutions • Extensible Authentication Protocol (EAP) enhancements to support Protected EAP (PEAP) for wireless LANs • All administrative access is encrypted with SSL	5-14
Cisco Secure User Registration Tool (URT)	Identifies users within the network and creates user registration policy bindings that help support mobility and tracking: • Ensures that users are associated with their authorized subnet/VLAN • Addresses the challenges associated with campus user mobility • Supports Web-based authentication for Windows, Macintosh, and Linux client platforms • Secure user access to the VLAN with MAC address-based security option • Option to allow multiple users connected to a hub to access a VLAN served by a single switch port	5-15
CiscoWorks VPN/Security Management Solution	Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). This bundle includes: Management and Monitoring Centers, Cisco IDS Host Sensor and Console, Cisco Secure Policy Manager, VPN Monitor, Resource Manager Essentials, and Cisco View See Chapter 9—Cisco IOS Software and Network Management for more information on CiscoWorks VPN/Security Management Solution	9-16
Cisco 806, 1700, 2600, 3600, 7200, 7400 and SOHO 70 Series	Wide variety of modular router platforms with options for IOS-based and hardware-enabled VPN and security support. See individual product pages and Cisco IOS Firewall Feature Set (page 5-5).	1-1

Cisco PIX Firewall Series

The world-leading Cisco PIX® Firewall Series of purpose-built security appliances provides robust, enterprise-class, integrated network security services, including stateful inspection firewalling, virtual private networking (VPN), intrusion protection, and much more-in cost-effective, easy-to-deploy solutions. Ranging from compact, "plug-and-play" desktop firewalls for small and home offices to carrier-class gigabit firewalls for the most demanding enterprise and service-provider environments, Cisco PIX Firewalls provide robust security, performance, and reliability for network environments of all sizes.
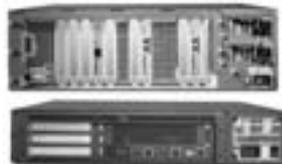
When to Sell

Sell This Product	When a Customer Needs These Features
PIX 501	• Small Office / Home Office desktop integrated security appliance • Up to 10 Mbps of firewall throughput and 3 Mbps of 3DES VPN throughput[1] • Hardware VPN client (Easy VPN Remote) • VPN concentrator services (Easy VPN Server) for up to 5 remote users • Integrated four port 10/100 Mbps switch
PIX 506E	• Remote Office / Branch Office desktop integrated security appliance • Up to 20 Mbps of firewall throughput and 16 Mbps of 3DES VPN throughput[1] • Hardware VPN client (Easy VPN Remote) • VPN concentrator services (Easy VPN Server) for up to 25 remote users • Maximum of two 10BASE-T Ethernet interfaces • OSPF dynamic routing support

Sell This Product	When a Customer Needs These Features
PIX 515E	• Small-to-Medium Business (SMB) integrated security appliance
	• Up to 188 Mbps of firewall throughput[1]
	• Up to 140 Mbps of 3DES/AES-256 VPN throughput[1] using hardware acceleration (integrated in select models, optional for others)
	• VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
	• Up to six 10/100 FE interfaces
	• VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
	• Active/standby stateful failover support
PIX 525	• Enterprise-class integrated security appliance
	• Up to 330 Mbps of firewall throughput[1]
	• Up to 155 Mbps of 3DES/AES-256 VPN throughput[1] using hardware acceleration (integrated in select models, optional for others)
	• VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
	• Gigabit Ethernet support; Up to eight 10/100 FE or three Gigabit Ethernet interfaces
	• VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
	• Active/standby stateful failover support
PIX 535	• Carrier class large enterprise and service provider firewall appliance
	• Up to 1.7 Gbps of firewall throughput[1]
	• Up to 440 Mbps of 3DES/AES-256 VPN throughput using hardware acceleration (integrated in select models, optional for others)
	• VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
	• Gigabit Ethernet throughput; Up to ten 10/100 FE or nine Gigabit Ethernet interfaces
	• VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
	• Redundant, hot-swappable power supplies
	• Active/standby stateful failover support

1. At 1400-byte packets

Key Features

- Security—Purpose-built firewall appliance with a proprietary, hardened operating system
- Performance—Stateful inspection firewall capable of up to 500,000 concurrent connections and 1.7 Gbps of throughput (at 1400-byte packets on Cisco PIX 535 Firewalls)
- High availability—Award-winning, active/standby stateful failover model provides enterprise-class, cost-effective resiliency
- Virtual Private Networking (VPN)—Supports both standards-based IPsec and L2TP/PPTP-based VPN services
- Optional PIX VPN Accelerator Card+—Scales 3DES/AES-256 VPN throughput up to 440 Mbps, using specialized co-processors designed for accelerating encryption operations
- Free software Cisco VPN Client provides secure connectivity across a broad range of platforms including Windows, Mac OS X, Linux and Solaris
- Network Address Translation (NAT) and Port Address Translation (PAT)—Conceals internal IP addresses and expands network address space
- Denial-of-Service (DoS) Attack Protection—Protects the firewall, internal servers and clients from disruptive hacking attempts
- OSPF dynamic routing support for improved network reliability and performance
- VLAN trunking (802.1q tag) support for simplified deployment in switched network environments
- Web-Based PIX Device Manager (PDM)—For simplified configuration and usage reports
- Auto Update, SSH, SNMP, TFTP, HTTPS, and telnet for remote management
- Support from two 10/100 Ethernet interfaces up to nine Gigabit Ethernet interfaces

Competitive Products

- Check Point Software: FireWall-1 / VPN-1
- NetScreen: NetScreen Security Appliances
- Nokia: IP-Series Security Appliances
- SonicWALL: SonicWALL Security Appliances
- WatchGuard Technologies: Firebox-series and V-series Security Appliances

Specifications

Feature	PIX 501	PIX 506E	PIX 515E	PIX 525	PIX 535
Processor	133 MHz	300 MHz	433 MHz	600 MHz	1.0 GHz
RAM	16 MB	32 MB	32 or 64 MB	128 or 256 MB	512 MB or 1 GB
Flash Memory	8 MB	8 MB	16 MB	16 MB	16 MB
PCI Slots	None	None	2	3	9
Fixed Interfaces (Physical)	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Two 10/100 Fast Ethernet	Two 10/100 Fast Ethernet	None
Maximum Interfaces (Physical and Virtual)	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Six 10/100 Fast Ethernet (FE) or 8 VLANs	Eight 10/100 FE or GEn or 10 VLANs	Ten-10/100 FE or GE or 24 VLANs
VPN Accelerator Card+ (VAC+) Option	No	No	Yes, integrated in select models	Yes, integrated in select models	Yes, integrated in select models
Failover Support	No	No	Yes, UR/FO models only	Yes, UR/FO models only	Yes, UR/FO models only
Size	Desktop	Desktop	1 RU	2 RU	3 RU

Selected Part Numbers and Ordering Information[1]

Cisco PIX Bundles

PIX-535-UR-BUN	PIX 535 Unrestricted Bundle (Chassis, unrestricted license, two 10/100 ports, VPN Accelerator Card+)
PIX-535-R-BUN	PIX 535 Restricted Bundle (Chassis, restricted license, two 10/100 ports)
PIX-535-FO-BUN	PIX 535 Failover Bundle (Chassis, failover license, two 10/100 ports, VPN Accelerator Card+)
PIX-525-UR-BUN	PIX 525 Unrestricted Bundle (Chassis, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-525-R-BUN	PIX 525 Restricted Bundle (Chassis, restricted software, two 10/100 ports)
PIX-525-FO-BUN	PIX 525 Failover Bundle (Chassis, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-UR-BUN	PIX 515E Unrestricted Bundle (Chassis, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-R-BUN	PIX 515E Restricted Bundle (Chassis, restricted software, two 10/100 ports)
PIX-515E-FO-BUN	PIX 515E Failover Bundle (Chassis, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-506E-506E-BUN-K9	PIX 506E 3DES/AES Bundle (Chassis, software, 3DES/AES license, two 10-BaseT ports)[2]
PIX-501-BUN-K8	PIX 501 10 User/DES Bundle (Chassis, SW, 10 user/DES licenses, 4 port 10/100 switch)
PIX-501-BUN-K9	PIX 501 10 User/3DES/AES Bundle (Chassis, SW, 10 user/3DES/AES licenses, 4 port 10/100 switch)[2]
PIX-501-50-BUN-K8	PIX 501 50 User/DES Bundle (Chassis, SW, 50 user/DES licenses, 4 port 10/100 switch)
PIX-501-50-BUN-K9	PIX 501 50 User/3ES/AES Bundle (Chassis, SW, 50 user/3DES/AES licenses, 4 port 10/100 switch)[2]

Cisco PIX Interfaces and Cards

PIX-1GE-66	Single 66-MHz Gigabit Ethernet interface for PIX 53x (multimode fiber, SC connector)
PIX-1GE	Single Gigabit Ethernet Interface for PIX 52x
PIX-4FE	Four-port 10/100 Fast Ethernet interface
PIX-1FE	Single-port 10/100 Fast Ethernet interface
PIX-VPN-ACCEL	IPSec Hardware VPN Accelerator Card (VAC)
PIX-VPN-ACCEL-PLUS	PIX VPN Accelerator Card+ (VAC+)

Cisco PIX VPN Feature Licenses

PIX-VPN-3DES	3DES/AES IPSec VPN software license for PIX 525/535[2]
PIX-515-VPN-3DES	3DES/AES IPsec VPN software license for PIX 515/515E[2]
PIX-506-SW-3DES	3DES/AES IPSec VPN software license for PIX 506/506E[2]
PIX-501-VPN-3DES	3DES/AES IPSec VPN software license for PIX 501[2]
PIX-VPN-DES	56-bit DES IPSec VPN software license

PIX Accessories

PIX-506E-PWR-AC	Redundant AC power supply for PIX 506E
PIX-515-PWR-DC	Redundant DC power supply for PIX 515/515E

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).
2. AES encryption available with Cisco PIX Firewall Software version 6.3 and above.

For More Information

See the PIX Firewall Web site: *http://www.cisco.com/go/pix*

Cisco IOS Firewall

The Cisco IOS Firewall enriches Cisco IOS Software security capabilities, integrating robust firewall functionality and intrusion detection for every network perimeter. When combined with Cisco IOS IPSec software and other Cisco IOS Software-based technologies such as L2TP tunneling and quality of service (QoS), it provides a complete, integrated virtual private network solution. Because it is available for a wide range of Cisco routers, it gives customers the flexibility to choose a solution that meets their bandwidth, LAN/WAN density, and multiservice requirements, while benefiting from advanced security.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco IOS Firewall	• An integrated firewall solution with powerful security and multiprotocol routing all on the same platform
	• Scalability options from the Cisco 800 up to the Cisco 7500 and the Catalyst 6000
	• Low cost solution where high performance is not a requirement
	• For secure extranet and intranet perimeters and Internet connectivity for branch and remote offices
	• Secure remote access or data transfer via a Cisco IOS Software-based VPN solution
	• Real-time (inline) integrated intrusion detection system (IDS) to complement firewall or existing IDS (Cisco Secure IDS)
	• Security and access to the network on a per-user basis

Key Features

• Context-based access control (CBAC) provides secure, stateful, application-based filtering, supporting the latest protocols and advanced applications

• Intrusion detection for real-time inline monitoring, interception, and response to network misuse

• Dynamic, per-user authentication/authorization for LAN, WAN, and VPN clients

• Graphical configuration and management via the ConfigMaker Security Wizard and Cisco Secure Policy Manager (CSPM)

• Provides strong perimeter security for a complete Cisco IOS Software-based VPN solution, including IPSec, QoS, and tunnelling for a wide range of Cisco routers

Competitive Products

• Lucent (Ascend): SecureAccess Firewall
• Nokia: IP400 Series

• Nortel: BaySecure Firewall-1
• Same competitors as PIX so they are also Checkpoint, Linksys, Nokia, Netscreen, etc.

Specifications

Feature	Cisco IOS Firewall
Supported Network Interfaces	All network interfaces on supported platforms
Supported Platforms	Cisco 1720, 2600/2600XM, 3600, 7100, and 7200 series router platforms (supports full feature set)
	Cisco 800, UBR900, 1600, and 2500 series router platforms include all firewall features with exception of intrusion detection and authentication proxy
Simultaneous Sessions	No maximum; dependent on platform, network connection, and traffic

Part Numbers and Ordering Information

For Cisco IOS Images containing firewall (FW) and intrusion detection (IDS) capabilities, see individual product pages of supported platforms and the Cisco IOS Feature Navigator at http://www.cisco.com/go/fn (CCO login required) for part numbers and more info.

For More Information

See the Cisco IOS Firewall Feature Set Web site: *http://www.cisco.com/go/csis*

Cisco VPN 3000 Family

The Cisco VPN 3000 Concentrator Series—
A family of purpose-built, remote access Virtual
Private Network (VPN) platforms that incorporates
high availability, high performance and scalability with the most advanced encryption
and authentication techniques available today. Customers can greatly reduce costs by
leveraging their ISPs' infrastructure and eliminate costly leased lines. This series
supports small offices as well as large organizations with up to 10,000 simultaneous
remote users per unit. With load balancing configured, multiple units can be clustered
to enable unlimited remote access users. It also supports the widest range of VPN clients
including Certicom MovianVPN client, Microsoft 2000 L2TP/IPsec Client, and
Microsoft PPTP for Windows 95/98/ME/NT/2000/XP.

The Cisco VPN 3002 Hardware Client—Combines the best capabilities of a software
client with the reliability and stability of a dedicated hardware platform, and scales to
tens of thousands of users. It sets up connections to a variety of Cisco VPN
concentrators, including the VPN 3000 series and PIX firewalls.

When to Sell

Sell This Product	When a Customer Needs These Features
VPN 3005 and 3015 Concentrators	• A fixed configuration device designed for small- to medium-sized organizations with bandwidth requirements up to full-duplex T1/E1 (4 Mbps maximum performance) and up to 100 simultaneous remote access sessions
	• Encryption processing is performed in software
	• VPN 3015 is field-upgradable to the Cisco VPN 3030 and 3060 models and for redundancy
VPN 3030 and 3060 Concentrators	• VPN 3030 is for medium- to large-sized organizations with bandwidth requirements from full T1/E1 through T3/E3 (50 Mbps max. performance) and up to 1500 simultaneous sessions; field-upgradeable to the Cisco VPN 3060
	• VPN 3060 is for large organizations, with high-performance, high-bandwidth requirements from fractional T3 through full T3/E3 or greater (100 Mbps max. performance) and up to 5000 simultaneous remote access sessions
	• Both have specialized SEP modules to perform hardware-based acceleration
VPN 3080 Concentrator	• Optimized to support large enterprise organizations that demand the highest level of performance combined with support for up to 10,000 simultaneous remote access sessions
	• Specialized SEP modules perform hardware-based acceleration
VPN 3000 Client	• Establishes secure, end-to-end encrypted tunnels to the Cisco VPN 3000 Concentrator and other Cisco Easy VPN compliant devices.
	• Provided at no charge, installs on PCs and is available for Windows, MAC OS X and Linux/Solaris environments
VPN 3002 Hardware Client	• Emulates the software client in hardware
	• Ideal for mixed operating system environments and where corporation does not own/control remote PC or for very large applications requiring large number of devices due to ease of deployment, upgradability & scalability

Key Features

• Cisco VPN 3000 Concentrators Series
  – Support for industry standard IPSec DES/3DES/AES and Cisco IPSec/NAT for
    VPN Access through Port Address Translation firewalls
  – Unlimited-use license for Cisco VPN Client distribution included at no cost with
    multiple OS support including Windows, MAC OS X, Linux and Solaris; also
    integrates with Zone Alarms personal firewall
  – Supports standard authentication: RADIUS, SDI Tokens, and Digital Certificates
  – VPN load balancing allows for multiple units to cluster as a single shared pool
• Cisco VPN 3002 Hardware Client supports up to 253 users/stations per VPN 3002
  – Works with most operating systems including Windows, Linux, Solaris, and MAC OS X
  – Auto-upgrade capability automates upgrades with no user intervention required
  – Client technology employs push policy and automatic address assignment from the
    central site concentrator, enabling virtually unlimited scalability

Competitive Products

- Nortel: Contivity products
- Netscreen: LAN to LAN environments
- Nokia

Specifications

Cisco VPN 3000 Series Concentrators

Feature	VPN 3005	VPN 3015	VPN 3030	VPN 3060	VPN 3080
Simultaneous Users	100	100	1500	5000	10,000
Encryption Throughput	4 Mbps	4 Mbps	50 Mbps	100 Mbps	100 Mbps
Encryption Method	Software	Software	Hardware	Hardware	Hardware
Encryption (SEP) Module	0	0	1	2	4
Redundant SEP	No	No	Optional	Optional	Yes
Expansion Slots	0	4	3	2	N/A
Upgradeable	No	Yes	Yes	N/A	N/A
Memory	32 MB	128 MB	128 MB	256 MB	256 MB
Hardware Configuration	1U, Fixed	2U, Scalable	2U, Scalable	2U, Scalable	2U
Power Supply	Single	Single, with a dual option	Single, with a dual option	Single, with a dual option	Dual
Client License	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
LAN-to-LAN Connections (internal user database)	100	100	500	1000	1000
Dimensions (HxWXD)	1.75 x 17.5 x 11.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.

Cisco VPN 3002 Hardware Client

Feature	VPN 3002 Hardware Client
Hardware Processor	Motorola PowerPC processor; Dual flash image architecture
Network Interfaces	CPVN3002-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and One Private Port 10/100Mbps RJ-45 Ethernet Interface
	CVPN3002-8E-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and Eight Private Port 10/100Mbps RJ-45
	Ethernet Interfaces via AUTO-MDIX switch
Physical Dimensions	1.967 x 8.6 x 6.5 in. (5 x 8.6 x 16.51 cm)
Power Supply	External AC Operation: 100-240V at 50/60 Hz with universal power factor correction; 4 foot cord included and international "pigtail" power cord selection
Tunneling Protocol Support	IPsec with IKE key management
Monitoring & Configuration	Event logging; SNMP MIB-II support
	Embedded management interface is accessible via console port or local web browser; SSH/SSL
Encryption Algorithms, Key Management & Authentication Algorithms	56-bit DES (IPsec); 168-bit Triple DES (IPsec); AES 128 & 256-bit (IPsec)
Authentication and Accounting Servers	Support for redundant external authentication servers including RADIUS
	Microsoft NT Domain authentication, X.509v3 Digital Certs (PKC7-PKCS10)
Configuration Modes	Client Mode—acts as client, receives random IP address from Concentrator Pool; Uses NAPT to hide stations 3002; Network behind 3002 is unroutable; few configuration parameters
	Network Extension Mode—acts as site-to-site device; Uses NAPT to hide stations only to Internet (stations visible to central site); Network behind 3002 is routable; additional configuration parameters

Selected Part Numbers and Ordering Information[1]

Cisco VPN 3000 Concentrator

CVPN3005-E/FE-BUN	CVPN3005-E/FE hw set, sw, client, & US power cord
CVPN3015-NR-BUN	CVPN3015-NR non-redundant hw set, sw, client, & US power cord
CVPN3030-NR-BUN	CVPN3030-NR non-redundant hw set, sw, client, & US power cord
CVPN3030-RED-BUN	CVPN3030-RED redundant hw set, sw, client, & US power cord
CVPN3060-NR-BUN	CVPN3060-NR non-redundant hw set, sw, client, & US power cord
CVPN3060-RED-BUN	CVPN3060-RED redundant hw set, sw, client, & US power cord
CVPN3080-RED-BUN	CVPN3080-RED redundant hw set, sw, client, & US power cord

Cisco VPN 3000 Series Upgrades

CVPN1530-UPG-RED	Cisco VPN 3015 To 3030 (Redundant) Upgrade Kit
CVPN1560-UPG-NR	Cisco VPN 3015 To 3060 (Non-Redundant) Upgrade Kit
CVPN1560-UPG-RED	Cisco VPN 3015 To 3060 (Redundant) Upgrade Kit
CVPN1580-UPG-RED	Cisco VPN 3015 To 3080 (Redundant) Upgrade Kit
CVPN3030-UPG-RED	Cisco VPN 3030 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-NR	Cisco VPN 3030 To 3060 (Non-Redundant) Upgrade Kit

CVPN3080-UPG-R/R	Cisco VPN 3030 (Redundant) to 3080 (Redundant) Upgrade Kit
CVPN3080-UPG-RED	Cisco VPN 3030 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-RED	Cisco VPN 3030 To 3060 (Redundant) Upgrade Kit
CVPN6060-UPG-RED	Cisco VPN 3060 To 3060 (Redundant) Upgrade Kit
CVPN6080-UPG-RED	Cisco VPN 3060 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-R/R	Cisco VPN 3030 (Redundant) to 3060 (Redundant) Upgrade Kit
CVPN6080-UPG-R/R	Cisco VPN 3060 (Redundant) to 3080 (Redundant) Upgrade Kit

Cisco VPN 3000 Series Accessories

CVPN3000-PWR=	Cisco VPN 3000 Concentrator Power Supply

Cisco VPN 3000 Series Basic Maintenance

CON-SNT-PKG4	SMARTnet Maintenance for Cisco CVPN3005-E/FE-BUN
CON-SNT-PKG8	SMARTnet Maintenance for Cisco CVPN3015-NR-BUN
CON-SNT-PKG11	SMARTnet Maintenance for Cisco CVPN3030-NR-BUN
CON-SNT-PKG13	SMARTnet Maintenance for Cisco CVPN3030-RED-BUN
CON-SNT-PKG14	SMARTnet Maintenance for Cisco CVPN3060-RED-BUN

Cisco VPN Client

CVPN-CLIENT-K9=	Cisco VPN Client CD (included with Concentrator purchase)

For More Information

See the Cisco VPN 3000 series Web site: *http://www.cisco.com/go/vpn3000*

Cisco Intrusion Detection System Network Sensors

Cisco integrated network security solutions enable organizations to protect productivity gains and reduce operating costs. The Cisco Intrusion Protection is designed to efficiently protect your data and information infrastructure. Cisco delivers four four critical elements for efficient intrusion protection system which are:

- Accurate threat detection—Cisco Intrusion Detection System Version 4.0 (Cisco IDS 4.0) delivers the first step in providing a secure environment by comprehensively detecting all potential threats
- Intelligent threat investigation—Cisco Threat Response technology virtually eliminates false alarms, and automatically determines which threats need immediate attention to avoid costly intrusions.
- Ease of management—Browser-based tools simplify the user interaction, while providing powerful analytical tools that allow for a rapid and efficient response to threats.
- Flexible deployment options—A range of high-availability devices provide the flexible backbone for creating the secure and efficient intrusion protection system.

The current Cisco IDS sensing portfolio includes the following sensor appliances: IDS 4210, IDS 4235, IDS 4250, and IDS 4250-XL. Additionally, Cisco IDS delivers network protecting that is integrated into the Catalyst 6500 switch with the Intrusion Detection System Module (IDSM-2).

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco IDS Network Sensors	• Cisco network IDS appliances are network-based, real-time intrusion detection systems capable of monitoring an entire enterprise network
	• Performance requirements from 45 Mbps to 1 Gbps
	• The Cisco IDS Module enables customers to perform both security monitoring and switching functions within the same chassis
	• A robust, 24 hour x 7 day-a-week monitoring and response system with the latest attack detection capabilities
	• A distributed intrusion detection system capable of directing and forwarding alarms between local, regional, and headquarters-based monitoring consoles
	• A scalable architecture to allow the deployment of large numbers of sensors in order to provide comprehensive security coverage in large network environments.
	• An intrusion detection system designed to integrate smoothly with existing network management tools and practices
	• Automated false alarm reduction capabilities
	• Integration of full featured IDS protection into the Cisco Catalyst 6500 chassis

Key Features

- High-Speed Performance including support for full line rate gigabit environments
- Easy Installation and Setup; Remote Configuration Capability
- Fault-Tolerant Communications
- Comprehensive Attack Database
- Custom User-Defined Signatures; Automatic Signature Updates
- Notification actions
- Ability to Monitor 802.1q (trunked) traffic
- Secure web-based embedded device management and event monitoring
- Comprehensive IDS Anti-Evasion Techniques
- Cisco IOS-like CLI for full featured IDS management capabilities

Competitive Products

- Internet Security Systems (ISS): RealSecure
- Symantec: Recourse Manhunt & ManTrap/NetProwler
- Enterasys: Dragon IDS
- Intrusion.com: SecureNet
- Snort: IDS
- Tipping Point
- nCircle
- Network Flight Recorder, Inc.: NFR

Specifications

Feature	IDS-4210	IDS-4235	IDS-4250	IDS-4250-XL	IDS Module (IDSM-2)
Performance	45 Mbps	200 Mbps	500 Mbps	1000 Mbps	600 Mbps
Processor	566 MHz	1.26 GHz	Dual 1.26 GHz	Dual 1.26 GHz. Includes customized HW acceleration	Custom Hardware
RAM	256 MB	1 GB	2 GB	2 GB	
Network Interface Card	Autosensing 10/100 Base-T Ethernet	Autosensing 10/100/1000 Base-T Ethernet	Autosensing 10/100/1000BASE-TX with optional 1000-Base SX (fiber)	Dual 1000BASE-SX interface with MTRJ	PCI
Command & Control Interface	Autosensing 10/100 Base-T Ethernet	Autosensing 10/100/1000Base-TX	Autosensing 10/100/1000Base-TX	Autosensing 10/100/1000Base-TX	PCI

Selected Part Numbers and Ordering Information[1]

Cisco IDS Network Appliance Sensor

IDS-4210-K9	4210 Sensor (Chassis, s/w, two 10/100 ports, up to 45Mbps)
IDS-4235-K9	Cisco IDS 4235 Sensor (chassis, software, SSH, 10/100/1000BASE-T with RJ-45 connector, up to 200 Mbps)
IDS-4250-K9	Cisco IDS 4250 Sensor (chassis, software, SSH, 10/100/1000BASE-T with RJ-45 connector, upto 500 Mbps)
IDS-4250-XL-K9	Cisco IDS 4250-XL Sensor (chassis, software, SSH, hardware accelerator with dual 1000BASE-SX and MTRJ connectors)

Cisco IDS Switch Sensor Options

WS-SVC-IDS2-BUN-K9	Intrusion Detection System Module for Catalyst 6K Switch (IDSM-2)

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

Note   **Export Considerations:** The Cisco IDS 4210, Cisco IDS 4235, Cisco IDS 4250, Cisco IDS 4250-XL and Cisco IDSM-2 are subject to export controls. Please refer to the export compliance Web site at *http://www.cisco.com/wwl/export/crypto* for guidance. For specific export questions, please contact *export@cisco.com*.

For More Information
See the Cisco IDS Web site: *http://www.cisco.com/go/ids*

Cisco Security Agent

The next-generation Cisco Security Agent network security software provides threat protection for server and desktop computing systems, also known as "endpoints." The Cisco Security Agent goes beyond conventional host and desktop security solutions by identifying and preventing malicious behavior before it can occur, thereby removing potential known and unknown ("Day Zero") security risks that threaten enterprise networks and applications. The Cisco Security Agent aggregates and extends multiple endpoint security functions by providing host intrusion prevention, distributed firewall, malicious mobile code protection, operating system integrity assurance, and audit log consolidation all within a single agent package.

The Cisco Security Agent analyzes behavior rather than relying on signature matching, its solution provides robust protection with reduced operational costs. Customers require robust endpoint security that prevents security attacks from affecting the network and critical applications.

As a key component of the SAFE blueprint for secure e-business, the Cisco Security Agent provides unprecedented endpoint protection that enables businesses to participate in e-commerce securely and take advantage of the Internet economy.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Security Agent	• Host intrusion protection, distributed firewall, malicious mobile code protection, operating system hardening, file integrity and/or audit log consolidation. The Cisco Security Agent provides all of these features in one integrated package
	• Protection against both known and unknown attacks
	• Protection for servers and/or desktops/laptops
	• A solution that is scalable to protect thousands of servers and desktops for large enterprise deployments

Key Features
• Provides industry-leading protection for Unix and Windows servers
• Open, extensible architecture offers the capability to define and enforce security according to corporate policy

Competitive Products

- Internet Security Systems (ISS)
- Symantec: Intruder Alert
- Enterasys: Squire
- Entercept
- NFR (Centrax)

Specifications

Feature	Cisco Security Server Agent	Cisco Security Desktop Agent	Cisco Security Agent Manager
Platforms	Windows 2000 Server and Advanced Server (up to Service Pack 3)	Windows NT v4.0 Workstation (Service Pack 5 or later)	Microsoft Windows 2000 Server and Advanced Server (up to SP 2)
	Windows NT v4.0 Server and Enterprise Server (Service Pack 5 or later)	Windows 2000 Professional (up to Service Pack 3)	
	Solaris 8 SPARC architecture (64-bit kernel)	Windows XP Professional (up to Service 1)	

Selected Part Numbers and Ordering Information[1]

Cisco Security Agent Options

CSA-MANAGER-K9	Cisco Security Agent Manager (CD Kit)
CSA-SRVR-K9=	Cisco Security Server Agent (Win & Sol), 1 Agent
CSA-B10-SRVR-K9	Cisco Security Server Agent (Win & Sol), 10 Agent Bundle
CSA-B25-DTOP-K9	Cisco Security Desktop Agent, 25 Agent Bundle
CSA-B100-DTOP-K9	Cisco Security Desktop Agent, 100 Agent Bundle

Note   **Export Considerations:** The Cisco Security Agent is subject to export controls. Please refer to the export compliance Web site at *http://www.cisco.com/wwl/export/crypto* for guidance. For specific export questions, please contact *export@cisco.com*.

For More Information

See the Cisco Security Agent Web site: *http://www.cisco.com/go/securityagent*

Cisco 7100 Series

The Cisco 7100 series VPN router is a high-end, integrated VPN solution that melds high-speed, industry-leading routing with a comprehensive suite of advanced site-to-site VPN services. The Cisco 7100 series VPN router integrates key features of VPNs—tunneling, data encryption, security, firewall, advanced bandwidth management, and service-level validation—to deliver self-healing, self-defending, VPN platforms that cost-effectively accommodate remote-office and extranet connectivity using public data networks. The Cisco 7100 series VPN router offers specific hardware configurations optimized for VPN applications and network topologies. Optional WAN and embedded Fast Ethernet interfaces combined with high-performance routing and rich VPN services provide turnkey VPN routing solutions.
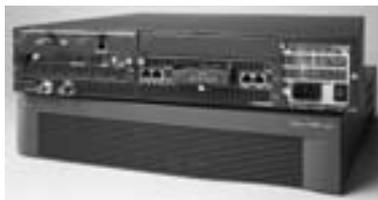
When to Sell

Sell This Product	When a Customer Needs These Features
Cisco 7120	• Entry-level Cisco 7100 Series Router designed for large branch or central site VPN with VPN services throughput of up to 50 Mbps
	• Designed primarily for site-to-site VPN deployments with incidental remote access requirements
Cisco 7140	• High-end site-to-site VPN platform for central site VPN applications with VPN services throughput up to 140 Mbps
	• Provides superior routing and VPN services performance for central site environments, as well as dual power supplies for increased solution reliability

Key Features

- Comprehensive suite of VPN services—tunneling, data encryption, security, firewall, quality of service, and service level validation—integrated with industry leading routing
- High performance RISC processor delivering high-speed, scalable VPN services and routing throughput and extensive memory for reliable, high-speed VPN services delivery
- Dual autosensing 10/100BASE-T Fast Ethernet ports for connectivity to the corporate LAN; the Cisco 7120 Series also has an integrated 4-port T1/E1 serial WAN interface
- Integrated Services Module (ISM) is included for support up to 2000 simultaneous tunneling sessions with 90 Mbps encryption performance and Windows 95/98/NT4.0 and Windows 2000 compatibility for remote access; an optional Integrated Services Adapter (ISA) may be installed in the Cisco 7140 to provide dual encryption acceleration performance up to 3000 tunnels and 140 Mbps 3DES encryption throughput

Competitive Products

- Check Point: VPN-1 Appliance
- Nortel: Contivity 4500
- Nokia: IP440

Specifications

Feature	Cisco 7120	Cisco 7140
Embedded Dual 10/100BASE-T Fast Ethernet Interfaces	Autosensing, RJ-45	Autosensing, RJ-45
WAN Physical Interfaces	EIA/TIA-232, EIA/TIA-449, X.21, V.35, EIA-530	None
WAN/LAN Interface Expansion Slot	1 slot	1 slot
Supported Network and Services Port Adapters	Gigabit Ethernet 1000BASE-SX and 1000BASE-LX/LH	Same as Cisco 7120
	Fast Ethernet 100BASE-TX and 100BASE-FX	
	Fast Ethernet/ISL TX and ISL FX	
	Ethernet 10BASE-T and 10BASE-FL	
	Dedicated Token Ring	
	Multichannel T1 and E1	
	ATM	
	Synchronous Serial	
	HSSI	
	ISDN BRI	
	Packet over SONET OS3/STM1	
	Integrated Services Adapter (ISA)	
Service Module Slot	1 slot	1 slot
Included Service Modules	Integrated Services Module (ISM)	Integrated Services Module (ISM)
Console and Auxiliary Ports	1 of each, RJ-45 interface	1 of each, RJ-45 interface
SDRAM	64 MB packet	64 MB packet
	128 MB system (expandable to 256 MB)	128 MB system (expandable to 256 MB)
Flash Memory	48 MB	48 MB
PCMCIA Slots for Flash Memory	2	2
Power Supply	Single AC	Dual AC
Dimensions (HxWxD)	3.5 in. x 17.5 in. x 18.25 in.	3.5 in. x 17.5 in. x 18.25 in.

Cisco IOS Software and Memory Requirements[1]

To run the Cisco IOS Software Feature Packs, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more than the recommended minimum.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD71-CL-12.1.6E=	IP IPSEC 56	12.1(6)E	16MB	64MB
CD71-CK2-12.1.6E=	IP IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-CHK2-12.1.6E=	IP/FW/IDS IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-AL-12.1.6E=	Enterprise IPSEC 56	12.1(6)E	16MB	64MB
CD71-AK2-12.1.6E=	Enterprise IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-AHK2-12.1.6E=	Enterprise/FW/IDS IPSEC 3DES	12.1(6)E	16MB	64MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information". For users with CCO access, search by IOS feature or release via the **Feature Navigator** at http://www.cisco.com/go/fn

Selected Part Numbers and Ordering Information[1]

Cisco 7100 Series Bundles—7120

CISCO7120-4T1/VPN	7120-4T1 VPN Bundle, ISM, 2xFE, AC PS, IPSEC DES
C7120-4T1/VPN/K9	7120-4T1 VPN Bundle, ISM, 2xFE, AC PS, IPSEC 3DES

Cisco 7100 Series Bundles—7140

CISCO7140-2FE/VPN	7140-2FE VPN Bundle, ISM, 2xFE, 2xAC PS, IPSEC DES
C7140-2FE/2VPN/K8	7140-2FE VPN Bundle, ISM & ISA, 2xFE, 2xAC PS, IPSEC DES
C7140-2FE/2VPN/K9	7140-2FE VPN Bundle, ISM & ISA, 2xFE, 2xAC PS, IPSEC 3DES
C7140-2FE/VPN/K9	7140-2FE VPN Bundle, ISM, 2xFE, 2xAC PS, IPSEC 3DES

Cisco 7100 Port Adapters

PA-FE-TX	1-port Fast Ethernet 100BaseTx Port Adapter
PA-FE-FX	1-port Fast Ethernet 100BaseFx Port Adapter
PA-2FE-TX	2-port Fast Ethernet 100BaseTx Port Adapter
PA-2FE-FX	2-port Fast Ethernet 100BaseFx Port Adapter
PA-2FEISL-TX	2-port Token Ring ISL 100BaseTx Port Adapter
PA-2FEISL-FX	2-port Token Ring ISL 100BaseFx Port Adapter
PA-4E	4-port Ethernet 10BaseT Port Adapter
PA-8E	8-port Ethernet 10BaseT Port Adapter
PA-5EFL	5-port Ethernet 10BaseFL Port Adapter
PA-4T+	4-port Serial Port Adapter, Enhanced
PA-8T-V35	8-port Serial, V.35 Port Adapter
PA-8T-232	8-port Serial, 232 Port Adapter
PA-8T-X21	8-port Serial, X.21 Port Adapter
PA-4R-DTR	4-port Dedicated Token Ring, 4/16Mbps, HDX/FDX Port Adapter
PA-GE	Gigabit Ethernet Port Adapter
PA-H	1-port HSSI Port Adapter
PA-2H	2-port HSSI Port Adapter
PA-A3-T3	1-port ATM Enhanced DS3 Port Adapter
PA-A3-E3	1-port ATM Enhanced E3 Port Adapter
PA-A3-OC3MM	1-port ATM Enhanced OC3c/STM1 Multimode Port Adapter
PA-A3-OC3SMI	1-port ATM Enhanced OC3c/STM1 Single mode (IR) Port Adapter
PA-A3-OC3SML	1-port ATM Enhanced OC3c/STM1 Single mode (LR) Port Adapter
PA-4E1G/75	4-port E1 G.703 Serial Port Adapter (75ohm/Unbalanced)
PA-4E1G/120	4-port E1 G.703 Serial Port Adapter (120ohm/Balanced)
PA-E3	1-port E3 Serial Port Adapter with E3 DSU
PA-2E3	2-port E3 Serial Port Adapter with E3 DSUs
PA-T3	1-port T3 Serial Port Adapter with T3 DSUs
PA-2T3	2-port T3 Serial Port Adapter with T3 DSUs
PA-MC-2T1	2-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-2E1/120	2-port multichannel E1 port adapter with G.703 120ohm interf
PA-MC-4T1	4-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-8T1	8-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-8E1/120	8-port multichannel E1 port adapter with G.703 120ohm interf
PA-POS-OC3MM	1-port Packet/SONET OC3c/STM1 Multimode Port Adapter
PA-POS-OC3SMI	1-port Packet/SONET OC3c/STM1 Single mode (IR) Port Adapter
PA-POS-OC3SML	1-port Packet/SONET OC3c/STM1 Single mode (LR) Port Adapter
SM-ISM	Integrated Services Module for IPSec & MPPE encryption
SA-ISA	Integrated Services Adapter for IPSec or MPPE encryption

PA-4B-U	4-port BRI Port Adapter, U Interface
PA-8B-S/T	8-port BRI Port Adapter, S/T Interface

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco 7100 series Web site: *http://www.cisco.com/go/7100*

Cisco Secure Access Control Server for Windows

Cisco Secure ACS is a highly scalable, high-performance access control server that operates as a centralized Remote Access Dial-In User Service (RADIUS) or Terminal Access Controller Access Control System (TACACS+) server system. Cisco Secure ACS controls the authentication, authorization, and accounting (AAA) of users and administrators accessing corporate resources through the network. Cisco Secure ACS greatly reduces the administrative and management burden involved in scaling user and network administrative access to your network. Cisco Secure ACS centralizes the administration of user access controls globally to ensure enforcement of assigned policies.

ACS 3.1 provides support for the latest security architecture for Wireless authentication. It also includes SSL server authentication and encryption for administrative login.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Secure Access Control Server (ACS) for Windows	• Centrally manage who can log in to the network from wired or wireless connections
	• Privileges each user has in the network
	• Accounting information recorded in terms of security audits or account billing
	• What access and command controls are enabled for each configuration administrator
	• Virtual VSA for Aironet rekey
	• Secure server authentication and encryption
	• Simplified firewall access and control through Dynamic Port Assignment
	• Same User AAA services

Key Features

• PEAP support—Provides a new, secure client-server authentication method for wireless networks; Provides new support for one-time token authentication, password change/aging and powerful extensibility of end-user databases such as LDAP, NDS, and ODBC.

• SSL support for administrative access—Administrative access via the Web GUI can be secured with SSL, both certificate-based and encrypted tunnel support

• CHPASS improvements—Allows privileged users control over whether network administrators can change passwords during TACACS+ AAA client-hosted Telnet sessions

• Improved IP pool addressing mechanism—Includes a new, efficient algorithm for allocating IP addresses

• Device search mechanism—Allows users to search for a configured AAA device based on the device name, IP address, type (RADIUS or TACACS+), or device group

• Improved PKI support—Provides a more secure PKI authentication scheme by verifying the user's certificate authority stored in the remote LDAP directory against the one provided by the client

- EAP proxy enhancements—Extends EAP (LEAP, PEAP, or EAP-transport layer security [TLS]) proxy to other RADIUS or external databases using standard RADIUS proxy
- Integration with Cisco's security management software applications—Provides a consolidated administrative TACACS+ control framework for many Cisco security management tools such as CiscoWorks VPN/Security Management Solution (VMS)

Competitive Products

- Funk: Steel Belted RADIUS
- Lucent/Avaya: Security Management Server (LSMS)
- Nortel: Preside RADIUS Server (OEM of Funk product)

Specifications

Feature	Cisco Secure Access Control Server (ACS) for Windows
Platform	Windows 2000 Server must meet the following minimum hardware requirements:Pentium processor, 550 MHz or faster; Minimum resolution of 256 colors at 800 x 600 lines
RAM	256 MB required; more if you are running your database on the same machine
Disk Drive	250 MB of disk space; more if you are running yoru database on the same machine
Software Requirements[1]	Cisco Secure ACS Server uses an English-language version of Windows 2000 Server. For specific types of service packs supported, refer to online documentation.The Windows server that runs Cisco Secure ACS must have a compatible browser installed. Cisco Secure ACS was tested with English-language versions of the following browsers on Microsoft Windows operating systems: Microsoft Internet Explorer 5.5 and 6.0, Netscape Communicator 6.2
Platform Requirements	Cisco IOS Software 11.2 or higher on Cisco Routing Solutions

1. Beginning with Cisco Secure ACS Version 3.1, Cisco Secure ACS on a Windows NT 4.0 server is no longer supported. For information about upgrading the operating system of a server running Cisco Secure ACS, see the Installation Guide for Cisco Secure ACS for Windows Server, Version 3.1

Selected Part Numbers and Ordering Information[1]

Cisco Secure Access Control Server (ACS) for Windows

CSACS-3.1-WIN-K9	Cisco Secure ACS 3.1 for Windows
CSACS-3.1-WINUP-K9	Upgrade to CSACS 3.1 for Windows from ACS versions 1.x, 2.x, 3.0 and Cisco Secure ACS for Unix version 2.x

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco Secure ACS for Windows Web site: *http://www.cisco.com/go/acs*

Cisco Secure User Registration Tool

Cisco Secure URT is a virtual LAN (VLAN) assignment service that provides LAN security by actively identifying and authenticating users and then associating them only to the specific network services and resources they need through dynamic VLAN assignments to Cisco Catalyst® Switch networks. URT v2.5 introduces many innovative features, including a Web-based logon from Windows, Macintosh, and Linux clients, RADIUS and Lightweight Directory Access Protocol (LDAP) authentication, and a secure link between the client and the VLAN Policy Server (VPS). It also includes a security feature based on the Media Access Control (MAC) address that prevents users from accessing the network if they are not using authorized machines. Web based LAN authentication allows for user mobility within the LAN environment.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Secure User Registration Tool (URT)	• Web-based LAN authentication for Windows, Macintosh, and Linux client platforms—ideal for mobile users within the LAN environment • Extended security to protect user access to the logon VLAN from unregistered PCs through MAC-based security option • RADIUS authentication and accounting support • Multiple user access per port

Key Features

- Web Client Logon Interface—Supports customizable Web-based authentication for Windows, Macintosh, and Linux client platforms
- MAC-Based Security Option—Provides extended security to protect user access to the logon VLAN from unregistered PCs
- RADIUS Authentication and Accounting Support—RADIUS authentication is offered for Web logon
- Secure Link Between Cisco Secure URT Client and VPS Server—Security authentication and data encryption have been added to URT v2.5 to enable a more secure connection from the user
- LDAP Support (Active Directory and NDS directories)—Cisco Secure URT v2.5 supports Windows' Active Directory and Novell's NDS LDAP servers
- Multiple Users Per Port—Previous versions of Cisco Secure URT support only a single user logon on a single port
- Display of Windows NT Groups—The URT Administrator interface is enhanced to display the users belonging to a Windows NT group
- MAC Address Events History—With URT v2.5 MAC-address-based logon/logoff events are added as an option and reported to the history events tool

Specifications

Feature	Cisco Secure User Registration Tool (URT)
Server Requirements	Windows 2000 (SP2) server, professional, and Windows XP Professional-Min H/W (Pentium III, 512MB DRAM, 65 MB of disk space)
Browser for Web Login	Netscape version 4.79 and 6.2; IE version 5.5 (SP2) or 6.0
Client Software Requirements	Windows 98 (2ndE), Windows NT4 Workstation/Server (SP6A), Windows 2000 (SP2) Professional/server, Windows XP Professional, Windows XP Home (Web Client Only), Mac OS 10.1 (Web client only), Linux Redhat/ SuSE/ Mandrake/ VA (Web Client only)-Min H/W for Web client (Pentium II, 256MB DRAM, 65 MB of disk space), Min H/W for traditional client (Pentium II, 64MB DRAM, 1MB of disk space)
Supported Cisco Products (latest tested version)	1900 series (1912, 1924), v9.00.05; C2800 series (2822, 2828), v9.00.05; C2900XL series (2908XL, 2916XL, 2912XL, 2912LRE-XL, 2924XL, 2924LRE-XL), v12.0(5)WC3b; C2948GL3 series (2948GL3, 4232) v12.0(18)W5(22b); C2950 series, v12.1.6.EA2c; C3500XL series (3508XL, 3512XL, 3524XL, 3548XL, 3550XL), v12.0(5)WC3b; C3550 series, v12.1.8.EA1c; C4000 series (4003, 4006, 4912g), v7.1(2); C5000 series (2900, 2926, 2948, 5000, 5002, 5500, 5505, 5509), v6.3(5); C6000 series (6006, 6009, 6506, 6509, 6513), v7.1(3)

Selected Part Numbers and Ordering Information[1]

Cisco Secure User Registration Tool (URT)

URT-2.5-K9	Starter Kit: includes one (1) User Registration Tool 2.5 Software license, and one (1) Cisco 1101 VLAN Policy Server (VPS) appliance
URT-2.5-UP	Software only; upgrades customers from URT 2.X to 2.5; includes upgrade for both URT Admin Server and Cisco 1100 VPS appliance
URT-1101-HW-K9	Hardware Only: Cisco 1101 VPS appliance; additional appliance needed for backup, use in distributed deployments, or deployments requiring Web logon capabilities

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco Secure User Registration Tool Web site: *http://www.cisco.com/go/urt*

Content Networking Products

Content Networking Products at a Glance

Product	Features	Page
Cisco Content Engine 500 Series	Content services edge delivery platform for Enterprise networks • Functions as edge node device in an Application and Content Networking (ACN) system • Responsible for delivery of cached or distributed content to the end-user • Enables customers to rapidly deliver strategic applications to branch personnel including web application and content acceleration, content filtering and business video • Lays the foundation for advanced services such as e-learning and point of sale video delivery.	6-2
Cisco Content Engine 7300 Series	Content services platform for Enterprise data center and Service Provider networks • Offers premium hosting services • Caching capabilities optimize Web site performance and WAN bandwidth utilization • Offers transparent and Internet proxy caching, Content Filtering and ECDN capabilities in a single platform • Accelerates both HTTP and streaming media file formats	6-2
Content Engine Network Modules	Content services edge delivery network module for 2600, 3600, 3700 branch routers • Functions as edge node device in an Application and Content Networking (ACN) system • Enables delivery of new applications and services via a Cisco branch router with no performance degradation of core routing services • Allows rapid delivery of strategic applications to branch personnel including web application and content acceleration, content filtering and business video	6-2
Cisco 11500 Series Content Services Switches	Next-generation intelligent platform for Web site and e-commerce optimization • Provides an intelligent, distributed architecture to scale for today's e-business infrastructure • Offers Adaptive Session Redundancy (ASR)—a new industry standard in stateful failover • Delivers the greatest flexibility of any content switch in its class for customizing combinations of ports, performance, and services	6-4
Cisco LocalDirector	Integrated hardware and software solution for load balancing across servers • Allows many servers to appear as one server for high availability and easy scalability • Secure real-time embedded operating system	6-6
Cisco Content Distribution Manager 4600 Series	Content networking policy and management device • Central control over acquisition and distribution of content, including live and video on demand video, over IP networks • Intuitive web-based GUI provides integrated, easy-to-use management over caching and content delivery functions such as multicast replication, intelligent cache bypass and bandwidth management • Roles based access control securely enables multiple administrators and content publishers across the organization	6-7
Cisco Content Router 4430	Integrated global load balancing solution for content delivery networks • Solves distributed server site selection problems • Uses HTTP (CR-4430) to redirect a client to the best site on the Internet based on network delay • Transparently redirection redirects end user requests to the end user and works with any IP application • Extremely fast site-selection algorithm is optimized for high performance Web-style transactions	6-9
Content Switching Module (CSM) for the Catalyst 6500 Series Switches	Line card for Catalyst 6500 • Balances client traffic across multiple servers within server farms • URL and Cookie-based load balancing • High-performance—200,000 new Layer 4 TCP connection setups per second	6-11
Cisco SSL Module for Catalyst 6500	• Offloads SSL encryption and decryption • Scalable performance • Stickyness	6-11

Product	Features	Page
Cisco 11000 Series Secure Content Accelerator (SCA 11000)	Appliance-based SSL solution • Offloads SSL encryption/decryption from Web servers • Supports 200 new SSL connections and 900 sustained SSL sessions per second • Interoperates with the CSS 11000 for intelligent load balancing of SSL traffic	6-12
Cisco CTE-1400 Series Content Transformation Engine	Transforms Web and XML-based applications for display and interaction on IP Telephones, PDAs, WAP Phones and other non PC devices • Supports a broad range of end devices • Transforms existing applications • Design Studio GUI Application	6-13
Cisco DistributedDirector	Global Internet service scaling solution • Solves distributed server site selection problems. Enables a set of distributed servers to be seen as a single virtual server • Uses DNS to redirect a client to the best site on the Internet based on a variety of options • Configurable as authoritative Domain Name Services (DNS) caching name server and/or HTTP Session Redirector on a per-domain basis	6-14
Cisco GSS 4480 Global Site Selector	Global site selection for distributed data centers • Delivers global load balancing for multiple data centers • Offloads Domain Named System (DNS) servers by doing DNS resolution • Scales to support hundreds of data centers or server load balancers (SLBs)	6-15

Content Networking Overview

Cisco Content Networking solutions are designed to optimize the delivery of content to end users. To accomplish this, Cisco offers solutions for both data center and edge delivery with industry-leading products in both categories.

In the data center, Cisco Content Switching, or L4-7 Switching, solutions optimize any size network to dynamically enable faster responses to Web requests and decrease network bandwidth congestion. Content switching, or intelligent load balancing, insures high levels of content availability and security, and leverages investment in Cisco IP infrastructure.

Cisco's Application and Content Networking (ACN) System allows enterprises to accelerate mission critical web applications such as Siebel and SAP, block viruses and inappropriate web sites and deliver business video, while laying the foundation for advanced services such as e-learning and point of sale video delivery. For Service Providers, the Cisco ACN System represents a highly profitable, new revenue opportunity by enhancing the customer/user Web experience and significantly accelerating the delivery of rich Web applications, content and streaming media.

Cisco Content Engines

Within Cisco's content-networking solutions portfolio, the Cisco Application and Content Networking System (ACNS) Software enables a variety of services that optimize delivery of Web applications and content from the network edge to ensure enhanced speed, availability, and performance for users. ACNS Software combines the technologies of transparent caching and enterprise content-delivery network (ECDN) for accelerated delivery of Web objects, files, and streaming media from a single intelligent edge appliance, the Cisco Content Engine (CE).

The Cisco ECDN solution provides a platform that delivers immediate benefits from entry-level applications such as content and business application acceleration and URL filtering, while laying the foundation for advanced services such as business video and e-learning.

When to Sell

Sell This Product	When a Customer Needs These Features
Content Engine 7325	• Ultra high-end content delivery capabilities for advanced applications such as streaming media, e-learning, and corporate communications
Content Engine 7305	• High-end content delivery capabilities for advanced applications such as streaming media, e-learning, and corporate communications
Content Engine 565	• Mid-range branch office and datacenter cache ideal for transparent caching, URL filtering, and edge content delivery
Content Engine 510	• Entry-level transparent caching and URL filtering capabilities along with limited content delivery
Content Engine Network Modules	• Router-integrated caching and content delivery network modules for 2600, 3600, 3700 branch access routers

Key Features

- Caching—Provides accelerated content delivery, WAN bandwidth cost savings, and protection vs. uncontrollable bottlenecks
- Content Filtering—Enables administrators to block, monitor, and report on end users' access to non-business and objectionable content (uses N2H2 Internet Filtering Protocol, Secure Computing SmartFilter, or Websense Enterprise Software)
- Content Delivery—Use in conjunction with Cisco Content Distribution Manager to enable rich media e-learning and corporate communications; deliver new premium hosting services such as on-demand content delivery and streaming media; and, to scale Web sites

Competitive Products

- Blue Coat: Blue Coat Server Accelerator 700 and 7000 Series and Blue Coat Systems Director
- Volera: Excelerator, Media Excelerator, Secure Excelerator
- Network Appliance: NetCache C1200/2100/6100 Series Appliances and Content Director

Specifications

Feature	Cisco Content Engine 7325	Cisco Content Engine 7305	Cisco Content Engine 565	Cisco Content Engine 510	Cisco CE Network Module	Cisco SA-7 and SA-14
Supported Interfaces	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	One internal 10/100-Mbps Ethernet to router backplane; one external 10/100-Mbps Ethernet	
SDRAM	4 GB	2 GB	1 GB	512 MB	Up to 512 MB	
Max Storage	936 GB	936 GB	396 GB	80 GB	396 GB	252 or 540 GB
	Ultra2 SCSI	Ultra2 SCSI	Ultra2 SCSI	IDE	Ultra2 SCSI	Ultra2 SCSI
Maximum Internal Storage	432 GB	432 GB	72 GB	80 GB	20 GB or 40 GB	252 or 540 GB
	Ultra2 SCSI	Ultra2 SCSI	Ultra2 SCSCO	IDE	IDE	Ultra2 SCSI
Flash Memory	128 MB	128 MB	128 MB	128 MB	16 MB internal; optional Compact Flash Memory	
Storage Array Support	Yes	Yes	Yes	No	Yes	
Rack Units	2 RU	2 RU	1 RU	1 RU	N/A	3 RU
Dimensions (HxWXD)	3.36 x 17.46 x 27.48 in	3.36 x 17.46 x 27.48 in.	1.72 x 17.3 x 16.75 in.	1.72 x 17.3 x 16.75 in.	One slot in 2600/3600/3700 chassis	5.0 x 17.5 x 20.4 in
Weight	62 lb.	62 lb.	28 lb.	28 lb.	1.5 lb.	76 lb.
Power	Hot-swappable redundant AC (DC availabled mid-2003)	Hot-swappable redundant AC (DC availabled mid-2003)	200W AC	200W AC	From 2600/3600/3700 chassis	AC (DC available mid-2003)

Selected Part Numbers and Ordering Information[1]

Cisco Content Engine 7300 Series Hardware

CE-7325-K9	Content Engine 7325 AC Power, ACNSsoftware
CE-7305-K9	Content Engine 7305 AC Power, ACNS software. Also runs as CDM or CR

Cisco Content Engine 500 Series Hardware

CE-565-K9	Cisco Content Engine 565, AC Power, ACNS software. Also runs as CDM or CR
CE-510-K9	Cisco Content Engine 510 AC Power, ACNSsoftware

Cisco Content Engine Network Module Hardware

NM-CE-BP-20G-K9=	Content Engine Network Module, basic performance, 20-GB IDE hard disk
NM-CE-BP-40G-K9=	Content Engine Network Module, basic performance, 40-GB IDE hard disk
NM-CE-BP-SCSI-K9(=	Content Engine Network Module, basic performance, SCSI controller (requires external SCSI disk array such as the Cisco SA-6)

1. This is only a small subset of all parts available via URL listed under "For More Information."

For More Information

See the Cisco Content Engine Web sites: *http://www.cisco.com/go/ce500* and *http://www.cisco.com/go/ce7300*

Cisco CSS 11500 Series Content Services Switches

The Cisco CSS 11500 Series Content Services Switch is suitable for both enterprises and service providers seeking to reduce data center costs, boost e-business application performance, offer enhanced services, ensure online transaction integrity, and provide the best possible online experience for customers, business partners, and internal workers.

The Cisco CSS 11500 is available in three models—the standalone Cisco CSS 11501, the three-slot Cisco CSS 11503 and the six-slot Cisco CSS 11506. Both the CSS 11503 and CSS 11506 systems take advantage of the same high-performance, modular architecture and use the same set of I/O, Secure Sockets Layer (SSL), and session accelerator modules. Also, all three systems operate with the same WebNS software, enabling the Cisco CSS 11501, 11503 and 11506 to offer industry-leading content switching functionality within three compact, hardware platforms.

When to Sell

Sell This Product	When a Customer Needs These Features
CSS 11501	• Standalone, fixed-configuration switching platform with up to 8 Fast Ethernet ports and 1 optional Gigabit Ethernet port • Cost-effective server, cache, and firewall load balancing • Complex Web applications requiring high-level URL and cookie switching
CSS 11503	• Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports • Cost-effective server, cache, and firewall load balancing • Integrated SSL capabilities for secure transactions • Complex Web applications requiring high-level URL and cookie switching
CSS 11506	• Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports • Cost-effective server, cache, and firewall load balancing • Integrated SSL capabilities for secure transactions • Complex Web applications requiring high-level URL and cookie switching

Key Features

- Introduces an intelligent, distributed architecture to meet the real-world scaling requirements of today's e-business infrastructure
- Improves site availability and transaction integrity by introducing Adaptive Session Redundancy (ASR)—a new industry standard in stateful failover
- Delivers the greatest flexibility of any content switch in its class for customizing combinations of ports, performance, and services
- Scales secured transaction performance through support of an integrated, high-capacity Secure Sockets Layer (SSL) module (WebNS 5.20)
- Protects investment by enabling upgrades of performance, ports, and services through modularity

Competitive Products

- Alteon/Nortel: ACEdirector and 700 Series
- F5 Networks: Big/IP and LAN switch Partners
- Foundry Networks: ServerIron
- Radware: Web Server Director (WSD)
- Resonate: Central Dispatch and Global Dispatch

Specifications

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
Modular Slots	N/A	3	6
Base Configuration	Switch Control with 8 10/100 Ethernet; 1 GBIC port	Switch Control Module 2 Gigabit Ethernet (GBIC) ports	Switch Control Module 2 Gigabit Ethernet (GBIC) ports
Max GB Ethernet Ports	1	6	12
Max 10/100 Ethernet ports	8	32	80
2-port GB Ethernet I/O Module		Max: 2	Max: 5
16-port GB Ethernet I/O Module		Max: 2	Max: 5
8-port GB Ethernet I/O Module		Max: 2	Max: 5
SSL Module		Max: 2	Max: 5
Session Accelerator modules		Max: 2	Max: 5
Redundancy features	Active-active Layer 5 Adaptive session redundancy Virtual IP Address (VIP) redundancy	Active-active Layer 5 Adaptive Session Redundancy VIP redundancy	Active-active Layer 5 Adaptive Session Redundancy VIP redundancy Active-standby SCM Redundant switch fabric module Redundant power supplies
Height	1/75 in. (1 rack unit)	3.5″ (2 rack units)	8.75″ (5 rack units)
Bandwidth	Aggregate 6 Gbps	Aggregate 20 Gbps	Aggregate 40 Gbps
Storage	512 MB hard disk or 256 MB Flash disk	512-MB hard disk or 256-MB Flash memory disk	512-MB hard disk or 256-MB Flash memory disk
Power	Integrated AC supply	Integrated AC or DC	Up to 3 AC or 3 DC

Selected Part Numbers and Ordering Information[1]

Cisco CSS 11500 Series Content Services Switches

CSS11506-2AC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with 2 Gigabit Ethernet ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module: 8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module: 16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module: 2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL	Cisco CSS 11500 SSL Module
CSS11501	Cisco CSS 11501 Content Services Switch-8 Fast Ethernet, hard disk, AC

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the CSS 11500 series Web site: *http://www.cisco.com/go/11500*

Cisco LocalDirector

The Cisco Local Director Series offers a high-availability, integrated hardware and software solution that intelligently balances the load of user traffic across multiple TCP/IP application servers. Cisco Local Director tracks network sessions and server load conditions in real time, directing each session to the most appropriate server. All physical servers appear as one virtual server, requiring only a single IP address and a single URL for an entire server farm.

A key component of a content delivery network, Cisco Local Director accelerates content delivery by routing client requests to the best Web server at the Web site of origin. Cisco Local Director supports critical content routing protocols such as Dynamic Feedback Protocol (DFP) and the Boomerang Control Protocol (BCP), which ensure seamless content delivery network integration and reduced deployment costs. Layer 4-7 content load balancing guarantees that the correct client is routed to an optimized content location. The accelerated server load balancing (ASLB) feature works with the Cisco Catalyst 6000 and 6500 Series switches to accelerate scaling of TCP sessions and help to protect against Flash crowds—sudden traffic surges that can overwhelm a web site.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco LocalDirector	• Load balancing across multiple TCP/IP application servers
	• High availability Internet services such as e-commerce, Web content, and e-mail
	• High availability Intranet services for employees, customers, and suppliers

Key Features

- HTTP redirect sticky enables client-to-server persistence, regardless of SSL and shopping-cart configurations, to improve site availability
- Hot-standby and stateful failover mechanisms ensures high availability by eliminating all points of failure for the data center
- Transparent support for all common TCP/IP Internet services, including User Datagram Protocol (UDP), accommodates a wide range of applications and communications needs (Web, File Transfer Protocol [FTP], Telnet, Domain Name System [DNS], and Simple Mail Transfer Protocol [SMTP]) without special software configuration
- SSL and cookie sticky ensures completion of complex transactions in proxy server environments
- Client-assigned load balancing provides QoS mechanism by allowing traffic to be directed to servers based on source IP address
- High-performance hardware supports six Fast Ethernet (Cisco Local Director 417) or two Fast Ethernet plus two Gigabit Ethernet (Cisco Local Director 417G) interfaces
- Network Address Translation (NAT) allows unregistered IP addresses on servers without router assistance

- Simple setup in 10 commands offers simple setup for typical configurations, with little disruption to existing network configuration and no changes to network addresses
- Integrated security capability effectively protects server farms from unauthorized access by filtering based on client IP address and service

Competitive Products

• F5 Labs: Big IP	• Radware: Web Server Director
• Foundry Networks: ServerIron Switch	• Resonate, Inc.: Central Dispatch
• Nortel Networks/Alteon: Ace Director	

Specifications

Feature	LocalDirector 417	LocalDirector 417G
Supported Interfaces	Six 10/100 BASE-TX	Two 10/100BASE-TX plus two 1000BASE-SX interfaces
Other Interfaces	RJ-45 console interface; DB-15 redundant failover interface	RJ-45 console interface; DB-15 redundant failover interface
RAM	512 MB	512 MB
Flash	16 MB	16 MB
Performance	8000 virtual and real IP addresses	64,000 virtual and real IP addresses
	700,000 simultaneous TCP connections	1,000,000 simultaneous TCP connections
	80-Mbps throughput	400-Mbps throughput400
Dimensions (HxWXD)	1.72 x 17.5 x 14.13 in	1.72 x 17.5 x 14.13 in

Selected Part Numbers and Ordering Information[1]

Cisco LocalDirector
LDIR-417   Cisco Local Director 417
LDIR-417G   Cisco Local Director 417G

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

For More Information

See the LocalDirector Web site: *http://www.cisco.com/go/ld*

Cisco Content Distribution Manager 4600 Series

The Cisco Content Distribution Manager (CDM) configures network and device policy settings for edge node Content Engines (CE). Used to accelerate web content and save network bandwidth in a content networking architecture, the CDM can be easily integrated into existing network infrastructures. Deployed in an Enterprise or Service Provider Internet or extranet environment, the Cisco CDM and CEs provide transparent on-demand rich media streaming and static file delivery to standard PCs.

Cisco Enterprise Content Delivery Networks (ECDNs) allow service providers and enterprises to distribute rich media content closer to their target customers overcoming issues such as network bandwidth availability, distance or latency obstacles, origin server scalability, and congestion issues during peak usage periods. The ECDN solution enables content delivery services for web hosting, streaming, e-commerce, e-learning, corporate communications, and mission critical e-business applications.

When to Sell

Sell This Product	When a Customer Needs These Features
CDM 4630	• Low-cost early deployment, or small enterprise network trials, proof of concept, and pilot programs
CDM 4650	• Medium and large enterprise networks, supports up to 1000 Cisco Content Engines
CDM 4670	• Service provider deployment, supports thousands of Cisco Content Engines

Key Features

- Complete CDN solution with Cisco Content Router and Cisco Content Engines
- Central control over delivery of high-bandwidth content, live and video-on-demand over any IP network
- Easy-to-use management capabilities through a Web-based GUI; services include previewing and scheduling replication of media to edge devices, bandwidth and content management
- Automatically generates thumbnail reference images and sample Web pages for integration with corporate extranet, intranet, and Internet sites
- One URL per media file provides seamless integration into any Web site
- Integrates with standards for Web multimedia presentation, including HTML/DHTML, eXtensible Markup Language (XML) and SMIL
- Secure and fault-tolerant file transfer using Secure Socket Layer (SSL) encryption for secure media transfers
- Channel configuration for media distribution to any number of discrete audiences using "distribution lists"
- Host content for a variety of customers within a single CDN
- Ability to create multiple virtual CDNs addressing targeted media distribution
- Content registration in cache logs for billing capabilities

Competitive Products

- Cacheflow: Client and Server Accelerators
- Network Appliance: ContentDirector
- Inktomi: Traffic Server

Specifications

Feature	Content Distribution Manager 4630	Content Distribution Manager 4650	Content Distribution Manager 4670
Sampling of Rich Media File Formats	MPEG RealVideo Windows Media QuickTime HTML, GIF, JPEG Adobe Acrobat Macromedia Shockwave CAD/CAM MRI	Same as CDM 4630	N/A—file formats handled by the CEs
Supported Interfaces	Autosensing 10/100BASE-T	Autosensing 10/100BASE-T	Autosensing 10/100BASE-T
Recommended Network Size	Less than 100 CEs	Less than 1000 CEs	Less than 10,000 CEs
Processor Speed	600-MHz PIII	2x866 Xeon	2x866 Xeon
RAM	512 MB	1 GB	1 GB
Internal Storage	One 30 GB, 10K RPM, Ultra2 SCSI disk drive	140 GB RAID 5	36 GB[1]
Rack Units	1	7	7
Dimensions (HxWXD)	1.72 x 17.5 x 14.1 in.	12.25 x 17.5 x 28 in.	12.25 x 17.5 x 28 in.

1. Minimum storage required for DM service provider configurations

Selected Part Number and Ordering Information[1]

Cisco Content Distribution Manager 4600 Series Hardware

CDM-4630	Cisco Content Distribution Manager 4630
CDM-4650	Cisco Content Distribution Manager 4650
CDM-4670	Cisco Content Distribution Manager 4670

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

For More Information

See the Content Distribution and Management Web site:
http://www.cisco.com/go/cdm

Cisco Content Router 4430

The Cisco Content Router 4430 (CR 4430) is a compact, high-performance solution for enabling premium Web services over public or private networks. Featuring either Cisco Enterprise Content-Delivery Network (ECDN) or Content Router 1.1 Software, customers can transparently route user Web browsers to the optimal content engine for file delivery.

With its patented routing technology, the Cisco CR 4430 provides redundancy, scalability, and performance enhancements for network Web sites in either an enterprise or public service provider network. Using Hypertext Transfer Protocol (HTTP)-based re-direction, the Cisco CR 4430 can redirect users over the public network or behind the security of a corporate firewall, making it a vital component of the Cisco end-to-end Content Networking Solution.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Content Router 4430	• When a customer needs to support a Cisco Enterprise Content Delivery Network with HTTP redirection
	• Supports resiliency for ECDNs when used with a Cisco CSS 11500 content services switch
	• Up to five Cisco CR 4430s can be deployed in an ECDN network to provide greater network availability and performance

Key Features

- Uses HTTP to redirect a client to the best site on the Internet based on network delay
- Transparent redirection to the end user and works with any IP application
- Easy configuration through a Cisco IOS-style command-line interface
- Redundant configurations, multiple CRs can be deployed at the origin site to provide fail-over and load scaling

Specifications

Feature	Cisco Content Router CR4430
Network Interface Card	10/100BASE-TX
Processor	600- MHz PIII
RAM	1 GB
Internal Storage	18 GB
Rack Units	1
Dimensions (HxWXD)	1.72 x 17.50 x 14.13 in.
Weight	12.5 lbs.

Selected Part Number and Ordering Information

Cisco Content Routers

CR-4430   Content router that utilizes HTTP redirection for use with the ECDN product

For More Information

See the Cisco Content Router Web site: *http://www.cisco.com/go/cr*

Cisco Content Switching Module

The Cisco Content Switching Module (CSM) is a Catalyst 6500 line card that balances client traffic to farms of servers, firewalls, SSL devices, or VPN termination devices. The CSM provides a high-performance, cost-effective load balancing solution for enterprise and Internet Service Provider (ISP) networks. The CSM meets the demands of high-speed Content Delivery Networks, tracking network sessions and server load conditions in real time and directing each session to the most appropriate server. Fault tolerant CSM configurations maintain full state information and provide true hitless failover required for mission-critical functions.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Content Switching Module	• An integrated load balancing solution featuring Cisco's Catalyst 6500 • Load balancing for the highest traffic sights • Support for up to 1,000,000 concurrent TCP connections

Key Features

- Market-leading performance—Establishes up to 200,000 Layer 4 connections per second and provides high-speed content switching, while maintaining 1 million concurrent connections
- Outstanding price/performance value for large data centers and ISPs—Features a low connection cost and occupies a small footprint. The CSM slides into a slot in a new or existing Catalyst 6500 and enables all ports in the Catalyst 6500 for layer 4 through layer 7 content switching. Multiple CSMs can be installed in the same Catalyst 6500
- Uses the same Cisco IOS Command Line Interface (CLI) that is used to configure the Catalyst 6500 Switch

Competitive Products

• Alteon/Nortel: ACEdirector and 700 Series	• Foundry Networks: ServerIron
• Radware: Web Server Director (WSD)	• Resonate: Central Dispatch and Global Dispatch
• F5 Networks: Big/IP and LAN switch Partners	

Specifications

Feature	Cisco Content Switching Module (CSM)
Configuration Limits	256 total VLANs (client and server); 4000 virtual servers; 4000 server farms; 16,000 real servers; 4000 probes; 16,000 access control list (ACL0 items
Connections	1,000,000 concurrent TCP connections
	200,000 connection setups per second-Layer 4
Throughput	4 Gigabits-per-second total combined (client-to-server and server-to-client) throughput
Catalyst Switch Platform Requirements	Cisco IOS Software only—Catalyst Operating System is not supported
	Functions as a bus enabled line card—not fabric enabled
	Multilayer switch feature card-MSFC or MSFC2

Cisco Content Switching Module

Selected Part Numbers and Ordering Information[1]

Cisco Content Switching Module

WS-X6066-SLB-APC   Catalyst 6500 Content Switching Module

For More Information

See the Catalyst 6500 Series Web site at: *http://www.cisco.com/go/cat6500*

Cisco SSL Module for Catalyst 6500

The SSL Services Module is an integrated service module for the Cisco Catalyst® 6500 Series that offloads the processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL) and increases the number of secure connections supported by a Web site.

When to Sell

Sell This Product	When a Customer Needs These Features
SSL Module for Catalyst 6500	• An integrated SSL encryption/decryption solution featuring Cisco's Catalyst 6500 • Scalable SSL processing: 2,500 connection setups/second per module-10,000 per Chassis fully-populated with SSL modules

Key Features

- Server SSL offload—performs all SSL-related tasks, allowing servers to handle high-speed clear text traffic
- Scalable performance—provides a simple means of addressing increased performance requirements by installing additional SSL modules in a Catalyst 6500 switch
- Stickyness—maintains persistence even when clients request new session IDs, in Integrated Mode with Content Switching Module (CSM)
- Certificate optimization—provides cost savings by requiring only a single certificate copy vs. a copy for each server subject to customer and certificate authority agreement

Competitive Products

• F5 Networks eCommerce 540	• Nortel/Alteon iSD 410 SSL Accelerator

Specifications

Feature	Cisco SSL Module for Catalyst 6500
System Capacity and Performance	2500 connection setups/sec per module-10K per chassis; 60K concurrent client connections-240K per chassis; 300 Mbps bulk rate encryption-1.2 Gbps per chassis; 256 key pairs; 256 key certificates; Up to 2K key sizes-256 proxy servers
Scalability	Up to four SSL modules in the same Catalyst 6500
Integration with Server Load Balancing	Tightly integrated in the Cisco Catalyst 6500 Switch with the CSM

Selected Part Numbers and Ordering Information[1]

Cisco SSL Module for Catalyst 6500

WS-SVC-SSL-1-K9=   Cisco SSL Module for Catalyst 6500

For More Information

See the Catalyst 6500 Series Web site at: *http://www.cisco.com/go/cat6500*

Cisco 11000 Series Secure Content Accelerator (SCA 11000)

The Cisco 11000 Series Secure Content Accelerator (SCA 11000) is an appliance-based solution that increases the number of secure connections supported by a Web site by offloading the processor-intensive tasks related to securing traffic with SSL. Available in two versions, the SCA 11000 simplifies security management and allows Web servers to process more requests for content and handle more e-transactions.

Key Features

- Offloads all encryption, decryption, and secure process for a Web site, freeing Web servers to perform essential Web tasks and eliminating the need for SSL server software
- Boosts e-commerce site performance up to 50 times through dedicated SSL processing hardware—supports 200 or 800 new SSL connections per second
- Centralizes and manages the widest range of digital certificates to ensure complete independence from the Web server
- Provides linear scalability and fault tolerance—interoperates with the Cisco 11500 series Content Services Switches (CSS 11500) for intelligent load balancing of SSL traffic
- Works with any Web server platform to provide SSL support for any Web site
- Installs quickly and easily with very low maintenance—no special software required on Web servers or Cisco 11500 series switches

Specifications

Cisco SCA 11000	SCA2	SCA
Number of Ports	Two 10/100BaseTX Ports	Two 10/100Base TX Ports
Port Description	Network Ports: Two 10/100Base TX; Console Port: DB9 Serial Port; Failover Port: DB9 Serial Port	Network Ports: Two 10/100Base TX; Console Port: DB9 Serial Port; Failover Port: DB9 Serial Port
Data Transfer Rates	Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex)Fast Ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex)	Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex) Fast Ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex)
Configuration Software OS Support	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2
Memory	64 MB RAM; 16 MB Flash ROM	64 MB RAM; 16 MB Flash ROM
Dimensions	8.875 x 1.75 x 19 in.	8.875 x 1.75 x 19 in.
Connection Rates	800	200
Concurrent Sessions	5,000	30,000

Selected Part Numbers and Ordering Information

Cisco SCA 11000

CSS-SCA-2FE-K9	CSS Secure Content Accelerator
CSS-SCA2-2FE-K9	CSS Secure Content Accelerator version 2

For More Information

See the Cisco SCA 11000 Web site: *http://www.cisco.com/go/sca11000*

Cisco CTE-1400 Series Content Transformation Engine

The Cisco CTE 1400 Series Content Transformation Engine provides customers with a high-performance, appliance-based solution that delivers real business applications and Internet content to a variety of devices including Wireless Application Protocol (WAP) phones, personal digital assistants (PDAs), Blackberry pagers, Cisco IP Phones and other non PC devices. Examples of applications that can be transformed include e-mail, CRM/SFA applications, intranets, maps, directions, and corporate directories as well as many vertical applications in healthcare, retail, finance, hospitality and education. The Content Transformation Engine (CTE) is a 1 Rack Unit appliance optimized to perform the task of converting HTML and XML applications to a format appropriate for devices with unique display requirements. In addition, the solution recognizes specific Web-enabled devices such as IP Phones, PDAs and mobile phones, and customizes the delivery of information to give users the right form of data, to suit their devices characteristics, capability as well as the usage model.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco CTE-1400 Series Content Transformation Engine	• Quickly and easily transform applications to extend them to a variety of new devices. • Low total cost of ownership (TCO) • Immediate results for a rapid return on investment • Self-contained appliance optimized for transformation

Key Features

- Self-contained appliance for content transformation; includes DesignStudio for defining transformation rules
- Seamlessly transforms content as it moves from server to the target device, leaving the server and underlying data unchanged; Reformats data into all major Markup Languages
- Supports Cisco's AVVID architecture, including transformation for Cisco IP telephony
- Low total cost of ownership

Specifications

Feature	Cisco CTE-1400 Series Content Transformation Engine
Rack Units	1
Dimensions (HxWxD)	1.70 x 16.7 x 22in.
Weight	23 lbs

Selected Part Numbers and Ordering Information[1]

Cisco CTE 1400 Series Content Transformation Engine

CTE-1450-K9	Content Transformation Engine Hardware
CTE-WAP=	WAP module for CTE 1400 Series
CTE-PALM=	Palm module for CTE 1400 Series
CTE-RIM=	RIM Blackberry module for CTE 1400 Series
CTE-HTML=	HTML module for CTE 1400 Series

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the CTE-1400 Series Web site at *http://www.cisco.com/go/cte*

Cisco DistributedDirector[1]

DistributedDirector provides dynamic, transparent, and scalable Internet traffic load distribution between multiple geographically-dispersed servers. DistributedDirector is a global Internet service-scaling solution that utilizes Cisco IOS software and leverages routing table information, delay characteristics, and other information to make "network intelligent" load distribution and site selection decisions.

DistributedDirector transparently redirects end-user service requests to the closest responsive server, which increases access performance and reduces transmission costs. Users need only a single subdomain name or URL-embedded hostname for accessing a distributed set of servers, thus providing the appearance of a single virtual server.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Distributed Director	• Load distribution across geographically/topologically dispersed TCP/IP servers
	• High availability for dispersed mission-critical applications
	• Data center redundancy and failover

Key Features

- Transparent distribution of all IP Services (TCP and UDP), including HTTP, FTP, Telnet, and Gopher; provides global scalability for all IP-based network services
- Improves access performance by redirecting to the topologically closest server
- Calculates client-to-server round-trip times in real time; redirects clients to server with lowest client-to-server link latency, maximizing end-to-end performance
- Redirects clients only to responsive servers, resulting in maximized availability
- Cisco IOS Software & standard command line interface for device configuration
- Transparently add and remove distributed servers, simplifying maintenance
- Supports multiple domains; cost-effective IP service scalability solution

Competitive Products

• Alteon Networks: ACEdirector and Web Switches with WebOS GLSB	• Resonate, Inc.: Global Dispatch
• F5 Labs: 3DNS	• RND Networks, Inc.: Web Server Director - Network Proximity (WSD-NP)
• Foundry Networks: ServerIron Switch with Internet IronWare	

For More Information

See the DistributedDirector Web site at *http://www.cisco.com/go/dd*

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1. DistributedDirector is available in Cisco IOS software for 2600/2600XM, 3600, and 7200 series routers, starting on release 12.2(4)T Enterprise Plus feature sets; Dedicated routers may be recommended for DistributedDirector to meet performance targets of both routing and load balancing; If no dedicated hardware platform is available for running DistributedDirector, it is recommended customers use the Configurable DD Cache feature (available in 12.2(8)T) to limit the memory DistributedDirector may consume for DNS caching; To take advantage of enhanced caching capabilities, routers should be configured with additional DRAM (128MB or more)

Cisco GSS 4480 Global Site Selector

The Cisco GSS 4480 is a networking product that globally load balances distributed data centers. The Cisco GSS 4480 acts as the cornerstone of multisite disaster recovery plans in deployments of Cisco's market-leading content switches. Customers deploying new Cisco content switches such as the Cisco CSS 11500 Content Services Switch and the Content Switching Module (CSM) for the Cisco Catalyst ® 6500 Series switches or have already deployed legacy switches such as the Cisco CSS 11000 and Cisco Local Directors can benefit from the new levels of traffic management and centralized command and control provided by the Cisco GSS 4480.

Key Features

- Provides resilient architecture critical for disaster recovery and multisite Web applications deployments
- Offers flexible heterogeneous support for all Cisco SLBs and DNS-capable networking products
- Provides centralized command and control of DNS resolution process for direct and precise control of global load-balancing process
- Offers site persistence for e-commerce applications
- Offers a unique DNS race feature-The Cisco GSS 4480 can in real time direct content consumers to the closest data center
- Supports a Web-based graphical user interface (GUI) and DNS wizard to simplify the DNS command and control

Competitive Products

• F5 Networks eCommerce 540	• Nortel/Alteon iSD 410 SSL Accelerator

Specifications

Feature	Cisco GSS 4480
Number of Ports	Two 10/100Base TX Ports
Port Description	Network Ports: Two 10/100Base TX; Console Port
DNS requests per second	4000, depending on configuration (~ 345 million DNS requests per day per Cisco GSS 4480; an entire system is capable of 2.7 billion DNSrequests per day)
Configuration Software OS Support	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2
Network management	Console port-CLI Access to system via Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator
Storage	One 36-GB hard drive
Physical	One-rack unit size chassis; Network management serial port1 GB of RAM600-MHz PIII CPU
Dimensions	1.72 x 17.5 x 14.13 in. (43.7 x 444.5 x 358.9 cm)

Selected Part Numbers and Ordering Information[1]

Cisco GSS 4480

Cisco GSS 4480-K9	Global site selector
SF-GSS-V1.0-K9	SF-GSS-V1.0-K9Global site selector software

For More Information

See the Cisco GSS 4480 Web site: *http://www.cisco.com/go/gss*

Broadband and Dial Access Products

Broadband and Dial Access Products at a Glance

Remote Dial Access—Data and Voice (VoIP)

Product[1]	Features	Page
Cisco AS5350 Series Universal Gateways	• High performance, 1RU, universal gateway	7-3
	• Universal Port technology for multiple data, voice, and fax services on any port at any time	
	• 2,4, & 8 CT1/7 CE1/PRI configurations for 48 to 240 channels	
	• Supports broad range of async/ISDN/VoIP/wireless protocols	
	• Two 10/100 Ethernet ports, two 8 Mbps serial backhaul ports	
	• Two 8 Mbps serial backhaul ports	
	• Cisco SS7 signaling gateway interoperability	
	• Flexible, redundant backhaul methods	
Cisco AS5400 Series Universal Gateways	• High performance, 2RU, universal gateway	7-6
	• Universal Port technology for multiple data, voice, and fax services on any port at any time	
	• Two models: Cisco AS5400HPX and Cisco AS5400	
	• 8 to 16 CT1/CE1/PRI or 1 T3 configuration for 192 to 648 channels	
	• Low power and high availability design	
	• Supports a broad range of async/ISDN/VoIP/fax/wireless protocols	
	• Cisco SS7 signaling gateway interoperability	
	• Flexible, redundant backhaul methods	
Cisco AS5850 Universal Gateway	The highest density universal gateway in the marketplace	7-9
	• Supporting up to 5 x CT3s, 96 T1s or 86 E1s of multiple data, voice, and fax services on any port at any time	
	• Constant density regardless of codec type, ECAN or VAD settings	
	• Extensive high availability features	
	• TDM grooming capability	
Remote Dial Access Network Management	Suite of network management products for configuration, troubleshooting, and maintenance of Cisco dial access and VoIP solutions	7-11
SS7 Signaling & Softswitch Products	• Cisco PGW 2200 Softswitch—Call Agent providing signaling and call control functionality for PSTN Gateway and transit applications in international markets	7-12
	• Cisco BTS 10200 Softswitch—MGCP-based softswitch for large-scale Voice over IP and ATM applications	

1. For Cisco 2509 and 2511 Access Servers, see page 1-14.

Broadband Cable

Product	Features	Page
Headend and Distribution Hub Equipment		
Cisco uBR7100 Series Universal Broadband Router	Entry-level, fixed-configuration CMTS and integrated router for lower-density residential and MxU customers serviced by Tier 2/Tier 3 cable operators or ISPs.	7-13
	• Choice of four DOCSIS- and EuroDOCSIS-qualified, fixed-configuration models that include: Cisco uBR7111, Cisco uBR7111E, Cisco uBR7114, and Cisco uBR7114E	
	• Integrated upconverter/modulator on the cable interface	
	• Embedded dual 10/100 BaseT Ethernet network interface	
	• Additional network interface with a variety of LAN and WAN options	
	• Supports up to 1,000[1] data customers	
Cisco uBR7246VXR Universal Broadband Router	• Modular, standards-based communications-grade CMTS and integrated router for high-growth broadband cable deploymentsSupports up to 8,000 subscribers and offers a large variety of LAN and WAN interface options and processors	7-15

Product	Features	Page
Cisco uBR10012 Universal Broadband Router	Highest-capacity communications-grade CMTS and integrated router on the market today that delivers the services, performance, scale, and carrier-class reliability large cable operators and ISPs demand	7-16
	• High-performance aggregation platform that uses Parallel Express Forwarding technology	
	• Eight cable line cards that include support for Cisco Universal Broadband Router (uBR) line cards and the Cisco 5X20 Broadband Processing Engine (BPE)	
	• Four network interfaces that include support for 1 Gbps over Gigabit Ethernet, 622 Mbps over OC-12 Packet over SONET, and OC-48-Dynamic Packet Transport (DPT) Interface Module Set	
	• Cisco uBR10012 supports up to 80,000[1] subscribers	
Cisco RF Switch	• Exceeds PacketCable Availability Requirements	7-17
	• Enables a fully redundant CMTS with no single point of failure; works with the Cisco uBR7246VXR and uBR10012	
	• Maximizes density with more than 250 MCX-type connector	
Customer Premise Equipment (CPE)		
Cisco uBR900 Series Cable Access Router	Integrated DOCSIS-based cable modem and router with hardware accelerated IPSec VPN tunneling support that includes: • Cisco uBR925 with 4 Ethernet, 1 CATV, 1 USB and 2 FXS ports that support telecommuter and small office DOCSIS-based data, VoIP, and VPN services	7-19
	• Cisco uBR905 with 4 Ethernet and 1 CATV port that supports DOCSIS-based data and VPN services	

1. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters.

DSL (Digital Subscriber Line) Access

Product	Features	Page
DSL Access CPE[1]	Wide variety of Cisco router-based DSL CPE solutions for business-class to small office applications	7-21
Broadband Services Aggregation	• Cisco 6400 Series Router—ATM switching core, with up to 48,000 subscriber sessions per chassis	7-21
	• Cisco 7200 Series Router—Up to 16000 broadband sessions on a 3 RU platform, including aggregation of PPP, PPPoE, and PPPoA	
	• Cisco 7301 Series Router—1 RU Broadband Aggregation Router that is capable of delivering up to 16000 sessions per chassis	
	• Cisco 7400 Series Router—1 RU broadband optimized appliance that delivers up to 8,000 sessions per chassis	
	• Cisco 10000 Series Router—A carrier-class router that supports up to 32,000 broadband sessions with 99.999 percent system uptime	

1. For ADSL, ISDN, and IDSL small office/home office (SOHO) customer premise equipment (CPE), see Chapter 1: Routers

ATM Multiservice WAN Switching

Product	Features	Page
Cisco BPX 8600 Series Switches	• Large-scale Advanced ATM switch for service provider and large enterprise applications	7-23
	• Narrowband and broadband services in a single, highly reliable platform using a multishelf architecture with intelligent call processing for Frame Relay and ATM switched virtual circuits (SVCs)	
	• 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video	
Cisco MGX 8850 Series Advanced ATM Multiservice Switches	• Multiservice switch, scales from DS0 to OC-48c/STM-16 speeds	7-24
	• Serves as a stand-alone device for narrowband services, an integrated edge concentrator or a broadband edge switch when equipped with 45 Gbps switch card and broadband ATM modules	
Cisco MGX 8830 Series Multiservice Switches	• Multiservice switch scales from from DS0 to OC-3c/STM-1 speeds	7-25
	• A standalone switch with narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements with 1.2 Gbps switch fabric	
Cisco IGX 8400 Series Multiservice WAN Switches	• ATM-based WAN switching, connects to public services for reduced leased-line costs	7-25
	• Available with 8, 16, or 32 slots	
Cisco MGX 8200 Series Multiservice Gateways	• Edge concentrators family provide a cost-effective narrowband multiservice solution for low to mid-band ATM and Frame Relay aggregation with QoS management features	7-25

Long Reach Ethernet

Product	Features	Page
Cisco Catalyst 2950 LRE XL Switches	Fixed configuration Ethernet switches for delivering converged voice, video, and data services over existing category 1/2/3 wiring for the MxU and enterprise markets. • 12- or 24-port 1RU switchesystems with four 10/100 ports, deliver Ethernet traffic (up to 15 Mbps) over standard copper cabling (up to 5000 feet); ideal for MxU broadband Internet access • Co-exists with POTS and ISDN traffic on the same line and compatible with ADSL • Advanced quality of service for supporting converged voice, video, and data services	7-26
Cisco LRE CPE Devices	• Cisco 575 LRE CPE—Compact, includes one RJ-45 Ethernet connection and two RJ-11 connectors (for telephone) • Cisco 585 LRE CPE—Compact, includes four RJ-45 switched Ethernet connections and two RJ-11 connectors (for telephone). Supports 802.1p QoS	7-27
Cisco LRE POTS Splitter	• Cisco LRE 48 POTS Splitter—48 ports in 1RU. Ensures that POTS service is separate, and never compromised by LRE switch reconfiguration or downtime	7-27
Cisco Broadband Building Service Manager	• Server system enables automated online activation, integrated billing, tiered service levels • Ideal for any form of broadband access technology, including Ethernet, LRE, Cable access, DSL, Wireless, or Fiber	7-28

Memory Information for Access Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Config. (Notes)
Cisco AS5350 Universal Gateway	System Flash SDRAM Shared Boot Flash	N/A	32 MB 128 MB 64 MB 8 MB	64 MB 512 MB 128 MB 16 MB	
Cisco AS5400HPX Universal Gateway	Main SDRAM Shared Boot Flash (3V) System Flash (3V)	2 1 1 2	256 MB 64 MB 8 MB 32 MB	512 MB 128 MB 16 MB 64 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
Cisco AS5400 Universal Gateway	Main SDRAM Shared Boot Flash (5V) System Flash (5V)	2 1 1 2	256 MB 64 MB 8 MB 32 MB	512 MB 128 MB 16 MB 64 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
Cisco AS5850 Universal Gateway	RSC SDRAM Feature Cards SDRAMS		512 MB 128 MB	512 MB 128 MB	Ships with all required memory
Cisco CVA120 Series	Config NVRAM DRAM Flash		128 kB 16 MB 8 MB		

Cisco AS5350 Universal Gateway

The Cisco AS5350 Universal Gateway is the only one-rack-unit gateway supporting two-, four-, or eight-port T1/seven-port E1 configurations that provides universal port data, voice, and fax services on any port at any time. The Cisco AS5350 Universal Gateway offers high performance and high reliability in a compact, modular design. This cost-effective platform is ideally suited for Internet service providers (ISPs) and enterprise companies that require innovative universal services.

The Cisco AS5350 Universal Gateway eliminates the need for switches and routers to create a point-of-presence (POP) or "POP-in-a-box" solution. The Cisco AS5350 Universal Gateway has three primary universal gateway configurations: two Channelized T1(CT1)/Channelized E1(CE1)s, four CT1/CE1s, and eight CT1/seven CE1s . It also includes integrated signaling link termination (SLT) functionality for direct connection to a SS7/C7 signaling gateway.

The Cisco AS5350 Universal Gateway comes two high-speed serial ports are provided to support Frame Relay, Point-to-Point Protocol (PPP), and High-Level Data Link Control (HDLC) backhaul. All backhaul interfaces support Hot Standby Router Protocol (HSRP), and all cards and the fan tray are hot-swappable for carrier-class resiliency. The Cisco AS5350 Universal Gateway is the only access server in this form factor that offers universal port capability with these high-availability features.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco AS5350	• 2 to 8 channelized CT1/E1/PRI compact and modular universal
	• High-performance modem, ISDN, and voice call termination
	• Universal port services (data, voice, fax)

Key Features

- 1 RU modular high-performance 2 to 8 channelized CT1/7 CE1/PRI system
- Universal Gateway—which supports multiple data, voice, and fax services on any port at any time
- Ideal for Tier 2/3 ISPs and enterprises requiring innovative universal services
- Feature cards: 2, 4, or 8 CT1/7 E1/PRI feature cards (ISDN calls terminated on the card); 60 or 108 channel Universal Port feature card
- Two 10/100BaseT autosensing Ethernet LAN ports
- Two 8 MB serial WAN ports for Frame Relay, HDLC, or PPP WAN backhaul
- Carrier Class Resiliency: All feature cards and fan tray are hot swappable, modem and voice DSP are pooled and can be configured as spares, AC internal power supply with dual fans, Redundant LAN/WAN backhaul ports, Thermal management and environmental monitoring, ETSI/NEBS Level 3 compliant
- Cisco SS7 signaling gateway interoperability

Competitive Products

• Lucent/Ascend: Max TNT	• Nuera: BTX Series
• 3Com/CommWorks: Total Control 1000	• Siemans: HiPath Series
• Alcatel: 7505 Series	

Specifications

Feature	Cisco AS5350
Processor	250 MHz RISC processor
Memory	SDRAM: 128 MB (default), 512 MB (maximum) Shared Input/output (I/O): 64 MB (default), 128 MB (maximum) Boot Flash: 8 MB (default), 16 MB (maximum) System Flash: 32 MB (default), 64 MB (maximum) Layer 3 Cache: 2 MB
Feature Card Slots	Three slots
Egress Ports	Two 10/100-MB Ethernet ports Two 8-Mbps serial ports T1/E1 DS1 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECNet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AT-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MP), MLP, TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), bandwidth on demand, nonfacility-associated signaling (NFAS), traffic shaping
Voice Compression	G.711, G.723.1, (5.3K and 6.3K), G.726, G.729ab, G.Clear, GSM-FR
DSP Voice Features	Echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise generation Fixed and adaptive jitter buffering Call progress tone detection and generation - Dial tone, busy, ring-back, congestion, and re-order tones with local country variants DTMF, Multifrequency (MF) Continuity Testing (COT)

Feature	Cisco AS5350
Voice and Fax Signaling Protocols	H.323v2, H.323/v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice Extensible Markup Language (VoiceXML), Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP) T.38 real-time fax relay T.37 fax store and forward Fax detection Fax and modem passthrough Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) Text to Speech (TTS) Servers Automatic Speech Recognition (ASR) Servers
SS7	Integrated SLT functionality
Network Security	RADIUS or TACACS+ PAP or CHAP authentication Local user/password database DNIS, CLID, call-type preauthentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) Dynamic access lists SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) Policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CAR], Random Early Detection [RED], IP Precedence, policy-based routing)
Channelized T1	Robbed-bit signaling: Loop Start, Immediate Start, and Wink Start Protocols
Channelized EI	CAS, PRI, E1 R1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.120, V.110 at rates up to 38400 bps Network- and User-side ISDN NFAS with backup D-channel QSIG, Feature Group B, Feature Group D DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold V.44 Compression Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000 -bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and many others
Wireless Protocols Supported	V.110, V.120
Full Cisco IOS Support	IP Plus and Enterprise Plus feature sets
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in. Weight (fully loaded): 22 lbs. (10 kg)

Selected Part Numbers and Ordering Information[1]

Cisco AS5350 Universal (Data) System Bundles

AS535-2T1-48-AC	AC AS5350; 2T1, 60 ports, IP+ IOS, 48 Data Lic
AS535-4T1-96-AC	AC AS5350; 4T1, 108 ports, IP+ IOS, 96 Data Lic
AS535-8T1-192-AC	AC AS5350; 8T1, 216 ports, IP+ IOS, 192 Data Lic
AS535-2E1-60-AC	AC AS5350; 2E1, 60 ports, IP+ IOS, 60 Data Lic
AS535-4E1-120-AC	AC AS5350; 4E1, 120 ports, IP+ IOS, 120 Data Lic
AS535-8E1-210-AC	AC AS5350; 8E1,216 ports,240 ISDN ports, IP+ IOS,210 Data Lic

Cisco AS5350 Universal (Voice) System Bundles

AS535-2T1-48-AC-V	AC AS5350 Voice; 2T1, 60 ports, IP+ IOS, 48 Voice Lic
AS535-4T1-96-AC-V	AC AS5350 Voice; 4T1, 108 ports, IP+ IOS, 96 Voice Lic
AS535-8T1-192-AC-V	AC AS5350 Voice; 8T1, 216 ports, IP+ IOS, 192 Voice Lic
AS535-2E1-60-AC-V	AC AS5350 Voice; 2E1, 60 ports, IP+ IOS, 60 Voice Lic
AS535-4E1-120-AC-V	AC AS5350 Voice; 4E1, 120 ports, IP+ IOS, 120 Voice Lic
AS535-8E1-210-AC-V	AC AS5350 Voice; 8E1, 216 ports, IP+ IOS, 210 Voice Lic

Cisco AS5350 Spare Chassis

AS5350-AC=	AC 5350 Chassis with Motherboard, IP Plus IOS, default memory
AS5350-DC=	DC 5350 Chassis with Motherboard, IP Plus IOS, default memory

Cisco AS5350 Software

S535AK8-12202XA	Cisco AS5350 Series IOS ENTERPRISE PLUS IPSEC 56
S535AP-12202XA	Cisco AS5350 Series IOS ENTERPRISE PLUS
S535CK8-12202XA	Cisco AS5350 Series IOS IP PLUS IPSEC 56
S535CP-12202XA	Cisco AS5350 Series IOS IP PLUS

Cisco AS5350 Memory Options & Spares

MEM-UP1-AS535	16M Bootflash,64M System Flash,256M Main,128M Shared I/O Memory
MEM-16BF-AS535	AS5350 16MB Boot Flash upgrade
MEM-64F-AS535	AS5350 64MB System Flash upgrade
MEM-256M-AS535	AS5350 256MB Main SDRAM upgrade
MEM-128S-AS535	AS5350 128MB Shared I/O upgrade

Cisco AS5350 Spare DFC Boards

AS535-DFC-2CT1=	AS5350 Dual T1/PRI DFC card
AS535-DFC-2CE1=	AS5350 Dual CE1/PRI DFC card
AS535-DFC-4CT1=	AS5350 Quad T1/PRI DFC card
AS535-DFC-4CE1=	AS5350 Quad E1/PRI DFC card
AS535-DFC-8CT1=	AS5350 Octal T1/PRI DFC card
AS535-DFC-8CE1=	AS5350 Octal E1/PRI DFC card
AS535-DFC-60NP=	AS5350 60 Nextport DFC card
AS535-DFC-108NP=	AS5350 108 Universal Port Card

Cisco AS5350 Spare Accessories

AS5350RM-19/24=	AS5350 19/24 Rack Mount Kit, Spare
AS535-FTA=	AS5350 Fan Tray Assembly, Spare
AS535-AC-PWR=	AS5350 AC Power Supply, Spare
AS535-DC-PWR=	AS5350 DC Power Supply, Spare
AS535-DFC-CC=	AS5350 DFC Carrier Card

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco AS5350 Universal Gateway Web site: *http://www.cisco.com/go/as5350*

Cisco AS5400 Series Universal Gateways

Cisco AS5400 Series Universal Gateways offer unparalleled capacity in only two rack units (2RUs) and provides universal port data, voice and fax services on any port at any time. High-density (up to 1 CT3), low power consumption (7.2A at 48 VDC per CT3), and universal port digital signal processors (DSPs) make Cisco AS5400 Series Universal Gateways ideal for many network deployment architectures, especially colocation environments and mega points of presence (POPs).

The Cisco AS5400 Series consists of two models, the Cisco AS5400 and the Cisco AS5400HPX. The gateways share the same architecture; the primary difference is the processing capability of the two platforms. The Cisco AS5400 offers unparalled dial capacity and scalability for MLPPP, L2TP, and V.120 sessions, whereas the Cisco AS5400HPX provides enhanced performance for processor intensive voice and fax applications.

Cisco AS5400 Series support a wide range of IP-based value-added services such as high-volume Internet access, regional/branch-office connectivity, corporate virtual private networks (VPNs), mobile wireless solutions, long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Signaling System 7 (SS7) interconnect, and enhanced voice services.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco AS5400HPX	• High density in a small footprint (16 CT1/CE1 or 1 CT3) • Universal port services (data, voice, fax) • Enhanced performance for processor intensive voice and fax applications • Compact form factor—easy to add capacity as the network grows • Low power per port • High performance async/ISDN/VoIP/wireless • T.38 real-time fax relay, T.37 fax store and forward, fax detection, unified communications • Flexible redundant backhaul methods
Cisco AS5400	• Async/ISDN/Wireless data to 1 CT3 • Universal port services (data, voice, fax) or voice only services to 16 CT1/CE1

Key Features

- The Industry's only 2RU, CT3-capable universal gateway on the market with hot-swappable cards, internal redundant power supply
- Universal Gateway which provides universal port data, voice, and fax services on any port at any time
- Feature cards: 8 or 16 CT1/CE1 feature cards; 60 or 108 channel Universal Port feature card; All feature cards and fan trays are hot-swappable
- Redundant 10/100 Ethernet ports and redundant 8 Mbps serial backhaul ports for Frame Relay, HDLC or PPP WAN Backhaul
- One fast console port for local administrative access; one auxiliary port for remote administrative access
- Redundant LAN/WAN backhaul ports
- ETSI/NEBS Level 3 compliant
- AC or DC power supply with dual fans
- Cisco SS7 signaling gateway interoperability

Competitive Products

• 3Com/CommWorks: Total Control C1000	• Lucent: Max TNT
• Alcatel: 7505 Series	• Siemens: HiPath Series

Specifications

Processor Type	Cisco AS5400HPX: 390-MHz RISC processor Cisco AS5400:250-MHz RISC processor
Calls Supported	Cisco AS5400HPX: Voice or universal port services - to 648 concurrent calls (to 20T1s/16E1s) or Remote access services - to 648 calls (to 1CT3/16E1s) Cisco AS5400: Voice or universal port services - to 480 concurrent calls (to 20T1s/16E1s) or Remote access services - to 648 calls (to 1CT3/16E1s)
SDRAM	256 MB (default), 512 MB (maximum)
Boot Flash	8 MB (default) 16 MB (maximum)
System Flash	32 MB (default) 64 MB (maximum)
Layer 3 Cache	Cisco AS5400HPX: 8 MB Cisco AS5400:2 MB
Shared input/output (I/O)	64 MB (default) 128 MB (maximum)
Feature Slots	7
Trunk Feature Cards	8 T1/E1/PRI 1 CT3
DSP Feature Card	60/180 Universal ports
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AT-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFG), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, LAT, Telnet), & XRemote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Traffic shaping

Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G.Clear, GSM-FR
DSP Voice Features	G.168 echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise, fixed and adaptive jitter buffering Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones, with local country variants Continuity Testing (COT) DTMF, MF
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice Extensible Markup Language (VoiceXML), Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP) T.37 fax store and forward T.38 real-time fax relay Fax detection Fax and modem passthrough Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) Text to Speech (TTS) Servers Automatic Speech Recognition (ASR) Servers
SS7	Integrated SLT functionality
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database DNIS, CLID, call-type pre-authentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and Dynamic access lists SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection
Channelized T1	Robbed-bit signaling: loop start, immediate start, and wink start protocols
Channelized E1	CAS, E1 R1, E1 R2, leased line, Frame Relay, G.703, G. 704
ISDN Protocols Supported	Sync mode PPP, V.120, V.110 at rates up to 38400 bps Network- and User-side ISDN DoVBS QSIG NFAS with backup D-channel
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold, Quick Connect V.44 Compression Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000 bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and many others
Wireless Protocol	V.110, V.120
Full Cisco IOS Support	IP Plus and Enterprise Plus feature sets
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis Dimensions (H x W x D)	3.5 x 17.5 x 18.25 in.
Chassis Weight (fully loaded)	35 lb maximum (15.8 kg)

For More Information

See the Cisco AS5400 Universal Gateways Web site: *http://www.cisco.com/go/as5400*

Cisco AS5850 Universal Gateway

The Cisco AS5850 Universal Gateway is a high-density, carrier-class gateway, offering unparalleled capacity and high availability. The Cisco AS5850 is specifically designed to meet the demands of large, innovative service providers, supporting up to five channelized T3s (CT3s), 96 T1s or 86 E1s of data, voice, and fax services on any port at any time. It offers high availability features such as hot-swap on all cards, load-sharing and redundant hot-swappable power supplies, redundant route processing cards and call admission control to ensure 99.999-percent availability. The Cisco AS5850 supports a wide range of IP-based value-added services such as high-volume Internet access, corporate virtual private networks (VPNs), long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Signaling System 7 (SS7) interconnect, and managed voice services such as hosted IP telephony, managed IP-PBX, multiservice VPNs, and IP contact centers.

Using the rich set of Cisco IOS Software features and Signaling System 7 (SS7) interconnection, service providers can quickly provision their network for new services to meet the rapidly changing demands of the communications provider marketplace.

As a highly flexible voice gateway, the Cisco AS5850 supports any coder-decoder (CODEC) at 100-percent capacity simplifying network engineering. An open programmable architecture streamlines rapid voice service creation with H.323, Session Initiation Protocol (SIP) or Media Gateway Control Protocol (MGCP).

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco AS5850	• Supporting up to 5 x CT3s, 96 T1s or 86 E1s of multiple data, voice, and fax services on any port at any time
	• Service provider or IP-focused installations
	• Highly available single system with multiple redundancy
	• Wholesale dial/voice, retail dial/voice, TDM grooming or wireless applications

Key Features

- High scalability—up to 3360 ports in a 14 RU chassis and provides for 6 times growth in same chassis
- Hot-swap redundant power supplies and power feeds
- Redundant DSPs and RSC
- Thermal/Power management and redundant fans
- DSP Resource Recovery Feature
- Supports H.323v2, H.323v3, H.323v4, SIP and MGCP 1.0
- Application-specific support including AOL and Prodigy traffic
- WAN optimization including routing filters, snapshot routine, dial-on-demand routing ASAP
- ETSI/NEBS Level 3 compliant
- Cisco SS7 signaling gateway interoperability

Competitive Products

• 3Com: TC 2000	• Siemens: HiPath Series
• Lucent: APX 8000	• Alcatel: 7505 Series

Specifications

Feature	Cisco AS5850
Slots	12 feature board slots 2 RSC slots
Processor Type	266 MHz RISC processor plus 2MB of L3 cache SDRAM
RSC Switch Fabric	5 GBps, Layer 3 / 4 switching
Memory	512 MB SDRAM with ECC per RSC 128 MB SDRAM (with parity) per feature card
Trunk Cards	Single CT3 plus 216 DSP Channel feature card 24 CE1/CT1 feature card G.703, G.704
Universal Port Card	324 Channel DSP-feature card
Egress Ports	Dual Gigabit load-balanced redundant Ethernet ports with GBIC interfaces for user traffic One 10/100-Mbps Ethernet port with RJ45 connector for management traffic
LAN Protocols	IP
Service Support	Port Policy Management and SS7/C7
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, Next Hop Resolution Protocol (NHRP)
Access Protocols	PPP, Serial Line Iternet Protocol (SLIP), TCP Clear
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Nonfacility-associated signaling (NFAS),traffic shaping
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database, DNIS, CLID, call-type pre-authentication, Inbound/outbound traffic filtering (including IP), SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+), L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels, Firewall security and intrusion detection, IP Precedence, policy-based routing
Channelized T1	PRI, robbed-bit signaling: loop start, immediate start, and wink start protocols
Channelized E1	CAS, E1 R2, PRI
ISDN Protocols	Sync mode PPP, V. 120, V. 110 at rates up to 38400
Voice Protocols	G.711, G.723.1, , G.726, G.729ab, G.Clear, GSM-FR H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0 ECAN up to 128ms T.38 real-time fax relay Fax detection Fax and modem passthrough
Modem Protocols	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments V.44 supporting increased throughput by more than 100 percent for Internet browsing Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and more
ISDN Protocols	Sync mode PPP, V.120, V.110 at rates up to 38400 bps
Wireless Protocol	V.110
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis Dimensions (HxWxD)	24.5 x 17.5 x 24 in.
Chassis Weight	220 lb (100 kg)

For More Information

See the Cisco AS5850 Web site: *http://www.cisco.com/go/AS5850*

Remote Dial Access Network Management Products

Universal Gateway Manager (UGM)

Network management applications and tools are critical for the successful deployment and operations of voice or data services. The Cisco Universal Gateway Manager (UGM) is an element management system for Cisco AS5000 Universal Gateways. The Cisco UGM enables network operators and administrators to efficiently deploy, manage and maintain Cisco AS5000 Universal Gateways supporting Voice over IP, managed voice, PSTN gateway, and dial access services.

Key Features

- Enables the efficient deployment and configuration of Cisco AS5000 Universal Gateways
- Monitors the operational status of Cisco AS5000 Universal Gateways and their subcomponents so that corrective action can be taken quickly
- Supports the rapid reconfiguration of Cisco AS5000 Universal Gateways for network or service changes
- Collects and presents a wide range of performance-related statistics for monitoring gateway and network efficiency
- Co-resides with Cisco MGC Node Manager (MNM) for Cisco PGW 2200 PSTN Gateway node management
- Provides interfaces to support its integration with existing network management applications

For More Information

See the Cisco Universal Gateway Manager Web site: *http://www.cisco.com/go/ugm*

Cisco Universal Gateway Call Analyzer

The Cisco Universal Gateway Call Analyzer (UGCA) tool monitors and troubleshoots Cisco AS5000 universal gateways that support dialup services. The Cisco Universal Gateway Call Analyzer complements other network management system (NMS) applications, adding call-level analysis capabilities that are not available with standard NMS applications.

Maintaining high call-success rates and quality connections are key challenges for any dial service provider. These metrics directly affect customer satisfaction and are fundamental indicators of network performance and efficiency. Numerous issues may cause service degradation, which may be rapid or may occur slowly. While public switched telephone network (PSTN) issues are frequently the source of problems, they are especially difficult to identify.

Cisco AS5000 universal gateways collect the detailed call-characteristic data needed to detect and diagnose issues that affect service. The Cisco Universal Gateway Call Analyzer is the window into this data, providing analysis and reporting features through an intuitive Web interface.

For More Information

See the Cisco Universal Gateway Call Analyzer Web site: *http://www.cisco.com/go/ugca*

Cisco Resource Policy Management System

Wholesalers face a challenge when delivering service level agreements (SLAs) on a common network, especially when providing a range of services for different customers. The Cisco Resource Policy Management System (RPMS) is a software tool that provides policy management of platform resources. With Cisco RPMS, wholesalers are able to offer a variety of services to a variety of customers on a single set of gateways. Cisco RPMS offers not only effective resource management but the capability to build and deliver flexible service models that fit customers' unique requirements. Cisco RPMS can grow to support a wholesaler's changing needs, scaling as the network expands and delivering the services that customers demand, including wholesale dial, access to virtual private network (VPN) services.

Selected Part Numbers and Ordering Information[1]

Resource Policy Management System

FR5X-PM-LIC	Port management license for 1 port (includes Resource Pool Manager, Call Tracker)
CRPMS-2.0	Cisco Resource Pool Manager Server v2.0 (1 server)
CRPMS-2s-2.0	Cisco Resource Pool Manager Server v2.0 (2 servers)
CRPMS-6S-2.0	Cisco Resource Pool Manager Server v2.0 (6 servers)
CRPMS-UPGRADE-2.0	Single Server Upgrade License from RPMS 1.x to version 2.0

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco Universal Gateway Manager: *http://www.cisco.com/go/ugm*
See the Resource Pool Manager Web site: *http://www.cisco.com/go/rpms*

SS7 Signaling & Softswitch Products

Cisco AS5x00 series products interoperate with various SS7 and Softswitch products, including the Cisco SC2200 Signaling Controller, the Cisco PGW 2200 Softswitch and the Cisco BTS 10200 Softswitch.

Cisco SC2200 Signaling Controller

Please see PGW 2200 Softswitch.

Cisco PGW 2200 Softswitch

The Cisco PGW 2200 provides the signaling and call control functionality that enables service providers (SPs) to bridge the boundary between the legacy PSTN and today's new world packet networks. Combined with Cisco's award winning media gateways, the PGW 2200 is the catalyst for PSTN Gateway solutions enabling dial offload, transit, business voice, H.323 and SIP based applications. The PGW 2200 leverages its protocol library of 90+ SS7/C7 variants to enable interconnect worldwide. In signaling mode the PGW adds SS7/C7 to the AS5X00 gateways, giving service providers around the world a proven cost-saving and reliable solution for connecting VoIP and Internet Dial Access solutions to the PSTN. SS7 signaling allows service providers to enter into new markets, optimize their networks for both voice and data traffic, and save drastically on monthly interconnect fees.

Cisco BTS 10200 Softswitch

The Cisco BTS 10200 Softswitch provides call-control intelligence for establishing, maintaining, routing, and terminating voice calls. The Cisco BTS 10200 Softswitch also serves as an interface to enhanced service and application platforms. Leveraging the power of packet networks while seamlessly operating with legacy circuit switched infrastructures, the Cisco BTS 10200 Softswitch empowers service providers and carriers to gracefully transition to packet-based technology. Implementing the Cisco BTS 10200 Softswitch ensures rapid service deployment, carrier-grade reliability, service flexibility, scalability to millions of subscribers, and cost savings through investment optimization and operational efficiencies.

For More Information

See SS7 Signaling & Softswitch Products Web site:
http://www.cisco.com/en/US/products/hw/vcallcon/index.html

Additional Remote Dial Access Products

- In addition to the AS5350/AS5400/AS5850 series access gateways, the Cisco 2600/3600 series routers (see pages 1-16 and 1-22) also support dial-up, data, and voice access via network and modem modules, and voice interface cards
- For sites that require access via multiple external analog modems, the AS2509/AS2511-RJ access servers (see page 1-14) and 2600 series routers (see page 1-16) are ideal for low-density, dial applications
- For small office ISDN connectivity, see Cisco 800 series routers (see page 1-9)

Cisco uBR7100 Series Universal Broadband Router

The Cisco uBR7100 Series is a complete, compact, easy-to-use product that enables cost-effective, high-speed Internet access in the hospitality multidwelling (MDU) and multitenant (MTU) market space using the coaxial cable already in a building. The product requires exceptionally low capital investment and minimal setup time to provide online Internet access and support residential voice services. For Tier 2 or Tier 3 cable operators, it is the industry's most cost-effective, feature-rich CMTS and integrated router. The Cisco uBR7111 and Cisco uBR7114 models are CableLabs qualified to DOCSIS 1.0 specifications. The Cisco uBR7111E and Cisco uBR7114E models are tComLabs qualified to EuroDOCSIS 1.0 specifications. The Cisco uBR7111 and Cisco uBR7111E contain one downstream port and one upstream port. The Cisco uBR7114 and Cisco uBR7114E contain one downstream port and four upstream ports. All models support bidirectional or telco-return traffic.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco uBR7100 Series	• For MxU customers: the Cisco uBR7100 Series enables high-value Internet and residential voice services over a DOCSIS or EuroDOCSIS cable infrastructure
	• For cable operators: the Multi-tenant/dwelling Unit (MxU) market represents an untapped opportunity to expand broadband cable service. Given the small subscriber base of a typical MxU setting, the challenge has been to deliver robust services quickly and cost-effectively for an accelerated break-even point and a quicker return on investment—enabled by the Cisco uBR7100 Series

Key Features

- Complete package that includes a combined router and CMTS with an integrated upconverter, and embedded Network Interface
- Standards-based: DOCSIS 1.0 and DOCSIS 1.1-based; EuroDOCSIS models available
- Reliable operation to ensure the system remains online
- Uses Cisco IOS Software

Specifications

Feature	Cisco uBR7111 and uBR7114	Cisco uBR7111E and uBR7114E
Memory	Flash: 48 MB; System: 128 MB	Flash: 48 MB; System: 128 MB
Line Card with Integrated Upconverter (Cable Plant Interface)	uBR7111: 1 downstream and 1 upstream uBR7114: 2 downstream and 4 upstreams	uBR7111E: 1 downstream and 1 upstream uBR7114E: 2 downstream and 4 upstreams
Integrated Upconverter	DOCSIS Annex B, 6 MHz High level output: =+61dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM	DOCSIS Annex A, 8 MHz, High level output: = +61 dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM
Port Adapter (WAN or backbone Interface)	Embedded dual 10/100 BaseT Ethernet (TX FE) provided Supports one additional PA; options include the following using Cisco IOS Release12.1(8)EC minimum: Ethernet: • PA-4E-4-port Ethernet 10BASE-T • Fast Ethernet: • PA-FE-TX-1-port 100BASE-TX Fast Ethernet • PA-FE-FX-1-port 100BASE-FX Fast Ethernet • PA-2FE-TX 2-port 100BASE-TX Fast Ethernet • PA-2FE-FX 2-port 100BASE-FX Fast Ethernet Serial: • PA-MC-4T1 4-port multichannel T1 Port Adapter with integrated CSU/DSUs • PA-MC-2T1 2-port multichannel T1 Port Adapter with integrated CSU/DSUs • PA-E3-1-port E3 serial Port Adapter with E3 DSU • PA-T3-1-port T3 serial Port Adapter with T3 DSU • PA-2E3-2-port E3 serial Port Adapter with E3 DSUs • PA-2T3-2-port T3 serial Port Adapter with T3 DSUs • PA-4T+-4-port serial Port Adapter, enhanced • PA-4E1G-75-4-port E1-G.703 serial Port Adapter (75-ohm/unbalanced) • PA-4E1G-120-4-port E1-G.703 serial Port Adapter (120-ohm/balanced) HSSI: • PA-2H-2-port HSSI • ATM: • PA-A3-8T1IMA, 8-port ATM inverse T1 multiplexer Port Adapter • PA-A3-OC3SML—1-port OC-3c ATM, PCI-based single-mode long reach port adapter • PA-A3-OC3MM, 1-port ATM enhanced OC3c/STM1 multimode Port Adapter • PA-A3-OC3SMI—1-port OC-3c ATM, PCI-based single-mode intermediate reach port adapter POS: • PA-POS-OC3SMI, 1-port Packet/SONET OC3c/STM1 single-mode Port Adapter	Same as Cisco uBR7111 and Cisco uBR7114

Feature	Cisco uBR7111 and uBR7114	Cisco uBR7111E and uBR7114E
Power Options	Single: 100 to 240 VAC input voltage	Single: 100 to 240 VAC input voltage
Minimum Cisco IOS Software Release	12.1(5)ECI minimum	12.1(7)EC minimum

For More Information

See the Cisco uBR7100 series Web site: *http://www.cisco.com/go/ubr7100*

Cisco uBR7246VXR Universal Broadband Router

The Cisco uBR7246VXR-a member of the Cisco uBR7200 Series-combines the functionality of a CMTS with an advanced router. The Cisco uBR7246VXR provides a single, multiservice, scalable platform that gives cable companies and ISPs the ability to deliver IP data and VoIP services to DOCSIS or EuroDOCSIS-compliant cable modems and set-top boxes. The Cisco uBR7246VXR is CableLabs qualified to DOCSIS 1.1, as well as PacketCable 1.0 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.1 specifications.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco uBR7246VXR	• Positioned for high-growth cable deployments
	• Flexible port expansion for multiservice deployment options
	• Supports up to 8,000 subscribers per chassis with 3.2 Gbps back plane
	• 4 line card slots, 2 port adapter slots, 1 I/O controller slot, 1 NPE slot, and 1 clock card slot for VoIP

Key Features

- Standards-based—Supports DOCSIS/EuroDOCSIS 1.0 and DOCSIS 1.1
- Modularity allows for customized configuration per plant characteristics for optimization of topology and network bandwidth
- Cisco IOS Software—Delivers proven stability and offers advanced features such as multiprotocol routing, tunneling, bandwidth management, QoS, guaranteed service levels, service-level monitoring and many CPE management options
- Ease of management and upgrades—Supports online insertion and removal of components to allow seamless upgrades of port adapters, line cards, and power supplies without service interruption. Provides single, centralized point of administration for remote devices

Specifications

Feature	Cisco uBR7246VXR
Cable Line Cards and Number of Slots	4
Supported cable line cards (Cable Plant Interfaces)	uBR-MC14C; uBR-MC16C; uBR-MC16E; uBR-MC16S; uBR-MC28C
Port Adapter Slots (LAN/WAN interfaces)	2
Supported PA categories	Ethernet: Fast Ethernet; Gigabit Ethernet Serial (V.35, E1-G.703/G.704, T3/E3) Serial Multi-channel T1 HSSI ATM T3/E3 ((PCI-based) ATM OC-3c (PCI-based) POS OC-3c DPT OC-12c/STM4c
Power Supply Shots	2
Power Supply Option	AC; Dual AC; DC; Dual DC

Feature	Cisco uBR7246VXR
Input/Output (I/O) controller	uBR7200-I/O uBR7200-I/O-FE uBR7200-I/O-2FE/E
I/O flash options for PCMCIA slots	Flash disk (48 MB) Flash disk (128 MB)
Network processing engines (NPE)	uBR7200-NPE-G1,NPE-400, and NPE-225
Add-on processor memory options	SDRAM (128 MB, 256 MB) for NPE-225 only SDRAM (128 MB, 256 MB = 512 MB) for NPE-400 only 1 GB, 512 MB, 128 MB for uBR7200-NPE-G1
Router Bandwidth	3.2 Gbps

For More Information

See the uBR7200 Web site: *http://www.cisco.com/go/ubr7200*

Cisco uBR10012 Universal Broadband Router

The Cisco uBR10012 Universal Broadband Router is a new class of CMTS, that handles the volume, capacity, and complexity of large cable headends or distribution hubs. It combines the revenue-generating features and stability of the market-leading Cisco uBR7200 Series with an architecture that is optimized for aggregation and virtually limitless future growth. The Cisco uBR10012 goes beyond the traditional "carrier class" definition, to deliver the highest level of service availability and capacity of any production CMTS available today. It employs a mix of distributed, centralized, and parallel processing to enable consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to DOCSIS 1.0 and DOCSIS 1.1 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.0 specifications.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco uBR10012	• High-end throughput, capacity, and service handling for a mix of IP data, voice, and video services over cable—supporting a wide variety of applications, media, session types, subscriber profiles, and access devices • Support for advanced feature sets, varying QoS requirements, service-level differentiations, and transport strategies (MPEG, IP, multicast, unicast, broadcast) that include implementing flow control to various cable CPE devices

Key Features

- Highest-capacity CMTS that leverages the proven stability of the industry-standard Cisco uBR7200 Series, the highly scalable architecture of the Cisco 10000 Internet Router, and feature-rich Cisco IOS Software
- Multiservice support, optimized to provide high throughput and accelerated processing using PXF technology; exceptional throughput on each connection in the chassis is achieved
- Standards-based design, support includes DOCSIS 1.0 and DOCSIS 1.1
- Reliability—Designed to eliminate single points of failure and allow technicians to swap out cards online; architected to provide redundancy throughout the system that includes redundant processing engines, bus interconnects, and power supplies

• Secure, scalable choices protect your investment and ensure current and future business growth can be accommodated; the architecture supports planned system and network expansion, including scaling IP services forwarding capacity, increasing connection speeds and densities, and extensive route scaling techniques

Specifications

Feature	Cisco uBR10012
Modular Slots	8 slots for cable line cards 4 slots for LAN/WAN interfaces 2 slots for Performance Routing Engines (PREs) 2 slots for Timing Communication and Control Plus (TCC+) modules
Supported Cards	Cable line cards that include: Cisco uBR line cards with a Cisco Line Card Processor (LCP2) and Cisco 5X20 BPE Timing, Communications, and Control Plus (TCC+) card Gigabit Ethernet (GE) network uplink card OC-12 Packet Over SONET (POS) network uplink card OC-48 DPT Interface
Processor Type	Parallel Express Forwarding (PXF)
Flash Memory	48 MB (default); 128 MB (maximum)
DRAM Memory	512 DRAM (default)
Software Supported	Minimum software requirement: Cisco IOS Software Release 12.2(11)BC1 minimum for the Cisco 5X20 BPE, Cisco IOS Software Release 12.2(13)BC minimum for the Cisco OC-48 DPT Interface
Power Supply	DC, AC
Hot-Swappable	Yes
Backplane Capacity	51.2 Gbps
Physical Dimensions (H x W x D)	Height: 31.25 in. (79.4 cm)—18 rack units (RU) Width: 17.2 in. (43.7 cm) Depth: 22.75 in. (57.8) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
Weight	Weight: 235 lb (106.6 kg) fully configured chassis

For More Information

See the Cisco uBR10012 Web site: *http://www.cisco.com/go/ubr10012*

Cisco RF Switch

The Cisco RF Switch works with the Cisco uBR10002 and uBR7246VXR Universal Broadband Router to provide a fully redundant DOCSIS system that enables cable service providers to achieve PacketCable system availability, minimize service disruptions, and simplify operations. The Cisco RF Switch is part of Cisco's newest high-availability N+1 solution set. In combination with the Cisco uBR10012 and uBR7246VXR, the Cisco RF Switch enables a fully redundant CMTS with no single point of failure. The product maximizes density with more than 250 MCX-type connectors that interface the Cisco uBR10012 and the cable plant. The Cisco RF Switch contains RF combiners/splitters, RF switch logic, and RF switch drivers. The product offers ten upstream switch modules, three downstream switch modules, an Ethernet controller module, an AC or DC power supply, and color coding, preterminated cabling.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco RF Switch	As cable service providers enter the VoIP market, high availability (24x7 service) for broadband cable IP services is becoming a requirement. The Cisco RF Switch enables cable service providers to achieve PacketCable system availability, minimize service disruptions, and simplify operations.

Key Features

• Front-panel serviceability with module Hot Swap capability that eliminates downtime for RF paths

• Modular upstream and downstream capacity with ten upstream, three downstream, and one blank slot that optimizes the serviceability of the CMTS; each of the 14 modules represent a port on a cable line card. Each switch module contains seven working or "active" inputs, plus one protect or "standby" input and seven protected outputs. Inputs are connections from the Cisco uBR10012 and uBR7246VXR to the Cisco RF Switch. Outputs are connections from the Cisco RF Switch to the HFC plant

• Fully passive working path; hardware components do not affect data and VoIP services

• Active components only in protect path; servicing of protect cards offer no disruption to data and VoIP services

• Position-sensing latching relays; robust design maintains operation during power disruptions

• Flexible, external design with more than 250 connectors—unmatched port density

• N+1 redundancy

Specifications

Feature	Cisco RF Switch
Input Power Requirements	• AC: 100 to 240 VAC, 50 or 60 Hz, operating range: 90 to 254 VAC
	• DC: -48 to -60 VDC, operating range: -40.5 to −72 VDC, 200 mVpp ripple/noise
Environmental	• Operational temperature range: 0 to +40°C
	• Operating temperature range: -5 to +55°C
Unit Control	• 10BaseT Ethernet—SNMP
	• Switching time from active (working) to standby (protect): 150 mS maximum after SNMP command
	• Cisco uBR10012 and uBR7246VXR
Connectors	• RF connectors: MCX
	• AC power: IEC320 type
	• DC power: Three terminal block
	• Ethernet: RJ-45
	• RS-232 Bus: 9-pin male D
Reliability	• 41,000 MTBF @ +50°C as calculated by Bellcore 5, 80 percent confidence factor
Physical	• Dimensions (H x W x D): 19 x 15.5 x 5.25 in. (842 x 384 x 132 mm)
	• Weight: 36 lbs
Input Power Requirements	• AC: 100 to 240 VAC, 50 or 60 Hz, operating range: 90 to 254 VAC
	• DC: -48 to -60 VDC, operating range: -40.5 to −72 VDC, 200 mVpp ripple/noise

Feature	Cisco RF Switch
Environmental	• Operational temperature range: 0 to +40°C
	• Operating temperature range: -5 to +55°C
RF requirements	• Input/output impedance: 75 ohms
	• Maximum RF input power: +15 dBm (63.75 dBmV)
	• Switch type: Electro-mechanical, absorptive for working path, non-absorptive on the protect path
	• Switch setting time per switch module: 20 ms maximum
	• Downstream frequency range: 54 to 860 MHz
	• Typical downstream insertion loss: +/-1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from protect to output
	• Downstream insertion loss flatness: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant
	• Downstream output return loss: >15.0dB at <450 MHz, > 12.0 dB at >= 450 MHz
	• Downstream input return loss: >15.0 dB
	• Downstream isolation: > 60 dB from channel to channel in working mode; > 52 dB from CMTS to protect when in protect mode
	• Upstream frequency range: 5 to 70 MHz
	• Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect
	• Upstream insertion loss flatness: +/- 0.4 dB from cable plant to CMTS, +/- 0.6 dB from cable plant to protect
	• Upstream input return loss:> 16 dB
	• Upstream isolation: > 60 dB from channel to channel in working mode; > 60 dB from CMTS to protect when in protect mode
	• Protect mode: CMTS return loss >10 dB, cable plant return loss: >10dB

For More Information

See the Cisco RF Switch Web site: *http://www.cisco.com/go/rfswitch*

Broadband Cable—Customer Premise Equipment (CPE)[1]

Cisco uBR900 Series Cable Access Routers

The Cisco uBR900 Series Cable Access Routers provide commercial services for cable operators, allowing them to expand their broadband service offerings. Both the Cisco uBR905 and Cisco uBR925 support IP data transmission over a cable plant and offer hardware-accelerated IPSec VPN support.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco uBR905 Cable Access Router	• Data-only broadband services (or voice separately via Ethernet)
	• High-speed, secure remote tunneling via hardware accelerated IPSec VPN
Cisco uBR925 Cable Access Router	• Two voice (VoIP) connections via RJ-11 ports
	• Data broadband services, router functionality, and VPN support
	• Easy-to-manage solution for telecommuters and small offices

1. Cisco VoIP Residential CPE Partner Program—To help drive deployment of residential VoIP services to market, Cisco offers a program that identifies low-cost residential VoIP modems that have passed interoperability testing with Cisco. Cable service providers should contact their sales representatives for vendors, models, pricing and volume discount opportunities.

Key Features

- Integrated high-speed cable modem and router that operates with any DOCSIS 1.1 or DOCSIS 1.0-compliant CMTS; both Cisco uBR900 Series models are DOCSIS 1.1-ready
- Integrated Cisco IOS Software router, cable modem, and four-port Ethernet hub that offers advanced networking capabilities and investment protection

Specifications

Feature	Cisco uBR905	Cisco uBR925
Ports	4-port 10Base-T Ethernet hub 1-port console 1-port CATV (Female F Connector)	4-port 10Base-T Ethernet hub 1-port USB 2 ports RJ-11 1-port console 1-port CATV
Routing Features	NAT/PAT, DHCP Server	Same as Cisco uBR905
Security Features	56-bit IPSec 3DES IPSec optional IPSec hardware acceleration Firewall optional	Same as uBR905
Voice Support	No	Yes

For More Information

See the uBR900 series Web site: *http://www.cisco.com/go/ubr900*

Remote Cable Access—Network Management Products

Cisco Cable Manager

Cisco Cable Manager is a client/server application that helps cable service providers deploy, maintain, monitor and troubleshoot cable equipment on an HFC network. The product manages DOCSIS and EuroDOCSIS-compliant CMTS and CPE, providing both operations center visibility, as well as technician access.

Cisco Cable Diagnostic Manager

Cisco Cable Diagnostic Manager is a web-based tool to help Customer Service Representatives at cable companies better handle subscriber calls and determine where problems reside in the network. Cisco Cable Diagnostic Manager provides status summary for the network neighborhood and fiber node, status on the DOCSIS or EuroDOCSIS-certified cable modem, as well as status on the Cisco CMTS products: Cisco uBR10012, uBR7200 Series, and uBR7100 Series.

Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter provides an efficient tool to help network operations center (NOC) personnel and field technicians detect, diagnose, and isolate problems between the cable plant and connected DOCSIS CPE devices. The product allows a technician to characterize upstream and downstream trouble patterns and quickly identify "flapping" CPE devices that are experiencing persistent connectivity problems. Operators can quickly discern CPE connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption issues.

Cisco Broadband Configurator

Cisco Broadband Configurator is a GUI-based tool designed to collect information needed to generate and download configuration files for DOCSIS or EuroDOCSIS cable modems and set-top boxes. There are two versions of the tool: a free, web-based version accessible via Cisco.com, and a stand-alone Java-based desktop version. Cisco Broadband Configurator enables point and click configuration of CPE values for RF, class of service, vendor information, SNMP parameters, BPI, TFTP, telco-return attributes, and CPE data.

For More Information

See the Cable Manager Web site: *http://www.cisco.com/go/cablemgr*
See the Cisco Cable Troubleshooter Web site:
http://www.cisco.com/go/troubleshooter

DSL Remote Access—Customer Premise Equipment (CPE)

Cisco offers the industry's broadest array of business-class DSL (G.SHDSL and ADSL) CPE solutions, from Enterprise to branch office, to Small Office/Home Office (SOHO) applications. Cisco's CPE solutions offer the choice of key features including Firewall, VPN, and Voice-over DSL support. And, Cisco's industry leading IOS-based capabilities enable QoS, policy management, and standardized set-up and configuration. Cisco CPE Products include:

- Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL and G.SHDSL RoutersRouters (page 1-8)
- Cisco 800 Series Routers (page 1-9)
- G.SHDSL WAN Interface Cards (WICs) for 1700, 2600/2600XM, 3600 Series (see
  Chapter 1: Routers)
- Cisco IAD 2400 Series (w/G.SHDSL) (page 4-21)

Broadband Services Aggregation

The Cisco broadband aggregation portfolio includes the Cisco 6400 Broadband Aggregator, Cisco 7200 Series Router, the Cisco 7400 Series Internet Router, and the Cisco 10000 Series Internet Router. This portfolio covers all possible broadband aggregation markets. The Cisco 6400 and Cisco 10000 Series routers are carrier class broadband aggregation routers designed to provide high-density, high-performance services while maintaining the high-availability standards of large-scale carrier deployments. The Cisco 7200,Cisco 7301and Cisco 7400 Series routers cover the ISP and retail space by providing a dense, feature-rich platform but only taking a small footprint in the network.

- Cisco 7400: Highest density PPP aggregation per rack-unit
- Cisco 7301: Highest Density PPP aggregation per rack-unit
- Cisco 7200: Most versatile platform
- Cisco 6400: Only platform offering ATM switching and broadband aggregation
- Cisco 10000: Highest availability on a carrier-class integrated edge router

With this portfolio, Cisco can address the broadest set of requirements in terms of form factor, density, performance and scale, and offer customers a unique level of choice, with products optimized for any customer deployment.

Cisco 7200 Series

When ordered with the Cisco IOS 7200 Series Broadband User Services License (part number FR-BUS72), the 7200 delivers scaled PPP, RBE, and L2TP sessions and tunnels in addition to rich IP services. It enables service providers to provision broadband Internet access and supports all of the popular access technologies deployed today, including DSL, Cable, Wireless, and Dial Access. It is ideal for medium-density applications and is capable of handling up to 16000 subscribers in a single chassis. The 7200 is a modular platform with a choice of processing engines and a wide variety of WAN and LAN port adapters, including T1/E1, DS3, OC-3, Fast Ethernet, and Gigabit Ethernet. See page 1-31 for more information on the 7200 series.

Cisco 7301 Series

When ordered as 7301-BB-8K and 7301-BB-16K the Cisco 7301 Series Router provides a compact, high-performance single-rack-unit (1RU) router coupled with a broad set of interfaces and Cisco IOS® Software features, which makes it ideal for Broadband applications. The Cisco is capable of handling up to 16,000 simultaneous sessions and allowing for a pay-as-you-grow "rack and stack" architecture.

Cisco 7400 Series

When ordered as a part number 7401ASR-BB, the 7400 series provides high-performance broadband services aggregation like the 7200, but in a low-power one rack unit (1 RU) form factor. It offers one port adapter (PA) slot supporting over 40 standard 7200 series PAs, including T1/E1, DS3, OC-3, Fast Ethernet, and Gigabit Ethernet; making it ideal for small- and medium-density applications. See page 1-38 for more information on the 7400 series.

Cisco 10000 Series

With recent enhancements, the Cisco 10000 is the industry's only integrated edge router that delivers highly available, line-rate performance without compromises for service providers deploying IP services to broadband, leased line, ATM, and frame relay customers. With 99.999 percent uptime, the platform delivers high-performance broadband features including support for 32,000 (61,500 in the future) broadband subscribers, hardware-accelerated PPP over Ethernet and PPP over ATM, routed bridge encapsulation and 1483 routing. See page 1-47 for more information on the 10000 series.

Cisco 6400 Series

The Cisco 6400 is designed for use in high-availability environments such as service provider central offices, and corporate premises; and aggregates access media (DSL, cable, wireless, and dial) to serve as the intelligent equal access point, allowing multiple operating companies and service providers access to end users. It includes switch, router, and line card redundancy.

The Cisco 6400 is a high-performance service gateway that enables the delivery of network services, VPNs, and voice- and entertainment-driven traffic over any access media. ATM interfaces connect the Cisco 6400 to dial access servers, DSLAMs, and Cisco IP DSL Switches; ATM and packet interfaces connect to the network core.

Key Features

- Session scalability and modular design—The Cisco 6400 represents a quantum leap in session scalability, capable of scaling from 2000 subscribers in its entry level configuration to 96,000 subscribers in a full configuration.
- Routing and VPN scalability—Using the Cisco 6400, service providers can simultaneously route end-user traffic over secure, independent pathways exceeding 1000 different domains or end destinations, with an aggregate throughput of over 2.4 Gbps forwarding capacity for handling even the most bandwidth-intensive broadband traffic.

For More Information

See the 6400 series Web site: *http://www.cisco.com/go/6400*

ATM Multiservice WAN Switching

Cisco BPX 8600 Series—Advanced ATM Multiservice Switches

The Cisco BPX 8600 series is standards-based ATM switch with advanced IP and ATM capabilities. Designed to meet the demanding, high-traffic needs of a public service provider or large private enterprise, the BPX switch delivers high-performance ATM switching, multiservice adaptation and aggregation for all types of user traffic. Proven in the world's largest ATM and Frame Relay networks, the BPX 8600 enables service providers and large enterprises to meet skyrocketing network demands.

The Cisco BPX 8600 series switch offers up to 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video and supports a wide range of interfaces, from Frame Relay to full broadband subscriber interfaces, up to 622 Mbps. You can offer multiple services for LAN, X.25, SNA, IP, Frame Relay, and ATM traffic from a single BPX platform. The Cisco BPX 8600 series supports multiprotocol label switching (MPLS) today, and this functionality can be easily added to any BPX switch already installed in the field.

For More Information

See the Cisco BPX Web site: *http://www.cisco.com/go/bpx*

Cisco MGX 8850 ATM Multiservice Switch

The Cisco MGX 8850 ATM Multiservice Switch enables delivery of a complete portfolio of service offerings while scaling from DS0 to OC-48c/STM-16 speeds. It enables service providers to be first to market with the new high-margin voice and data services while maintaining existing services.

The MGX 8850 universal chassis provides a unified ATM architecture that delivers a complete portfolio of differentiated services —from circuit emulation to IP VPNs—all with a single chassis, to enable service providers to easily add new services.

The Cisco MGX 8850 can function in three different modes of operation:

• PXM-1 configuration—Operates as a stand-alone device for narrowband services, or as an integrated edge concentrator for the Cisco BPX 8600 series or the Cisco MGX 8850 PXM-45

• PXM-1E configuration-Operates as a stand alone switch for low density narrowband services and included 1.2 Gbps switch card and PNNI routing

• PXM-45 configuration—Serves as a broadband edge switch and includes the 45 Gbps switch card and broadband ATM modules

Key Features

• Flexible ATM multiservice platform

• Highly scalable—from 1.2 to 45 Gbps of non-blocking throughput in single chassis

• Highest reliability, availability, and serviceability in the industry

• IP VPNs using Cisco IOS software-based Multiprotocol Label Switching (MPLS)

• Market-leading Frame Relay capabilities, with price-per-port leadership and advanced QoS

• High-density Point-to-Point protocol (PPP) for Internet access and aggregation

• Full-featured narrowband ATM for managed data, voice, and video services; high-density broadband ATM for wholesale ATM services

• Circuit Emulation for Private Line replacement

• Highly scalable packet voice gateway providing VoIP, VoATM(AAL1 & AAL2), ATM SVCs, Onboard MPLS

For More Information

See the Cisco MGX 8850 Web site: *http://www.cisco.com/go/mgx8850*

Cisco MGX 8830 ATM Multiservice Switch

The Cisco MGX 8830 Advanced ATM Multiservice Switch extends a full suite of narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements, using PNNI and MPLS for flexible network and services evolution. The Cisco MGX 8830, with a switching capacity of up to 1.2 Gbps, acts as a standalone switch, and offers a full range of service interfaces.

For More Information

See the Cisco MGX 8830 Series Web site: *http://www.cisco.com/go/mgx8830*

Cisco MGX 8200 Series

Cisco MGX 8230 Edge Concentrator

The Cisco MGX 8230 Edge Concentrator provides the most cost-effective gateway for narrowband services in space and power limited situations. It can acts as a stand-alone gateway or as an edge concentrator for the Cisco BPX 8600, Cisco MGX 8850 with PXM-45, and IGX 8400 series multiservice switches. The MGX 8230 offers a full range of narrowband service interfaces and a switching capacity up to 1.2 Gbps.

Cisco MGX 8250 Edge Concentrator

The Cisco MGX 8250 is a high-density edge concentrator designed for service providers needing flexibility for aggregation of IP, voice, Frame Relay, circuit emulation, and ATM services. An ATM narrowband edge concentrator, the MGX 8250 can serve as a stand-alone edge concentrator or as a feeder node for the Cisco BPX 8600 series and MGX 8850 switches. The MGX 8250 Edge Concentrator offers up to 1.2 Gbps of IP + ATM switching capacity.

For More Information

See the Cisco MGX 8200 Series Web site: *http://www.cisco.com/go/mgx8200*

Cisco IGX 8400 Series Multiservice WAN Switch

Efficient bandwidth utilization, intelligent QoS management features, and carrier-class reliability make the IGX 8400 series switch the ideal choice for meeting unique Wide-Area Networking (WAN) needs. This series provides the ATM backbone required to deliver data, voice, fax, and video services with guaranteed quality of service (QoS). The IGX 8400 series switch connects to public services for reduced leased-line costs by maximizing the use of these WAN links. Available with 8, 16, or 32 slots, the IGX 8400 series switches offers high flexibility to meet a wide range of Enterprise and Service Provider needs. Tight integration with the broad range of Cisco access products enables you to efficiently and cost-effectively run backbone-to-branch data, voice, fax, and video services between premises. By integrating IOS technology, the Cisco IGX 8400 series switch helps deliver a seamless migration path to technologies such as VoIP and MPLS.

For More Information

See the Cisco IGX 8400 Web site: *http://www.cisco.com/go/igx*

Cisco Long Reach Ethernet Solution

The Cisco Long-Reach Ethernet solution meets the demands of high bandwidth applications while leveraging existing copper wiring infrastructures. Catalyst® 2950 Long-Reach Ethernet (LRE) Series switches enable enterprise and service provider customers to extend intelligent Ethernet services over existing phone and legacy wiring, at distances of up to 5000 feet. Cisco is the only company with the breadth of technologies that allow customers to deliver intelligent network services across any combination of wired and wireless infrastructures.

The Cisco 2950 LRE solution includes the Cisco Catalyst® 2950 LRE switches, the Cisco 575 and 585 LRE Customer Premise Equipment (CPE) devices, and the Cisco LRE POTS Splitter. Each LRE link is terminated with either the Cisco 575 or 585 LRE CPEs, and a POTS splitter is required when POTS traffic coexists with the LRE link over the same line.

Catalyst 2950 LRE Series Intelligent Ethernet Switches

The Cisco Catalyst® 2950 LRE switches are fixed-configuration, stackable models that provide wire-speed LRE and Gigabit Ethernet connectivity for small and midsized networks. The Catalyst 2950 Series is an affordable product line that brings intelligent services, such as enhanced security, high availability and advanced quality of service (QoS), to the network edge-while maintaining the simplicity of traditional LAN switching. When a Catalyst 2950 LRE switch is combined with a Catalyst 3550 Series switch, the solution can enable IP routing from the edge to the core of the network. Embedded in Catalyst 2950 Series switches is the Cisco Cluster Management Suite (CMS) Software, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches using a standard Web browser. In addition to CMS, Cisco Catalyst 2950 LRE switches provide extensive management tools using Simple Network Management Protocol (SNMP) network management platforms such as CiscoWorks for Switched Internetworks.

The Cisco Catalyst 2950 LRE switches consist of the following devices-which are based upon the Enhanced Image (EI) Software for the Catalyst 2950 Series.

• Catalyst 2950ST-24-LRE-24 LRE ports + 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time)

• Catalyst 2950ST-8-LRE-8 LRE ports + 2 10/100/1000BASE-T ports + 2 SFP ports (two of the four uplinks active at one time)

The two built-in Gigabit Ethernet SFP ports support 1000BASE-SX and 1000BASE-LX modules. The dual SFP-based and copper Gigabit Ethernet implementation provides customers with tremendous deployment flexibility-allowing customers increased availability with the redundant uplinks. High levels of stack resiliency can also be implemented by deploying dual redundant Gigabit Ethernet uplinks and UplinkFast technologies for high-speed uplink and stack interconnection failover, and Per VLAN Spanning Tree Plus (PVST+) for uplink load balancing.

Cisco 575 and 585 LRE CPE Devices

Each LRE port is terminated in the room with either the Cisco 575 or 585 LRE Customer Premise Equipment (CPE) devices. These compact devices bridge LRE and Ethernet. The 575 CPE has one RJ-45 Ethernet connection and two RJ-11 connectors—one for the wall and one for a telephone. The 585 CPE has four RJ-45 switched Ethernet connections and two RJ-11 connectors and supports 802.1p QoS so that voice and video traffic are prioritized over normal data traffic. Both the Cisco 575 and 585 LRE CPE device can be mounted on or under a desk, or on a wall. They ship with a mount lock-in mechanism and clip-on Ethernet cable guard to discourage theft. It supports voice (Plain Old Telephone Service—POTS) traffic-including ISDN or digital phones-that coexists over the same LRE line by splitting LRE and POTS traffic at the CPE device.

Cisco LRE 48 POTS Splitter

The Cisco LRE 48 POTS Splitter is a high-density, low-cost device that is ideal for building deployments where the PBX system is on-site and POTS traffic must coexist over the same copper wiring as LRE traffic. Unlike "splitterless" building broadband network solutions, the Cisco LRE 48 POTS Splitter ships as a separate, compact form factor to ensure that POTS service is separate, and never compromised by LRE switch reconfigurations or downtime.

The Cisco LRE 48 POTS Splitter supports 48 ports in a 1RU form factor. Each splitter has six RJ-21 connectors-two each for connectivity to the patch panel, the LRE switch(es), and the on-site PBX system.

Key Features

- Performance—Delivers 2-15 Mbps symmetric over existing category 1/2/3 wiring at distances up to 5000 feet. Rate Selection feature automates the process of selecting a data rate for a line for ease of installation and increased robustness.
- Powerful Gigabit Ethernet uplink options—1000BaseT and SFP ports
- Superior control through intelligent services—advanced quality of service and security based on Layer 2 through Layer 4 parameters.
- Multicast support—Multicast VLAN Registration (MVR) and IGMP Snooping.
- Enhanced Cisco IOS Services
- Network Management—Cisco Switch Clustering technology and the advanced, Web-based Cisco Cluster Management Suite (CMS) software deliver easy-to-use configuration and ongoing monitoring and management of up to 16 switches. This software is embedded in the switches and delivers remote management of clustered switches and connected CPE devices through a single IP address

Competitive Products

• Paradyne Networks: BitStorm solution (Etherloop) and ReachDSL products	• Extreme Networks: Alpine chassis with FM-8Vi blade (Ethernet over VDSL)
• Tut Systems: IntelliPOP VDSL	• Huawei: Quidway s3026v

Specifications

Feature	Cisco 2950ST 24 LRE	Cisco 2950ST 8 LRE
Fixed Ports	24 Long-Reach Ethernet ports and four 10/100 Ethernet ports and 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time	12 Long-Reach Ethernet ports and four 10/100 Ethernet ports and 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time)
Backplane	8.8 Gbps	Same as Cisco 2950ST 24 LRE

Feature	Cisco 2950ST 24 LRE	Cisco 2950ST 8 LRE
Forwarding Rate	3.5 Mpps	3.2 Mpps
VLAN Maximum	250 port based VLANs or ISL/802.1Q trunks	Same as Cisco 2950ST 24 LRE
FEC	Yes	Same as Cisco 2950ST 24 LRE
802.1Q	Yes	Same as Cisco 2950ST 24 LRE
Multicast	IGMP Snooping	Same as Cisco 2950ST 24 LRE
QoS	802.1 p, 4 egress queues, WRR, Layer 3 and 4 services	Same as Cisco 2950ST 24 LRE
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, embedded Cisco Cluster Management Suite (CMS), Web-based interface	Same as Cisco 2950ST 24 LRE
Memory	84 MB (Flash); 32 MB (CPU DRAM)	Same as Cisco 2950ST 24 LRE
Embedded RMON	History, Events, Alarms, Statistics	Same as Cisco 2950ST 24 LRE
Dimensions (HxWxD)	1.75″ (44.5 mm) x 17.5″ (444.5 mm) x 9.7″ (246.6 mm)	Same as Cisco 2950ST 24 LRE

Selected Part Numbers and Ordering Information[1]

Catalyst 2950 LRE Series Switches

WS-C2950ST-24-LRE	Catalyst 2950 LRE switch: 24-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports
WS-C2950ST-8-LRE	Catalyst 2950 LRE switch: 8-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports

Cisco 575 and 585LRE CPE Device

CISCO575-LRE	Cisco 575 LRE CPE device: 1-port Ethernet + 2 RJ-11 connectors
CISCO575-LRE-6P	Cisco 575 LRE CPE device (6 pack): 1-port Ethernet + 2 RJ-11 connectors
CISCO575-LRE-24P	Cisco 575 LRE CPE device (24 pack): 1-port Ethernet + 2 RJ-11 connectors
CISCO585-LRE	Cisco 585 LRE CPE device: 4-port Ethernet + 2 RJ-11 connectors
CISCO585-LRE-6P	Cisco 585 LRE CPE device (6 pack): 4-port Ethernet + 2 RJ-11 connectors
CISCO585-LRE-24P	Cisco 585 LRE CPE device (24 pack): 4-port Ethernet + 2 RJ-11 connectors

Cisco LRE 48 POTS Splitter

PS-1M-LRE-48	Cisco LRE 48 POTS Splitter: 48 ports

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the LRE Web site: *http://www.cisco.com/go/lre*

Cisco Building Broadband Service Manager (BBSM) Version 5.2

Cisco Building Broadband Service Manager (BBSM) is an access gateway for public access networks that enables simple, plug-and-play access, end user self-provisioning of services, customizable portal and advertising platforms and Web-based management, reporting and configuration. In addition, multiple automated authentication and billing options are supported, including credit card, RADIUS, property management system and access code.

The Cisco BBSM platform manages Internet access services with no routine IT support, enabling property owners and service providers to offer services in remote and unattended locations. BBSM supports tiered service levels in order to deliver targeted customer offerings. For instance, a hotel can set-up daily network access for a series of meetings providing a variety of bandwidth/pricing options to capture lucrative meeting room revenue opportunities.

The Cisco BBSM has been designed for compatibility with Cisco access-layer LAN products to provide a complete solution that enables service providers or property owners to create, market and operate broadband access services in new vertical markets such as: Hospitality, Higher-Education, and Public Access
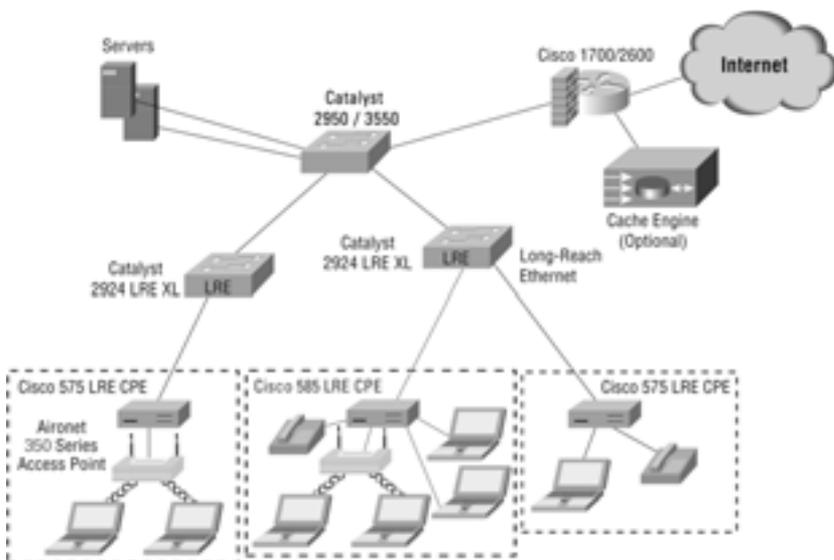
Cisco BBSM Hotspot Server Version 1.0

The Cisco Building Broadband Service Manager (BBSM) Hotspot server connects mobile users to broadband services anywhere, anytime. Cisco BBSM Hotspot is a cost effective access management gateway suited for small- to medium-sized public access locations, as well as for visitor access in larger enterprise locations. BBSM Hotspot enables simple plug-and-play connectivity, end user self-provisioning of services, and multiple authentication options.

BBSM Hotspot works with Cisco Local Area Network (LAN) products to provide a complete solution for secure wired and wireless Internet Access for visitors, guests and other temporary users.   Use Cisco BBSM Hotspot to manage and operate broadband access services in public hotspots, small hotels, and public overlays on business networks.

For More Information

See the BBSM Web site: *http://www.cisco.com/go/bbsm*

Sample LRE Solution Overview—Broadband Internet Access for MxU

CHAPTER 8

Optical Transport

Optical Transport Products at a Glance

Product	Features	Page
Cisco ONS 15200 Metro DWDM Series	Cisco ONS 15252 and ONS 15201 DWDM solutions • Supports a mixture of point-to-point, hubbed, and meshed traffic patterns (SDH/SONET, Gigabit Ethernet over a range of line rates up to 2.5 Gbit/s) • Modular architecture, capacity may be added channel-by-channel in a highly cost-effective manner • High transmission efficiency for more channels, nodes and greater distances • Compact design	8-3
Cisco ONS 15302/15305 SDH Multiservice CPE & Aggregation Platforms	The Cisco ONS 15302/ONS 15305 Multiservice CPE and aggregation solutions are ultra-compact integrated systems that extend next-generation optical networks (access nodes or CPE): • Low Cost Access or CPE Platform • E1, E3, DS3, 10/100 BaseT Ethernet and GigE • STM-1 (15302) or STM-1/4/16 (15305)	8-3
Cisco ONS 15327 SONET Multiservice CPE & Aggregation Platform	Metro Edge Multiservice Provisioning Platform (MSPP) • Highly cost-efficient for delivering multiservices to the metro edge • Aggregates and switches TDM, 10/100/GigE, data and video services • Very small footprint	8-4
Cisco ONS 15454 SONET and ONS 15454 SDH Platforms	Industry-leading SONET Multi-service Provisioning Platform (MSPP) and SDH MSPP: • Aggregates DS1, DS3, STS-1, OC-3, OC-12, OC-48 • Supports OC-192 and mulitwavelength DWDM optics • Wide range of data interfaces, including 10/100/GigE, data and video	8-4
Cisco ONS 15501 Erbium Doped Fiber Amplifier	• Designed for Enterprise and Service Provider environments • Low-noise, gain flattened C-band optical amplifier • Complements the Cisco ONS 155xx DWDM solution • Capable of extending 100GHz, 32-channel, 2.5Gbps / 10Gbps optical infrastructure over longer distances	8-5
Cisco ONS 15216 and 15501 Optical Transmission Families	Cisco ONS 15216 Metro DWDM Series • Supports 32 ITU-grid wavelengths at 100 GHz spacing and provides unprecedented transport flexibility with optical filtering • Optical Add/Drop Multiplexing (OADM) • Optical Performance Monitoring and Amplification • The ONS 15216 allows carriers to deliver more services per wavelength and more wavelengths per fiber Cisco ONS 15501 Optical Amplifier • Constant flat gain of 17 dB over the 1530nm to 1563nm band simplifies network design. • Metro optimized auto gain control and variable gain • Low noise figure of <6.0 dB allows the use multiple amplifiers in cascade • Input power range of -29 to 0 dBm	8-5
Cisco ONS 15530 Metro DWDM Aggregation Platform	Metro Optical DWDM Multiservice Aggregation Platform • Enables storage and data networking, transparent wavelength services, and legacy applications • ESCON Aggregation up to 40 channels on 1 wavelength • Scales from 2.5Gbps to 10Gbps • Supports wide range of protocols over optical infrastructure • Highly resilient network with flexible topology design options	8-5

Product	Features	Page
Cisco ONS 15540 Extended Services Platform	Highly modular and scalable next-generation Dense Wave Division Multiplexing (DWDM) platform • Ideal for enterprises and service providers • Delivers the integration of data, storage and metro networking • Ultra-high bandwidth intelligent optical infrastructure • Supports any packet on any wavelength from any platform	8-6
Cisco ONS 15600 Multiservice Switching Platform (SONET/SDH)	The Cisco ONS 15600 MSSP is a true multiservice switch, providing carrier class reliability, availability, serviceability, operations, and management. • Combines the functionality of multiple metro systems including SONET/SDH multiplexers and digital cross-connect network elements • Scalable, easy-to-use platform supports all metrotopologies	8-7
Cisco Transport Manager (CTM 4.x) (Network Management)	Carrier-class element management system • Ideal for service provider and enterprise networks • Supports Cisco ONS 15454/15327/15600 (SONET/SDH), 15540, 15530, 15501, 152xx, 1580Xsystems • Manages fault /performance/configuration/alarm/security/inventory/administrative tasks • Native Circuit/Equipment Provisioning for 15454/15327/15600 SONET/SDH product family • Northbound interfaces include SNMP, TL1 and CORBA • Integrates into OSS/BSS systems • Requires SUN/Solaris/UNIX server and Oracle database	8-8
Cisco 10720 Internet Router	Service provider-class metro access services router • Optimized building block for the next generation metro IP network • Equipped with 24 ports of Ethernet technology for customer access and dynamic packet transport (DPT) technology for metro optical connectivity • Powered by Cisco IOS software and the parallel express forwarding (PXF) architecture • Cost-effective, reliable platform supporting full suite of IP routing protocols • With DPT architecture, enables optimal fiber connectivity as well as features such as IP class of service, TLS, VoIP and VPN services See Chapter 1—Routers for more information on the Cisco 10720 Internet Router	1-49

Sample Metro Optical Transport Solution Overview— Delivering Multiservices to the Edge
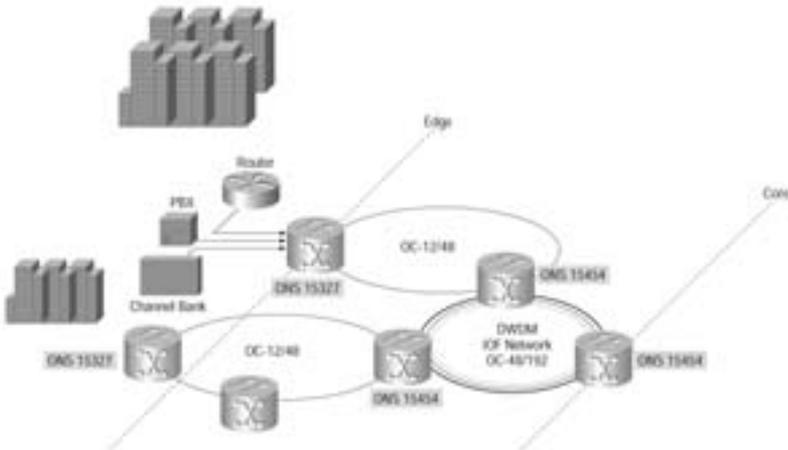
Cisco ONS 15200 Optical Metro DWDM Series

The Cisco ONS 15252, 15201, and 15216 are part of the Cisco ONS 15200 Metro DWDM family, the first solution to deliver instant wavelengths to buildings, premises, or PoPs.

The ONS 15252 and 15201 may be used to realize many sub-network topologies and can handle a mixture of point-to-point, hubbed, and meshed traffic patterns. Capacity may be added channel-by-channel in a highly cost-effective manner. Since they feature broadband transponders, a wide range of traffic types may be handled (SONET/SDH, Gigabit Ethernet) over a range of line rates up to 2.5 Gbs. Channel protection options include unprotected, client-protected, and (optical channel) fiber protection. The ONS 15252 is a multi-channel unit and the ONS 15201 is a single channel unit node. Both have exceptionally small footprints and low power consumption.

The Cisco ONS 15216 supercharges wavelength services by supporting up to 32 ITU-grid wavelengths, and provides unprecedented transport flexibility with optical filtering, Optical Add/Drop Multiplexing (OADM), Optical Performance Monitoring and Amplification. It allows service providers to deliver more services per wavelength and more wavelengths per fiber.

The Cisco ONS 15216 optical filter solution enables service providers to deploy point-to-point, bus, and ring networks using the terminal filter multiplexing and demultiplexing and OADM. The Cisco ONS 15216 platform provides an open and flexible solution to combine wavelengths launched by the Cisco ONS 15454, ONS 15252, ONS 15201, and ONS 15540. The Cisco ONS 15216 supercharges wavelength services and extends Cisco's optical leadership to metro regional DWDM.

For More Information

See the ONS 15200 Series Web site: *http://www.cisco.com/go/ons15200*

Cisco ONS 15302/15305 SDH Multiservice CPE & Aggregation Platforms

The Cisco ONS 15302/ONS 15305 Multiservice CPE and Aggregation solutions are ultra-compact integrated systems that offer cost effective solutions with short ROI. These platforms provide native multiservice capabilities (i.e., TDM interfaces, multiplexing and Ethernet data interfaces). These products can be managed under Cisco Transport Manager (CTM), Cisco's unified optical network management system.

The ONS 15302 CPE platform provides the following TDM interfaces—STM-1 uplink (protected or unprotected STM-1 optical uplink, 1+1 MSP, future SNCP) and E1 customer interfaces (12 E1 ports). This product also provides native Ethernet customer access via 4-port 10/100BaseT module that supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management. An optional WAN module is available for point to multi-point applications.

The ONS 15305 Aggregation platform provides the following TDM interfaces—protected or unprotected optical interfaces (8 port S-1.1 optical module, 2 port S-4.1 optical module, 1 port S-16.1 optical module, 1+1 MSP, SNCP, 2F MS-SPRing for STM-16) and electrical customer interfaces (8 and 63 port E1 modules and a 6 port

E3/DS3 module). This product also provides native Ethernet customer access via an 8-port 10/100BaseT module and a 2-port GigE module (supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management). An optional WAN module is available for point to multi-point applications.

For More Information

See the ONS 15302/ONS 15305 web site: *http://www.cisco.com/go/ons15300*

Cisco ONS 15454 and 15327 Multiservice Provisioning Platforms

The Cisco ONS 15454 and ONS 15327 Multi-service Provisioning Platforms (MSPP) are key building blocks in today's optical networks due to their unprecedented transport performance and economics. They offer supercharged transport capability by combining the best of traditional SONET TDM (time division multiplexing) and statistical multiplexing in single units.

The Cisco ONS 15454 aggregates traditional facilities such as DS1, DS3, STS-1, OC-3, OC-12, and OC-48 including multi-wavelength DWDM optics, but it also supports data interfaces for 10/100/GigE, data and video. This enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and life cycle deployment. A single ONS 15454 shelf can support combinations of OC-3/c, OC-12/c, OC-48/c, and OC-192.

The new Cisco ONS 15454 SDH MSPP offers an international optical transport solution that combines the best of traditional SDH TDM and statistical multiplexing in a single platform. The Cisco ONS 15454 SDH MSP can aggregate traditional services such as E1, E3, DS3, STM-1, STM-4, STM-16 and STM-64 including multi-wavelength DWDM optics, but is also designed to support data interfaces such as Ethernet/IP.

The Cisco ONS 15327 combines industry-leading bandwidth capacity and service diversity in a very compact footprint, enabling service providers to achieve radical economics at the metro edge. Based on the same technology as the industry leading Cisco ONS 15454, the ONS 15327 supports high optical bandwidth and has the ability to drop a DS1 from an OC-48 stream. With comprehensive STS- and VT-level bandwidth management and integrated data switching, the Cisco ONS 15327 also serves as a digital cross-connect without the need for additional equipment. It aggregates and switches TDM, Ethernet, and ATM services, and can be managed using the Cisco Transport Manager element management system.

For More Information

See the ONS 15454 SONET Web site: *http://www.cisco.com/go/ons15454*
See the ONS 15454 SDH Web site: *http://www.cisco.com/go/15454sdh*
See the ONS 15327 Web site: *http://www.cisco.com/go/ons15327*

Cisco ONS 15501 Erbium Doped Fiber Amplifier

The Cisco ONS 15501 is a low-noise, gain-flattened C-band optical erbium doped fiber amplifier designed to extend the distance of today's metro high-bandwidth optical network beyond existing optical budget constraints. The Cisco ONS 15501 complements the Cisco ONS 155xx DWDM and Catalyst 6500 solutions, providing customers with the capability to extend their 2.5-Gbps or 10-Gbps optical infrastructures over greater distances. Packaged in a one-rack-unit (1RU) chassis, the Cisco ONS 15501 incorporates features such as 17-dB constant flat gain, automatic gain control, and low noise figure for excellent Optical Signal to Noise Ratio (OSNR) characteristics.

For More Information

See the Cisco ONS 15501 Web site: *http://www.cisco.com/go/ons15501*

Cisco ONS 15530

The Cisco ONS 15530 is a DWDM (dense wavelength division multiplexing) multiservice aggregation platform. The ONS 15530 can be used in applications such as storage networking, data networking, transparent wavelength services, and legacy SONET / SDH / ATM. These features make the ONS 15530 an excellent choice for building a scalable, ultra-high-bandwidth-ready, intelligent optical aggregation and transport infrastructure.

Key Features

- Aggregation—up to 40 ports of ESCON or 8 ports of Fibre Channel, FICON, or Gigabit Ethernet per wavelength, lowering total cost of ownership through bandwidth efficiency
- Scalability—up to 32 wavelengths ranging from 2.5Gbps to 10Gbps for network growth and design flexibility
- Multiservice Interfaces—protocol-independent transponders supporting data rates between 16Mbps to 2.5Gbps for protocols such as ESCON, FICON, Fibre Channel, 2G Fibre Channel, Gigabit Ethernet, SONET/SDH, Digital Video, and other protocols
- Cost-efficient point-to-point fiber trunk protection capability using the Protection Switch Module
- Complete Amplification Solution—Together with ONS 15501 EDFA optical amplifier, the VOA modules enables enterprises and service providers to further expand their optical DWDM networks over greater distances.
- Design Flexibility—can be used to deploy Point-to-point, Hub Ring, or Mesh Ring networks
- Network assurance—through high availability and resilient optical design
- IOS-based—easily integrates into existing Cisco networks

For More Information

See the Cisco ONS 15530 Web site: *http://www.cisco.com/go/ons15530*

Cisco ONS 15540 Extended Services Platform (ESPx)

The ONS 15540 Extended Services Platform with external cross connect capability (ESPx) is a highly modular, flexible, and scalable next generation dense wave division multiplexer (DWDM) platform that integrates data networking, storage area networking (SAN), time division multiplexing, (TDM) Synchronous Optical Network (SONET) and Synchronous Digital Hierarchy (SDH) technologies over an ultra high bandwidth, intelligent optical infrastructure that can support any packet, over any wavelength on any platform.

• Flexible Multi-Protocol Support—The Cisco ONS 15540 offers both variable rate transparent and fixed rate multi-protocol transponders that feature user selectable small form factor pluggables (SFPs) and support a variety of industry standard data rates between 16Mbps to 2.5Gbps as well as 10Gb Ethernet

• Scalable, flexible, and modular architecture in a high-density compact footprint— Provides superior operational support and network expansion on an as needed basis through its hot swappable modular lines cards, transponders, and optical multiplexers

• Simple Network Consolidation and Comprehensive Multi Service Support provided by the available ONS 15540 2.5GB and 10GbE transponders

• Optical, Service, and Application Level Performance Monitoring—provides industry-leading supports for service level agreements (SLAs)

• High Availability for mission critical networks—Provides 99.999% availability for demanding Managed Network Service Providers and enterprise business continuance applications, with hardware redundancy and automatic protection switching to protect against fiber cuts and equipment failures

• Multi-Service Integration—Transports ESCON, FICON, 1Gb/2GB Fibre Channel for Storage Area Networking (SAN), Fast and Gigabit Ethernet, and 10 Gb Ethernet for data networking, and SONET/SDH at OC-3/STM1, OC-12/STM4, and OC-48/STM12

Key Features:

- Compact modular design with external connectorization: External Direct Connect system from Line card to OADMs; Optional cross connect and fiber management system

- Transparent Tuneable Variable data rate Type 1 Transponders: 16Mbps to 622Mbps MM fiber support; 16Mbps to 2.5Gbp SM fiber support; 16 Tuneable transponders support 32 channels for reduced sparing costs; Multi-protocol support for Enterprise

- Tuneable Type 2 Transponders with Multi Protocol Small form Factor Pluggables (SFPs): Variable data rate support between 16Mbps to 2.5Gbps; 16 Tuneable transponders support 32 channels for reduced sparing costs; Multi-protocol SFP Support

- Standards based Management support for SNMP, Ciscoview and Cisco Transport Manager (CTM)

- Protection Switch Module provides highly cost effective solution for fiber trunk protection

- Standards based Optical architecture conforming to ITU G.692 100GHz channel spacing

- This system has been qualified by IBM for Geographically Dispersed Parallel Sysplex (GDPS), and by EMC for Symmetrix Synchronous support as tested in their E-LAB environment

For More Information

See the Cisco ONS 15500 Series Web site: *http://www.cisco.com/go/ons15500*

Cisco ONS 15600 Multiservice Switching Platform

The Cisco ONS 15600 provides unparalleled flexibility in designing next generation metro networks. Fully engineered and optimized for metro networks, the Cisco ONS 15600 MSSP simplifies and revolutionizes bandwidth management in the metro core by allowing service providers to seamlessly integrate their metro core and metro edge networks, while dramatically reducing initial turn up costs. Delivering scalability to 960 Gbps of traffic in a single rack, it complements the market-leading Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) by leveraging its proven architecture and operating software. This allows service providers to dramatically simplify their metro networks and realize immediate cost, space and operational benefits. The Cisco ONS 15600 MSSP provides complete integration of metro core and edgenetworks for service provisioning and network management.
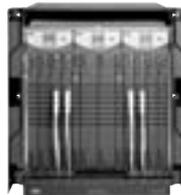
For More Information

See the ONS 15600 Series web site: *http://www.cisco.com/go/ons15600*

Cisco Transport Manager (CTM 4.x) (Element/Network Management)

Cisco Transport Manager is an integrated optical element management system for Cisco ONS 15000 series optical networking platforms. CTM manages configuration, fault isolation, performance, and security for Cisco optical network elements. With integrated support for SONET, SDH, DWDM and Ethernet, along with open interfaces to operations support systems (OSS), CTM delivers the full power of Cisco's wide range of advanced optical systems to today's network operators and enterprises.

IOS Software & Network Management

Cisco IOS® Software & Network Management Products at a Glance

Product	Features	Page
CiscoWorks for Windows	An entry level suite of integrated network management tools for smaller networks: • Event management and topology mapping application • Includes Cisco's popular CiscoView Element Management Tool	9-2
Cisco IOS Software	Feature-rich network operating system supported on wide range of Cisco products • Provides a common IP fabric, functionality, and command-line interface (CLI) across network infrastructures • Enables a vast array of key routing, multiservice, traffic shaping, security/firewall, and traffic monitoring applications, and a broad variety of network connections	9-4
CiscoWorks Small Network Management Solution	Web-based network management solution designed for small to medium businesses (SMB) • Device auto-discovery using SNMP simplifies setup and reduces startup time • Standards-based, multi-vendor management • Event management and topology mapping application • Includes Cisco's popular CiscoView Element Management Tool	9-11
CiscoWorks Routed WAN Management Solution	A comprehensive set of applications for managing the router elements of a multiservice Enterprise wide-area network. This bundle includes Access Control List Manager, Internetwork Performance Monitor, Resource Manager Essentials, and CiscoView	9-13
CiscoWorks LAN Management Solution	Provides key applications needed to manage Cisco switch-based Enterprise campus networks. This bundle includes Campus Manager, Device Fault Manager, nGenius Real Time Monitor, Resource Manager Essentials, and CiscoView	9-14
CiscoWorks VPN/Security Management Solution	Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). This bundle includes Management and Monitoring Centers, Cisco IDS Host Sensor and Console, Cisco Secure Policy Manager, VPN Monitor, Resource Manager Essentials, and Cisco View	9-16
CiscoWorks Manager IP Telephony Environment Monitor	A suite of telephony management applications that ensures the readiness and manageability of converged networks supporting VoIP and IP telephony traffic and applications. The bundle includes Voice Health Monitor, Default Fault Manager, CiscoView, and Downloadable Modules: IP Phone Information Utility, IP Phone Help Desk Utility, Fault History Manager	9-18
CiscoWorks Voice Manager for Voice Gateways	Enables the management and monitoring of devices used as gateways between analog voice equipment and the data network. • Enhanced capabilities to configure and provision voice ports • Create and modify dial plans on voice-enabled Cisco routers for voice over IP (VoIP), voice over Frame Relay (VoFR), and voice over ATM (VoATM) network deployments	9-19
CiscoWorks QoS Policy Manager (QPM)	Enables centralized administration and automated deployment of bandwidth reservation and prioritization policies for critical network applications • Differentiates services of Web applications, voice traffic, and business-critical applications	9-21
Cisco Ethernet Subscriber Solution Engine	A hardware-based management system for metro access networks that use the Cisco ONT 1000 Gigabit Ethernet Series Optical Network Terminator. • Enables complete remote management and troubleshooting of the customer demarcation point for Ethernet over fiber	9-22
CiscoWorks Hosting Solution Engine	A hardware-based content management solution for e-business operations in Cisco-powered data Centers. This product provides network infrastructure monitoring and Layer 4-7 hosted services configuration and activation.	9-24
CiscoWorks Wireless LAN Solution Engine	A hardware paced wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges • Monitors LEAP authentication servers • Enhances security management through mis-configuration detection on access points and bridges	9-23
Cisco Catalyst 6500 Series Network Analysis Modules 1 and 2	NAM is an integrated, network monitoring instrumentation and Web-browser based traffic analysis solution for the Catalyst 6500 based environments. It enable greater visibility into traffic at all layers of the network by providing real time traffic analysis and troubleshooting capabilities.	9-25

Product	Features	Page
Cisco Secure User Registration Tool (URT)	Provides organizations with increased LAN security by actively identifies users within the network and creates user registration policy bindings that help support mobility and tracking:	5-15
	• Ensures that users are associated with their authorized subnet/VLAN; Addresses the challenges associated with campus user mobility; Supports Web-based authentication for Windows, Macintosh, and Linux client platforms; Secure user access to the VLAN with MAC address-based security option	
	Option to allow multiple users connected to a hub access to a VLAN served by single switch port	
	See Chapter 5—VPN and Security for more information on Cisco Secure User Registration Tool	
Cisco Secure Access Control Server (ACS) for Windows	Controls the authentication, authorization, and accounting (AAA) of users and administrators to network devices and services; Operates as a centralized Remote Access Dial-In User Service (RADIUS) or Terminal Access Controller Access Control System (TACACS+) server; Supports Lightweight Directory Access Protocol (LDAP) user authentication; Data replication and backup services; Flexible user and group policy controls; Support for Cisco 802.11x Catalyst Switch and Wireless solutions; Extensible Authentication Protocol (EAP) enhancements to support Protected EAP (PEAP) for wireless LANs	5-14
	All administrative access is encrypted with SSL	
	See Chapter 5—VPN and Security for more information on CiscoSecure Access Control Server (ACS) for Windows	

CiscoWorks for Windows

CiscoWorks for Windows is a powerful set of network management tools to easily manage your small to medium network or workgroup. It provides information such as dynamic status, statistics, and comprehensive configuration information for Cisco routers, switches, hubs, and access servers. Using the included WhatsUp Gold from Ipswitch, you can also monitor printer, workstations, servers and important non Cisco network services.
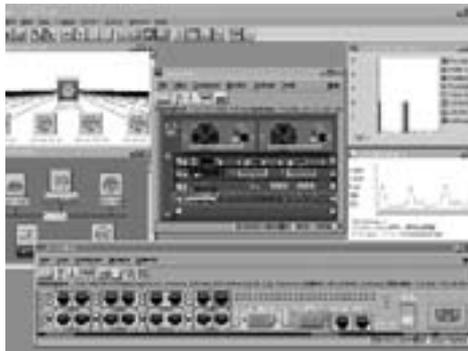
When to Sell

Sell This Product	*When a Customer Needs These Features*
CiscoWorks for Windows	• A single solution for managing all resources attached to a small multivendor network
	• A smaller solution, where centralize management of configurations of a software distribution is not needed
	• Low-cost network management
	• Needs to quickly understand basic network connectivity, access individual device configurations and statistics, and troubleshoot problems

Also available for small and medium size customers is the CiscoWorks Small Network Management Solution (Small NMS). Small SNMS includes all the features above and includes CiscoWorks Resource Manager Essentials (Essentials) which provides additional functionality that allows the customer to of build and maintain an up-to-date hardware and software inventory for up to 20 devices in a network.

Key Features

CiscoWorks for Windows provides the following features when used in conjunction with WhatsUp Gold from Ipswitch (included in the CiscoWorks for Windows package):

- Automatic discovery process for networked devices
- Management of network hardware, printers, servers, and workstations
- Customizable monitoring of services such as FTP and HTTP
- Access to extensive data on port status, bandwidth utilization, traffic statistics, protocol information, and other network performance statistics
- Flexible graphing capabilities for quickly recording and analyzing historical data that can be exported to files
- Management Information Base (MIB) compiler and browser for managing third-party SNMP devices
- Tools to simplify device configuration and management for Cisco routers, switches, and access servers
- Threshold management features that can be set for many performance variables to generate an alarm or event notification
- Flexible event notification, including voice, paging, and e-mail notification of user-defined events

CiscoWorks for Windows Components

CiscoWorks for Windows includes the following tools:

- WhatsUp Gold from Ipswitch, Inc.—Provides network discovery, mapping, monitoring, and alarm tracking
- CiscoView—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- Threshold Manager—Enhances the ability to set thresholds on Cisco RMON-enabled devices, reducing management overhead and improving troubleshooting capabilities
- StackMaker—Allows users to combine multiple Cisco devices of specific types into a single stack and visually manage them in a single window
- Show Commands—Displays detailed router system and protocol information without requiring the user to remember complex Cisco IOS Software command-line languages or syntax

Specifications

Feature	CiscoWorks for Windows
Hardware Requirements	266 MHz Pentium-based IBM PC or compatible computer
	128-MB RAM total
	1 GB free hard drive space
Software Requirements	Windows 98, Windows NT 4.0, or Windows 2000
	Netscape 4.61, 4.7, 4.76 or Internet Explorer 5.0, 5.1, 5.5

Selected Part Numbers and Ordering Information

CiscoWorks for Windows

CWW-6.1-WIN	CiscoWorks for Windows 6.1
CWW-6.1-WIN-UP	Upgrade to CWW 6.1 for Windows from CWW 5.0
CWW-6.1-WIN-MR	Maintenance Release: Requires existing CWW 6.0 -June 02

For More Information

See the CiscoWorks for Windows Web site: *http://www.cisco.com/go/cwwin*

Cisco IOS® Software

Cisco's IOS Software is a feature-rich network operating system that provides network intelligence for the majority of today's Internet and for most of the world's business-critical networking applications.

Supporting Cisco's extensive range of platforms, Cisco IOS Software provides a common IP fabric, functionality and command-line interface (CLI) across network infrastructures. Cisco IOS Software enables a vast array of key routing functions, multi-service capabilities, traffic shaping, connections, security/firewall protection, traffic monitoring, and highly flexible network and product configuration.

Below is an abbreviated list of key capabilities, intelligent network technologies, and architectures enabled by Cisco IOS Software:

- Quality of Service (QoS)
- Converged data, voice, and video over IP
- IP/ATM/Frame Relay network connectivity and scalability features
- Security/firewall/IPSec/access lists
- Traffic monitoring and NetFlow based monitoring, accounting, and billing
- Wide range of routing protocols (including MPLS)
- IPv6
- Multicast

Quality of Service (QoS)

The promise of networking is sharing networked resources among many users and applications for greater productivity and competitive advantage. Cisco IOS quality of services (QoS) capabilities enable complex networks to control and predictably service a variety of applications. Every network needs QoS for optimum efficiency, whether it is for a small business, large enterprise, or a service provider.

QoS expedites the handling of mission-critical applications, while sharing network resources with non-critical applications. QoS also ensures available bandwidth and minimum delays required by time-sensitive multimedia and voice applications. It also gives network managers control over network applications, improves cost-efficiency of WAN connections, and enables advanced differentiated services. QoS technologies are elemental building blocks for other Cisco IOS enabling services—particularly for converged data and voice networks (LAN/WAN + telephony), video conferencing over IP, and IBM networking, and for future business applications in campus, WAN, and service provider networks.

Key QoS Capabilities:

Committed Access Rate (CAR)	Performs two QoS functions: • Bandwidth management through rate limiting, which allows you to control the maximum rate for traffic sent or received on an interface • Packet classification through IP precedence and QoS group setting, which allows you to partition your network into multiple priority levels or classes of service (CoS)
Differentiated Services (DiffServ)	QoS architecture that divides traffic into a small number of classes and provides QoS to large aggregates of traffic by treating some traffic better than the rest (faster handling, more bandwidth on average, lower loss rate on average). This is a statistical preference, not a hard and fast guarantee.
Expedited Forwarding (EF)	Per-Hop Behavior (PHB) in the DiffServ standard, used to create a virtual leased line service.

Integrated Services (IntServ)	A QoS architecture in which each network element is required to identify the coordinated set of QoS control capabilities it provides in terms of the functions it performs, the information it requires, and the information it exports.
Random Early Detection (RED)	Monitors traffic levels on very large networks to prevent congestion and guarantee priority traffic delivery.
Resource Reservation Protocol (RSVP)	A protocol that supports the reservation of resources across an IP network.
Weighted Fair Queueing (WFQ)	Adds new levels of control to previous queuing methods
Weighted Random Early Detection (WRED)	Combines the capabilities of the random early detection (RED) algorithm with IP precedence or the differentiated services code point (DSCP). This combination provides for preferential traffic handling for higher-priority packets.

Key QoS Categories

Classification	• Committed Access Rate (CAR)
	• Policy Based Routing (PBR)
	• QoS Policy Propagation Through BGP
Congestion Management	• First in First Out (FIFO)
	• Priority Queueing (PQ)
	• Custom Queueing (CQ)
	• Weighted Fair Queueing (WFQ)
	• Weighted Random Early Detection (WRED)
Policy and Shaping	• Committed Access Rate (CAR)
	• Generic Traffic Shaping (GTS)
	• Frame Relay Traffic Shaping (FRTS)
Link Efficiency Mechanisms	• Compressed Real Time Protocol (CRTP)
	• Link Fragmentation and Interleaving (LFI)
	• Data Compression

Converged LAN/WAN and Telephony Networks

A broad range of Cisco products support standards-based voice over packet implementations, including H.323-based Voice over IP (VoIP). These products enable highly efficient, converged IP-based telephony in today's enterprise and service provider networks, thereby eliminating the need for legacy telephone equipment and overlay networks (including PBXs and central office circuit switched network equipment). Furthermore, a single IT organization can now support campus and enterprise requirements—regardless if for data, voice, or video requirements.

In addition, Cisco voice over packet technologies enable businesses and service providers to avoid long distance telephone charges by leveraging their existing data networks, instead of paying for dedicated voice connections and circuits.

Cisco Connectivity and Scalability Solutions

A wide range of access solutions are enabled via Cisco IOS Software including:
• Virtual Private Networking; DSL; Dial Access (including ISDN, modem, fax, voice)
• Frame Relay, X.25
• ATM; VoIP, VoFR, VoATM
• SONET, OC-x/STM-x, Packet-over-SONET
• Broadband Services Aggregation (includes large-scale PPPoE, PPPoA, L2TP tunneling)
• Cable Access Solutions

Security

Cisco's powerful suite of Cisco IOS Software-embedded security and firewall technologies includes:

Digital Signature Standard (DSS) and digital certification	Positively authenticates users or devices
Network Address Translation (NAT) and Port Address Translation (PAT)	Hides private topology and IP addresses from an external network
IPSec	Enables secure communications of data over public networks

Time-based Access Control Lists (ACLs)	Implements access lists based on time of day
Password Authentication Protocol (PAP)	Allows a remote node to establish its identity using a two-way handshake
Terminal Access Controller Access Control System Plus (TACACS+) and Remote Access Dial-in User Service (RADIUS)	Gives complete network access security for dial-in connections, for enterprise and service provider applications
Challenge Handshake Authentication Protocol (CHAP)	Allows a remote node to establish its identity using a three-way handshake
Calling Line Identification (CLID)	Uses calling line identification to compare the telephone number of a calling device against a list of known callers
Access Lists	Checks the source address of packets (standard access lists) and checks the source and destination addresses and other parameters (extended access lists)
Context-Based Access Control (CBAC)	Provides secure, application-based stateful filtering for the most popular protocols and a wide variety of advanced applications; available in the Cisco IOS Firewall feature set

Cisco IOS NetFlow

NetFlow technology provides the metering base for a key set of applications including network traffic accounting, usage-based network billing, network planning, network monitoring, outbound marketing, and data mining capabilities for both service provider and enterprise customers. Cisco provides a set of NetFlow applications to collect exported NetFlow data, to perform data volume reduction, and to post-process and display data. Cisco is currently working with a number of partners to provide customers with comprehensive solutions for NetFlow-based billing, planning, and monitoring. NetFlow also provides the measurement base for Cisco's new Internet Quality of Service (QoS) initiatives. NetFlow captures the traffic classification or precedence associated with each flow, enabling differentiated charging based on Quality of Service.

Furthermore, the combination of NetFlow data along with Cisco IOS Software-based routing information can prove key to developing effective security policies and preventive measures for Denial of Service (DoS).

Cisco IOS Routing Services

Cisco IOS Software has long been recognized for its rich support of multiple protocols including IP, Novell IPX, SNA, AppleTalk, DECnet, OSI, and Banyan VINES

IP Routing Protocols

Cisco IOS Software offers the industry's widest variety of enterprise and service provider-class routing protocols, including On Demand Routing (ODR), Routing Information Protocol (RIP), Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF), IP Multicast, Integrated IS-IS, Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol (BGP), and MPLS

Multi Protocol Label Switching (MPLS)

Cisco IOS MPLS fuses intelligent routing capabilities with the performance of switching. It provides significant benefits to networks with pure IP architectures and those with IP and ATM or a mix of other Layer 2 technologies. MPLS technology is key to implementing scalable Virtual Private Networks (VPNs) and end-to-end QoS, enabling efficient utilization of existing networks to meet growth needs and to rapidly correct link fault and node failure.   This technology also helps deliver highly scalable, differentiated IP services with simpler configuration, management, and provisioning for both Internet service providers and end-user customers.

Common MPLS Applications Available with Cisco IOS Software

- Traffic engineering is enabled through MPLS mechanisms that allow traffic to be directed through a specific path, which may not necessarily be the least-expensive path. Network managers can implement policies to ensure optimal traffic distribution and improve overall network utilization
- Guaranteed bandwidth is a value-added enhancement to traditional traffic-engineering mechanisms. MPLS lets service providers deliver guaranteed pipes and bandwidth allocations. Guaranteed bandwidth also allows bookkeeping of quality-of-service (QoS) resources to traffic engineer both premium and best-effort traffic such as voice and data
- Fast reroute (FRR) allows extremely quick recovery if a node or link fails. Such fast recovery prevents end-user applications from timing out and also prevents loss of data
- MPLS VPNs greatly simplify service deployment compared to traditional IP VPNs. As the number of routes and customers increases, MPLS VPNs easily scale, while providing the same level of privacy as Layer 2 technologies. In addition, they can transport non-unique IP addresses across a public domain
- MPLS class-of-service (CoS) capability ensures that important traffic is given the appropriate priority over the network and that latency requirements are met. IP QoS mechanisms can be seamlessly implemented in an MPLS environment

MPLS Mechanisms

Cisco IOS MPLS delivers both traffic engineering (TE) and VPN solutions built on the following mechanisms:

- Cisco AutoBandwidth Allocator: Automatically increases or decreases MPLS TE tunnel bandwidth based on measured traffic load
- Constraint-based Routing Label Distribution Protocol (CR-LDP): A signaling mechanism used to support TE across a MPLS backbone
- Fast Reroute (FRR): Enables quick recovery in case of link failures, which prevents end-user applications from timing out and also prevents loss of data
- Label Distribution Protocol (LDP): Provides communication between edge and core devices. It assigns labels in edge and core devices to establish Label Switched Paths (LSPs) in conjunction with routing protocols such as OSPF, IS-IS, EIGRP, or BGP
- Transmission Control Protocol (TCP): Connection-oriented transport-layer protocol that provides reliable full-duplex data transmission. Part of the TCP/IP protocol stack

For More Information

See the Cisco IOS MPLS Web site: *http://www.cisco.com/go/mpls*

IP Multicast and Multicast Solutions

IP Multicast is a bandwidth-conserving technology that reduces traffic by simultaneously delivering a single stream of information to thousands of corporate recipients and homes. Applications that take advantage of multicast technologies include video conferencing, corporate communications, distance learning, and distribution of software, stock quotes, and news.

Multicast technology is key to preventing severe network slowdown and Cisco IOS Multicast is the gateway to Internet broadcasting applications. Internet service providers (ISPs) and content providers use Cisco IOS multicast solutions successfully to host events such as live concerts, radio shows, and football games.

Another application of multicast technologies relates to replacing dedicated point-to-point telephone/voice circuits and specialized bridging and mixing multi-user audio conferencing telephone equipment for "always-on" service (referred to in some industries as "Hoot & Holler" systems). This ability eliminates the need for dedicated, costly, overlay voice networks and point-to-point telephone company circuits, and allows the same capabilities to be implemented over a converged IP network without requiring users to dial in.

Multicast Solutions

Cisco IOS Multicast solutions are classified as Multicast-Lite, Core Multicast, and Enhanced Multicast, and are the building blocks for Internet broadcast. Customers can start with Multicast-Lite, then add more sophisticated interactive communication capabilities, as needed.

- Multicast-Lite provides for one-to-many broadcast capability with no back channel. This solution is eminently suitable for content distribution and broadcasting over the Internet. It does not require setting up of source discovery across domains and autonomous systems. Multicast Lite includes Protocol Independent Multicast version 2 (PIMv2), Internet Group Management Protocol (IGMPv1/v2/v3) or Universal Resource Locator Rendezvous Directory (URD).

- Core Multicast provides interactive, reliable campus multicast for interactive distance learning, corporate videoconferencing, inventory updates, software distribution, and content distribution. Core Multicast includes PIM, IGMP, Cisco Group Management Protocol (CGMP), and now Pragmatic General Multicast (PGM).

- Enhanced Multicast provides interactive Internet Multicast across domains for network gaming, inter-company conferencing, Internet software distribution, and extranet content distribution. Enhanced Multicast includes Multicast Border Gateway Protocol (MBGP) and Multicast Source Discovery Protocol (MSDP) in addition to all the protocols supported in Core Multicast.

Multicast is available across all Cisco IOS Software-based platforms, including Cisco routers and Catalyst family switches. Multicast-supported routing platforms include the following: Cisco 1600, 2500, 2600/2600XM, 3600, 3700, 3800, 7200, 7500, and 12000 series; it also is available on Catalyst 6000 and 8500 platforms.

Multicast Features

Cisco has the greatest depth of experience with IP Multicast in the industry, and offers multicast features such as:

Bi-dir PIM	An extension to the PIM suite of protocols that implements shared sparse trees with bi-directional flow of data.
Cisco Group Management Protocol (CGMP)	Cisco-developed protocol that allows Layer 2 switches to leverage IGMP information on Cisco routers to make Layer 2 forwarding decisions.
Internet Group Management Protocol v2 (IGMP)	Used by IP routers and their immediately connected hosts to communicate multicast group membership states:
	• Query: IGMP messages originating from the router(s) to elicit multicast group membership information from its connected hosts
	• Report: IGMP messages originating from the hosts that are joining, maintaining or leaving their membership in a multicast group
Internet Group Management Protocol v3 (IGMP)	Version 3 of IGMP adds support for "source filtering," that is, the ability for a system to report interest in receiving packets only from specific source addresses, or from all but specific source addresses, sent to a particular multicast address.
IGMP Snooping	Requires the LAN switch to examine, or "snoop," some Layer 3 information in the IGMP packet sent from the host to the router. When the switch hears an IGMP Report from a host for a particular multicast group, the switch adds the host's port number to the associated multicast table entry. When it hears an IGMP Leave Group message from a host, it removes the host's port from the table entry.
Inter domain Multicast	Supports inter-domain routing and source discovery across the Internet or across multiple domains comprising an enterprise
Intra domain Multicast	Supports multicast applications within an enterprise campus
Multicast Source Discovery Protocol (MSDP)	A mechanism to connect multiple PIM sparse-mode (SM) domains. MSDP allows multicast sources for a group to be known to all rendezvous point(s) (RPs) in different domains.
Multicast Routing Monitor (MRM)	A management diagnostic tool that provides network fault detection and isolation in a large multicast routing infrastructure
Multi-protocol Extensions for Border Gateway Protocol (MBGP)	Also known as BGP+, MBGP adds capabilities to BGP to enable multicast routing policy throughout the Internet and to connect multicast topologies within and between BGP autonomous systems.
Pragmatic General Multicast (PGM)	A reliable multicast transport protocol for applications that require ordered, duplicate-free, multicast data delivery from multiple sources to multiple receivers. PGM guarantees that a receiver in a multicast group either receives all data packets from transmissions and retransmissions, or can detect unrecoverable data packet loss.
Protocol Independent Multicast (PIM)	A multicast routing architecture that enables IP multicast routing on existing IP networks:
	• SM = Spare Mode (RFC 2362): Relies upon an explicitly joining method before attempting to send multicast data to receivers of a multicast group.
	• DM = Dense Mode (Internet Draft Spec): Actively attempts to send multicast data to all potential receivers (flooding) and relies upon their self-pruning (removal from group) to achieve desired distribution.
Unidirectional Link Routing (UDLR) Protocol	A routing protocol that provides a way to forward multicast packets over a physical unidirectional interface (such as a satellite link of high bandwidth) to stub networks that have a back channel
URL Rendezvous Directory (URD)	Directly provides the network with information about the specific source of a content stream. It enables the network to quickly establish the most direct distribution path from the source to the receiver, thus significantly reducing the time and effort required in receiving the streaming media. URD allows an application to identify the source of the content stream through a web page link or web directly.

For More Information

See the Multicast Web site: *http://www.cisco.com/go/multicast*

IPv6

Internet Protocol version 6 (IPv6), most notably offers expanded IP addresses to accommodate the proliferation of Internet devices such as personal computers, personal digital assistants, wireless devices, and new Internet appliances—and the expansion of Internet access, particularly "always-on" connections throughout the world. IPv6 also provides integrated auto-configuration for "plug-and-play" capabilities, enhanced mobility and end-to-end security.

Incorporating IPv6 into Cisco IOS Software further enables growth of the Internet and expansion into new applications and capabilities, while maintaining compatibility with existing Internet services. Cisco's IPv6 solution was first made available in Cisco IOS Software Release 12.2(1)T. Platforms supported include: Cisco 800, 1700, 2500, 2600/2600XM, 3600, 7100, 7200, and 7500 Series Routers, and Cisco AS5300 and AS5400 Universal Access Servers.

For more information

See the Cisco IOS IPv6 Web site: *http://www.cisco.com/go/ipv6*

Cisco IOS Software Release Process

There are three categories of Cisco IOS Software releases: Early Deployment, Major, and General Deployment (GD) releases.

- Early Deployment releases (i.e. T, S, X, E release families)—Provide advanced networking technologies to customers for delivery of leading-edge Internet applications. These offer new software capabilities, new platforms, and interface extensions. Customers for whom receiving a new feature is critical to their competitive advantage will benefit from these releases
- Major releases (i.e. Release 12.2)—Consolidate features, platform support, and functionality from early deployment releases, and emphasize stability. Regular maintenance releases do not introduce new functionality or platform support, but provide continuous improvement and greater quality, leading to general deployment
- General Deployment certification (i.e. Release 12.0) Releases—Have had extensive market exposure in a wide range of network environments and are qualified through extensive metrics that analyze stability, software defect trends, and customer satisfaction surveys. Used for major, business-critical applications

At some point, GD releases are replaced by newer releases with the latest networking technologies. A release retirement process has been established with three principal milestones: End of Sales (EOS), End of Engineering (EOE), and End of Life (EOL).

For More Information on Cisco IOS Software

See the Cisco IOS Software Web site: *http://www.cisco.com/go/ios*

Cisco Network Management Overview

Cisco is transforming traditional network management by focusing on the strengths of Internet-based architectures for greater accessibility and simplification of network management tools, tasks, and processes. Cisco's network management strategy calls for a Web-based model with the following characteristics:

• Simplification of tools, tasks, and processes
• Web-level integration with NMS platforms and general management products
• Capable of providing end-to-end solutions for managing routers, switches, and access servers
• Creation of a management intranet by integrating discovered device knowledge with CCO and third-party application knowledge

Cisco Network Management Products

The CiscoWorks product line offers a set of solutions designed to manage the enterprise network. These solutions focus on key areas in the network such as; optimization of the wide area network (WAN), administering switch-based local area networks (LAN), securing remote and local virtual private networks, and measuring service level agreements within all types of networks. The expanding CiscoWorks product line offers the flexibility to deploy end-to-end network management when and where it is needed.

CiscoWorks Small Network Management Solution

CiscoWorks SNMS is a new network management solution aimed at small to medium businesses (SMB), with 20 or fewer switches, routers, hubs and access servers. CiscoWorks SNMS can also monitor non-Cisco IT assets such as servers, applications, services and printers. CiscoWorks SNMS is an ideal solution for companies that need centralized network management to help optimize performance and maximize network productivity.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks Small Network Management Solution	• Simple integrated installation, autodiscovery and automated import of devices using SNMP • Standards-based multi vendor management • Reduce the time and complexity of keeping the networks' configuration, software version and connectivity optimized

Also available for small and medium size customers is the CiscoWorks for Windows (CWW). CWW includes all the features above except for CiscoWorks Resource Manager Essentials (Essentials) which provides additional functionality that allows the customer to of build and maintain an up-to-date hardware and software inventory for up to 20 devices in a network.

Key Features

- Monitors and reports on hardware, configuration, and inventory changes
- Provides a wizard-based approach for managing and deploys configuration changes and software image updates to multiple Cisco devices
- Allows configuration changes to be performed against multiple switches or routers in the network
- Provides software update analysis reports showing prerequisites and impacts of proposed updates
- Provides a comprehensive audit of network changes, showing who changed what, when, and how
- Summarizes syslog events by severity or user criteria for switches, routers, and Cisco IOS and PIX firewalls
- Discovery and mapping wizard displays customizable vector-based graphics and hierarchical maps of networked devices

CiscoWorks Small Network Management Solution Components

CiscoWorks Small Network Management Solution includes the following tools:

- CiscoView 5.3—Provides graphical back and front panel views of Cisco devices; dynamic, color-coded graphical displays to simplify device-status monitoring, device-specific component diagnostics, device configuration, and application launching
- WhatsUp Gold 7.0 from Ipswitch, Inc.—Provides network discovery, mapping, monitoring, and alarm tracking
- Resource Manager Essentials 3.3.2—Resource Manager Essentials (RME) provides tools for building and managing network inventory, deploying configuration and software image changes, archiving configurations, and providing an audit trail of network changes

Important: RME has a device limit of 20 or fewer Cisco devices.

Specifications

Feature	CiscoWorks Small Network Management Solution
Hardware Requirements	2 Pentium III or better-based IBM PC or compatible computer, 256 MB RAM total, 4 GB free hard drive space
Software Requirements	Windows 2000 with SP1 or 2 (Professional or Sever), Netscape 4.77, 4.78 or Internet Explorer 5.5 with Service Pack 1

Selected Part Numbers and Ordering Information

CiscoWorks Small Network Management Solution

CWSNM-1.0-WIN	Small Network Management Solution 1.0 for Windows: includes WhatsUp Gold 7.0, Resource Manager Essentials 3.3.2 (20 Cisco Device restriction), CiscoView 5.3

For More Information

See the CiscoWorks Small Network Management Solution Web Site:
http://www.cisco.com/go/wrsnms

CiscoWorks Routed WAN Management Solution

The RWAN solution addresses the needs of managing WANs by improving the accuracy, efficiency, and effectiveness of your network administrators and operations staff while increasing the overall availability of your network through proactive planning, deployment, and troubleshooting tools. The CiscoWorks Routed WAN Management Solution provides increased visibility into network behavior, assists in quickly troubleshooting performance bottlenecks, and provides comprehensive tools to easily administer new software and configuration changes for optimizing bandwidth and utilization across expensive and critical links in the network.

When to Sell

Sell This Product	When a Customer Needs These Features
Routed WAN Management Solution	• Optimize router performance by automatically streamlining access control lists, and applying policy-based changes via templates
	• Understand the responsiveness of WAN connections to determine where bottlenecks are; provides real-time analysis of end-to-end hop delays
	• Increase network performance by monitoring traffic of protocols, applications, and interface characteristics
	• A watchdog system to monitor WAN characteristics
	• An accurate inventory baseline; including memory, slots, software versions, and boot ROMs needed to make decisions
	• Automate the process of updating device software and configuration
	• Graphically displays a devices operational status with tools to monitor its activity or change its configurations
	• Support for secure browser communications and downloads from CiscoView, RME and ACLM via Secure Socket Layer (SSL) or Secure Shell (SSH) protocol

Key Features

• Access Control List Manager—Provides a wizard and policy template-based approach to simplifying the setup, management, and optimization of Cisco IOS Software-based IP and Internetwork Packet Exchange (IPX) traffic filtering and device access control

• Internetwork Performance Monitor—Used to diagnose latency, identify network bottlenecks, and analyze response times

• Resource Manager Essentials—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis

• CiscoView—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching

• CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications

• Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

Specifications

Feature	Routed WAN Management Solution Requirements
Server	Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server)
	IBM PC compatible with 550-MHz or higher Pentium III processor running
	(Dual processor system required for hosting multiple management solutions)
	Microsoft Windows 2000 Server or Professional Edition with Service Pack 2, Solaris 2.8
Client	IBM PC-compatible computer with 300-MHz or higher Pentium processor,
	Sun Ultra 10, HP9000 Series, IBM RS/6000
	Windows NT 4 (Workstation and Server) with Service Pack 6a, Windows 98, 2000 Professional and Server with Service Pack 2; Solaris 2.7, 2.8; HP-UX 11.0; AIX 4.3.3
	IBM PC-compatible computer with 300-MHz or higher Pentium processor, Sun Ultra 10, HP9000 Series, IBM RS/6000
Supported Devices	Most Cisco IOS Software routers, access servers, hubs, and switches
Supported Cisco IOS Software Versions	Generally supports Cisco IOS Software Versions 10.3 and above; Catalyst Supervisor code 2.1 and above
	Note: Some CiscoWorks applications require specific versions of IOS and CAT these releases in order to operate; please see the specific application documentation and release notes for more information.

Selected Part Numbers and Ordering Information[1]

Cisco Routed WAN Management Solution

CWRW-1.2-K9	Routed WAN Management Solution 1.2 for Windows and Solaris platforms; includes Access Control List Manager 1.4, Internetwork Performance Monitor 2.4, Resource Manager Essentials 3.4, CD One 5th Edition (Includes CiscoView 5.4)
CWRW-1.2-P1-K9	Cross Bundle Discount RWAN 1.2 for Windows and Solaris platforms; available to customers who have previously purchased LMS 1.X or LMS 2.X and want to add RWAN
CWRW-1.2-MR-K9	Maintenance kit for customers that purchased RWAN 1.X and now want new device support and code upgrades; kit includes support for Windows and Solaris platforms; includes updates to all components

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

For More Information

See the Routed WAN Management Solution Web site: *http://www.cisco.com/go/rwan*

CiscoWorks LAN Management Solution

The CiscoWorks LAN Management Solution consists of operationally focused tools. These tools include fault management, scalable topology views, sophisticated configuration, Layer 2/3 path analysis, voice-supported path trace, traffic monitoring, end-station tracking workflow application servers management, and device troubleshooting capabilities. CiscoWorks LMS combines applications and tools for configuring, monitoring, and troubleshooting the campus network.

When to Sell

Sell This Product	When a Customer Needs These Features
LAN Management Solution	• A set of tools for managing Cisco's award winning Catalyst switches
	• Time saving user tracking and path trace analysis tools with support of IP phones
	• Automated process of inventorying network devices, updating device software, and managing configuration to reduce the time and errors involved in network updates
	• Browser-accessible, graphical tool for configuring and monitoring Cisco device components and operational status
	• VLAN, ATM, or LANE service management tools
	• RMON traffic monitoring and analysis capability
	• Active fault monitoring of Cisco devices

Key Features

- Campus Manager—Web-based applications designed for managing Layer 2 device and connectivity discovery, workflow application server discovery and management, detailed topology views, virtual LAN/LAN Emulation (VLAN/LANE) and ATM configuration, end-station tracking, Layer2/3 path analysis tools, and IP phone user and path information
- Device Fault Manager—Provides real-time fault analysis for Cisco devices, automatically includes Cisco devices into its monitoring environment and applies a Cisco "Best Practices" fault rule to each device
- nGenius Real Time Monitor—Web-enabled multiuser traffic management tool set that provides access to network-wide, real-time RMON information for monitoring, troubleshooting, and maintaining network availability
- Resource Manager Essentials—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis
- CiscoView—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks Family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

Specifications

Feature	Description
Server	Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server)
	IBM PC compatible with 550-MHz or higher Pentium III processor running
	(Dual processor system required for hosting multiple management solutions)
	Microsoft Windows 2000 Server or Professional Edition with Service Pack 2, Solaris 2.8
Client	IBM PC-compatible computer with 300-MHz or higher Pentium processor, Sun Ultra 10, HP9000 Series, IBM RS/6000
	Windows NT 4 (Workstation and Server) with Service Pack 6a, Windows 98, 2000 Professional and Server with Service Pack 2; Solaris 2.7, 2.8; HP-UX 11.0; AIX 4.3.3
	Internet Explorer v5.5 with Service Pack 2, 6.0; Netscape 4.76, 4.77, 4.78, 4.79
Supported Cisco Devices	Most Cisco IOS Software routers, access servers, hubs, and switches
Supported Cisco IOS Software Versions	Generally Cisco IOS Software Versions 10.3 and higher
	Catalyst Supervisor code 2.1 through 4.1
	Note: Some CiscoWorks applications require certain versions of IOS and CAT these releases in order to operate, please see the specific application documentation and release notes for more information.

Selected Part Numbers and Ordering Information[1]

LAN Management Solution

CWLMS-2.1-K9	LAN Management Solution 2.1 for Windows and Solaris; includes Campus Manager 3.2, Device Fault Manager 1.2, Resource Manager Essentials 3.4, nGenius Real Time Monitor 1.4, CD One 5th Edition (Includes CiscoView 5.4)
CWLMS-2.1-P1-K9	Cross Bundle Discount LMS 2.1 for Windows and Solaris platforms; available to customers who have previously purchased RWAN 1.X and want to add LMS

LAN Management Solution Upgrades

CWLMS-2.1-UP-K9	Upgrade kit for LMS 1.X customers wanting to upgrade to LMS 2.1; kit includes support for both Windows and Solaris platforms; primary value of this kit is to provide DFM to LMS 1.X customers
CWLMS-2.1-MR-K9	Maintenance kit for customers that purchased LMS 2.0 and want new device support and code updates; kit includes support for both Windows and Solaris platforms; includes updates to all LMS 2.X components (Should not be purchased by LMS 1.X customers)
CWLMS-1.2-MR-K9	Maintenance kit for customers that purchased LMS 1.X and want new device support and code updates to components in the 1.X release train; DFM is not included

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the LAN Management Solution Web site: *http://www.cisco.com/go/lms*

CiscoWorks VPN/Security Management Solution

CiscoWorks VPN/Security Management Solution (VMS), an integral part of the SAFE Blueprint for network security, combines Web-based tools for configuring, monitoring, and troubleshooting enterprise virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). It offers the ability to monitor remote access links, and IPSec based site to site VPN's links. VMS is a Web-based solution that provides a "dashboard" view of critical VPN resources and their performance, VPN hardware and configuration and troubleshooting reports.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks VPN/Security Management Solution	• Complete management of a SAFE infrastructure environment
	• Configuring and monitoring VPN, PIX, IOS routers, and IDS devices.
	• Monitoring large remote access, and site-to-site hub and spoke VPNs from a single management console and focus on problem areas and performance.

Key Features

- Management and Monitoring Centers—Supplies the latest in management functionality and multifaceted scalability by offering features such as a consistent user experience, auto update, command and control workflow, and role-based access control. The management and monitoring centers include Management Center for PIX Firewalls, Management Center for IDS Sensors, Management Center for VPN Routers, and Monitoring Center for Security and Management center for PIX Firewalls (downloadable from CCO Software Center Fall 2002)
- VPN Monitor—Allows network administrators to collect, store, and view information on IPSec VPN connections for remote-access or site-to-site VPN terminations. Multiple devices can be viewed from an easy-to-use dashboard that is configured using a Web browser
- Cisco IDS Host Sensor Console—Provides real-time analysis and reaction to network hacking attempts by identifying an attack and preventing access to critical server resources before any unauthorized transactions occur

- Cisco Secure Policy Manager (CSPM)—Provides scalable, powerful policy-based security management system for Cisco firewalls and IPSec VPN routers which allows a customer to define, distribute, enforce, and audit network-wide security policies from a central location
- Resource Manager Essentials (RME)—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis
- CiscoView—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

Specifications

Feature	CiscoWorks VPN/Security Management Solution
Server Hardware Requirements	IBM PC-compatible computer with 1-GHz or faster Pentium processor
	Sun UltraSPARC 60 MP with 440-MHz or faster processor
	Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server)
Server Software Requirements	Windows 2000 Professional, Windows 2000 Server (Service Pack 2)
	Sun Solaris 2.7, 2.8
Client Hardware Requirements	IBM PC-compatible computer with 300-MHz or faster Pentium
	Solaris SPARCstation or Sun Ultra 10
Client Software Requirements	Windows 98, Windows NT 4.0, or Windows 2000 Server or Professional Edition with Service Pack 2
	Solaris 2.7, 2.8
Browser Requirements	Internet Explorer 6.0 or 5.5 with Service Pack 2, on Windows 2000 Server or Professional Edition, Windows 98, and Windows NT 4.0.
	Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition and Windows 98. Netscape Navigator 4.76 on Solaris 2.7, 2.8.

Selected Part Numbers and Ordering Information

CiscoWorks VPN/Security Management Solution

CWVMS-2.1-UR-K9	CiscoWorks VMS 2.1 Windows and Solaris; Includes: Management Center for IDS Sensors, Management Center for VPN Routers, and Monitoring Center for Security, VPN Monitor 1.2, RME 3.4, CSPM 3.1, IDS Host Sensor 2.1, CD One 5th Edition[1]
CWVMS-2.1-WINR-K9	CiscoWorks VMS 2.1 Windows (20-Device Restricted License); Includes: Management Center for IDS Sensors, Management Center for VPN Routers, and Monitoring Center for Security, VPN Monitor 1.2, RME 3.4, CSPM 3.1, IDS Host Sensor 2.1, CD One 5th Edition
CWVMS-2.1-URC-K9	Conversion from CiscoWorks VMS 2.1 for Windows (20-device Restricted License) to Unrestricted License (add Solaris Versions of CV, RME, VPN, and adds an unrestricted license to CSPM for Windows)[1]
CWVMS-2.1-UPGUR-K9	Upgrade from CSPM 2.x (Unrestricted License) to CiscoWorks VMS 2.1 for Windows and Solaris (Unrestricted License)[1]
CWVMS-2.1-WUPGR-K9	Upgrade from CSPM 2.X (Unrestricted License) to CiscoWorks VMS 2.1 for (20-device Restricted License)
CWVMS-2.1-UR-MR-K9	Maintenance release update for VMS 2.0 Windows and Solaris (Unrestricted License)[1]
CWVMS-2.1-R-MR-K9	Maintenance release update for VMS 2.0 Windows Only (20-device Restricted License)

1. Contains Windows-only versions of CSPM and IDS Host Sensor

For More Information

See the CiscoWorks VPN/Security Management Solution Web site:
http://www.cisco.com/go/vms

CiscoWorks IP Telephony Environment Monitor

CiscoWorks IP Telephony Environment Monitor (ITEM) is a bundled suite of management applications that helps ensure the manageability of converged networks that support Cisco IP telephony and IP telephony data applications. ITEM tracks the health of Cisco IP telephony environments by proactively monitoring the Cisco elements that support voice in the network to alert operations personnel of potential problems in order to minimize IP telephony service interruption.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks IP Telephony Environment Monitor	• Network managers who need to effectively manage their converged networks while maintaining high confidence that their IP telephony environments are performing as expected • Network Managers who need to use synthetic traffic (replicating key forms of network activity associated with VoIP and IP telephony) to enable around-the-clock monitoring of key voice elements in the network

Key Features

• Cisco Voice Health Monitor (VHM)—tracks the health of Cisco IP telephony environments by proactively monitoring Cisco voice elements in the network to alert operations personnel to potential problems and helps to minimize IP telephony service in network downtime. VHM leverages and requires the services of DFM while providing sophisticated capabilities of its own to ensure timely information on the health of IP telephony environments

• Cisco Device Fault Manager (DFM)—DFM provides real-time fault detection and determination about the underlying Cisco IP fabric on which the IP telephony implementation executes. DFM reports faults that occur on Cisco network devices, often identifying problems before users of network services realize that a problem exists

• CiscoView—CiscoView is a web-based graphical device-management technology and is the standard for managing Cisco devices, and providing back and front panel displays. Features include: Real-time monitoring of key information relating to device performance, traffic, and usage, with metrics such as utilization percentage, frames transmitted and received, errors, and a variety of other device-specific indicators

Optional Drop-In Modules

Fault History Manager

Fault History is an optional drop-in module (downloadable from CCO) that provides a web-based tool to access historical fault and alert data from a database. The user has several filtering options that can facilitate the search for specific information.

IP Phone Information Utility

The IP Phone Information Utility is an optional drop-in module (downloadable from CCO) that provides a web-based tool to show detailed information about individual IP telephone. The operator can access the IP phone information by using its extension number, IP address, and/or MAC address. This utility bases its information on the devices created in VHM.

IP Phone Help Desk Utility

The IP Phone Help Desk Utility is an optional applet (downloadable from CCO) that provides a MS Windows 2000 desktop tool to show summary information about individual IP telephone. The help desk operator can access the IP phone information by using its extension number (or can configure the application to search by IP or MAC addresses). This utility requires a connection to an ITEM server running VHM with the IP Phone Information Utility installed.

Gateway Statistics Utility

When available, the Gateway Statistics Utility is an optional drop-in module (downloadable from CCO) that provides a web-based tool to collect performance and behavior statistics about CCM-controlled IP telephony gateways. This statistical information can be subsequently exported for processing by reporting packages for capacity planning and trending information.

Specifications

Feature	CiscoWorks IP Telephony Environment Manager
Server Hardware	IBM PC-compatible with 1 GHz or higher Pentium IV processor
	UNIX (If DFM is on Unix platform; Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server)
	(Dual processor system required for hosting multiple management solutions)
Server Software	Windows 2000 Server or Professional Edition with Service Pack 2
	Solaris 2.8
Client	IBM PC-compatible computer with 300 MHz or higher Pentium processor
	Windows NT 4 (Workstation & Server) with Service Pack 6a, Win 98 or Windows 2000 Professional & Server with Service Pack 2
	Windows 98/NT/2000: Netscape v4.77, 4.78, 4.79
	Windows 98/NT/2000: Internet Explorer v5.5 with Service Pack 2, 6.0

Selected Part Numbers and Ordering Information

CiscoWorks IP Telephony Environment Monitor

CWITEM-1.3-WIN-K9	CiscoWorks IP Telephony Environment Manager 1.3 for Windows Add-On for existing LMS 2.X and DFM 1.1 customers; includes VHM only
CWITEM-1.3-WIN-UP	CiscoWorks VoIP Health Monitor 1.0 Add-On for existing LMS 2.0 and DFM 1.1 customers; includes VHM only
CWITEM-1.3-MR-K9	Maintenance kit for customers that purchased CiscoWorks VoIP Health Monitor 1.0 and now want the new ITEM 1.3 device support and minor updates; kit includes support for Windows platforms only; includes updates to all components

For More Information

See the CiscoWorks IP Telephony Environment Monitor Web site at:
http://www.cisco.com/go/cwvoip

CiscoWorks Voice Manager for Voice Gateways

CiscoWorks Voice Manager for Voice Gateways (CVM) is a client-server, web-based voice management and reporting solution. The application provides enhanced capabilities to configure and provision voice ports, and create and modify dial plans on voice-enabled Cisco routers for voice over IP (VoIP), voice over Frame Relay (VoFR), and voice over ATM (VoATM) network deployments.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks IP Telephony Environment Monitor	• Network managers who need to maintain a distributed network architecture for increased scalability • Network Managers who need to manage multiple customer networks from one common server

Key Features

- Web interface management of voice ports and dial plan generation and management—Create and manage local dial plans and VoIP, VoFR, and VoATM network dial plans
- Report generation—Enhance graphical reporting capabilities with the software provided by an alliance with Telemate.Net (WIndows NT), a leading developer of enterprise information management tools; optional capabilities for enhanced reports, custom report creation, and multiple data source record collection exists.
- Optional capabilities to provide reporting on other data sources such as private branch exchanges (PBXs) and selected firewalls
- CiscoView—CiscoView is a web-based graphical device-management technology and is the standard for managing Cisco devices, and providing back and front panel displays. Features include: Real-time monitoring of key information relating to device performance, traffic, and usage, with metrics such as utilization percentage, frames transmitted and received, errors, and a variety of other device-specific indicators

Specifications

Feature	CiscoWorks Voice Manager for Voice Gateways
Server Hardware Requirements	256 MB of memory; 8-GB available hard disk space
	CPU running at 450 MHz (for Windows NT)
	Sun Sparc/Ultra @333 MHz (for Solaris)
Server Software Requirements	Windows NT 4.0 with Service Pack 5
	CiscoWorks CD One 4th Edition for Windows NT
Client Hardware Requirements	64 MB of memory
	CPU running at 300 MHz
Client Software Requirements	Windows 95 running Netscape 4.04 or Internet Explorer 4.01 and 64 MB of virtual memory
	Windows NT running Netscape 4.04 or Internet Explorer 4.01 and 64 MB of virtual memory
	Solaris running Netscape 4.04 with Telnet and Java enabled and 64 MB of virtual memory

Selected Part Numbers and Ordering Information[1]

CiscoWorks Voice Manager for Voice Gateways 2.1 9

CWVM-2.1	Voice Manager 2.1 for Windows & Solaris; includes Voice Manager 2.1 and CD One 4th Edition (CiscoView 5.3 and the October 2001 Java patch update)
CWVM-2.1-UPG	Upgrade kit for CWVM 1.X customers wanting to upgrade to CVM 2.1; kit includes support for both Windows and Solaris platforms
CWVM-2.1-UPT	Minor updates to CWVM 2.1 for Windows and Solaris from CWVM 2.X; update includes support for both Windows and Solaris platforms

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

For More Information

See the Voice Manager for Voice Gateways Web site at:
http://www.cisco.com/go/cw2kvm

CiscoWorks QoS Policy Manager

QoS Policy Manager allows you to centrally define and administer IOS and CAT parameters needed for differentiating network traffic. This ensures high availability and predictable performance for business-critical which rely on advanced voice and video services. Cisco QoS Policy Manager (QPM) 3.0 is a key enabler of end-to-end QoS for converged networks. It delivers differentiated services across network infrastructures with converged voice, video, and data applications, simply by taking advantage of Cisco IOS and Catalyst OS Software with built-in QoS mechanisms in LAN and WAN switching and routing equipment.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco QoS Policy Manager	• End-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
	• Rules-based policies that combine static and dynamic port applications and host system traffic filters
	• QoS Policy Manager's services, including congestion management & avoidance, and traffic-shaping
	• Efficiently translate policies to specific QoS config commands, ensuring consistency across domains
	• Validate policies prior to deploying them quickly and reliably to LAN and WAN policy domains
	• Generate Web-based reports on QoS policies deployed in the network

Key Features

• Provides baseline monitoring which profiles traffic by top applications and a small number of classes before QoS deployment

• Validates QoS deployments by obtaining detailed feedback on traffic patterns after QoS at different points in the network

• Provides statistics related to QoS policies which include traffic matching NBAR filters and action statistics

• Supports CBQoSMIB and CAR MIB

• IP Telephony templates provide pre-defined QoS policies that ensure strict priority for voice traffic in Enterprise networks

• Delivers the appropriate service-level to business-critical applications by supporting the extension of IP packet classification to include application signature, Web URLs, and negotiated ports

• Extend security by defining access control policies to permit or deny transport of packets into or out of device interfaces

• Allows QoS policy validation checking, uploading of existing device configuration, previewing configuration changes, incremental ACL updates, and managing policy distribution

Specifications

Feature	Cisco QoS Policy Manager
Server Hardware Requirements	IBM PC-compatible computer with 1-GHz or faster Pentium processor
	Sun UltraSPARC 60 MP with 440-MHz or faster processor
	Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server)
Server Software Requirements	Windows 2000 Professional, Windows 2000 Server (Service Pack 2)
	Sun Solaris 2.7, 2.8
Client Hardware Requirements	IBM PC-compatible computer with 300-MHz or faster Pentium
	Solaris SPARCstation or Sun Ultra 10Complete
Client Software Requirements	Windows 98, Windows NT 4.0, or Windows 2000 Server or Professional Edition with Service Pack 2
	Solaris 2.7, 2.8
Browser Requirements	Internet Explorer 6.0 or 5.5 with Service Pack 2, on Windows 2000 Server or Professional Edition, Windows 98, and Windows NT 4.0.
	Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition and Windows 98. Netscape Navigator 4.76 on Solaris 2.7, 2.8.

Selected Part Numbers and Ordering Information[1]

Cisco QoS Policy Manager

CWQPM-3.0-WINUR-K9	QoS Policy Mgr 3.0 for Windows (Unrestricted License)
CWQPM-3.0-WINR-K9	QoS Policy Mgr 3.0 for Windows (20- Device Restricted License)
CWQPM-3.0-URUP-K9	Upgrade to QPM 3.0 for Windows from QPM 1.x or 2.x to QPM 3.0 unrestricted
CWQPM-3.0-URC-K9	Conversion of a QPM 3.0 20-device restricted usage license to unrestricted device usage license

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco QoS Policy Manager Web site: *http://www.cisco.com/go/qpm*

Cisco Ethernet Subscriber Solution Engine

The Cisco Ethernet Subscriber Solution Engine (ESSE) is a hardware-based management system for metro access networks that use the Cisco ONT 1000 Gigabit Ethernet Series Optical Network Terminator. The Cisco ESSE enables complete remote management and troubleshooting of the customer demarcation point for Ethernet over fiber. Remote management and diagnostics reduce operating expenses and increase profitability by eliminating the need for unnecessary visits to the customer premises. The Cisco ESSE runs on the Cisco 1105, which is one rack unit (1RU) high, enabling you to conveniently deploy the Cisco ESSE on the same rack with the rest of your Cisco metro Ethernet network aggregation equipment.

The Cisco ESSE automatically discovers all Cisco ONT 1000 Gigabit Ethernet Series devices in the metro access network, applies the designated configuration, and instantly begins collecting statistics and management information.

When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Ethernet Subscriber Solution Engine	The Cisco Ethernet Subscriber Solution Engine is ideal for service providers seeking to: • Reduce operating expenses by implementing metro access networks with Ethernet over fiber • Reduce customer onsite visits, which are time-consuming and expensive • Perform complete remote configuration and troubleshooting of the Cisco ONT 1000 Gigabit Ethernet Series

Key Features

• Enables service providers to perform remote control of inventory, configuration, statistics, fault management, and troubleshooting on the Cisco ONT 1000 Gigabit Ethernet Series

• Full Layer 1 and Layer 2 remote configuration and monitoring of Optical Network Terminators

• Access to all Ethernet port registers and statistics on the Cisco ONT 1000 Gigabit Ethernet Series

• Easy identification of ONTs with searchable, user-defined properties such as customer name, VLAN ID, and street address

Selected Part Numbers and Ordering Information[1]

Cisco Ethernet Subscriber Solution Engine

CESSE-1105-K9	Cisco Ethernet Subscriber Solution Engine; Includes the Cisco 1105 hardware platform and Ethernet Subscriber management software, version 1.1

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the **Distribution Product Reference Guide** at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the Cisco Ethernet Subscriber Solution Engine Web site:
http://www.cisco.com/go/esse

CiscoWorks Wireless LAN Solution Engine

The CiscoWorks WLSE is a specialized, daily operational solution that allows customers to manage the entire Cisco Aironet WLAN infrastructure. It offers powerful, centralized template-based configuration with user-defined device groups to efficiently configure large numbers of access points and bridges. The CiscoWorks WLSE provides centralized firmware updates to facilitate firmware changes throughout the WLAN. It monitors Access Control Server (ACS) authentication servers, supports both Cisco Extensible Authentication Protocol (LEAP) and generic RADIUS servers, and further enhances security management by detecting misconfigurations on access points and bridges. The CiscoWorks WLSE proactively monitors WLAN infrastructures and generates notifications for unavailability and performance degradation. The CiscoWorks WLSE aids in capacity planning by identifying the most used access points, and accelerates troubleshooting by generating client association reports.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks Wireless LAN Solution Engine	The CiscoWorks WLSE is ideal for enterprise customers:
	• Implementing large-scale Cisco Aironet WLAN infrastructures
	• Template-based configuration tool which can include a large number of uniform policies for Cisco access points and bridges
	• Access point and bridge mis-configuration alerts to minimize security vulnerabilities
	• Proactive fault and performance monitoring of Cisco access points, bridges, LEAP authentication server, and switches connected to the access points

Key Features

- Centralized template-based configuration with hierarchical, user-defined groups
- Plug and play configuration of newly deployed access points and bridges
- Centralized firmware update to facilitate firmware changes
- Access point and bridge misconfiguration alerts to minimize security vulnerabilities
- Proactive monitoring of access points, bridges, ACS authentication servers (both LEAP and generic RADIUS), and the switches connected to the access points
- Configuration and monitoring of virtual LAN (VLAN) and quality of service (QoS) on access points to maximize security and performance
- Access point usage, summary, and client association reports with XML, CSV, and PDF data export
- Secure HTML-based user interface for easy access anywhere
- Upper-layer network management system and operations support system (NMS/OSS) integration with syslog message, SNMP trap, and e-mail notifications

Selected Part Numbers and Ordering Information[1]

CiscoWorks Wireless LAN Solution Engine

CWWLSE-1105-K9	Wireless LAN Solution Engine1.0; includes the Cisco 1105 hardware platform and wireless LAN management software version 1.0

For More Information

See the CiscoWorks Wireless LAN Solution Engine Web site:
http://www.cisco.com/go/wlse

CiscoWorks Hosting Solution Engine

CiscoWOrks Hosting Solution Engine is a network management appliance that monitors, activates, and configures a variety of e-business services in Cisco powered data centers. It provides up-to-date fault and performance information about the network infrastructure and Layer 4-7 network services.

HSE automatically discovers the entire data center infrastructure and instantly begins collecting statistics and management information, providing a current snapshot of the managed environment. HSE provides up-to-date information for operational staff to easily pinpoint the source of a problem. HSE itself is a manageable Cisco device with a full Cisco Discovery Protocol implementation and supports Cisco MIB II.

When to Sell

Sell This Product	When a Customer Needs These Features
CiscoWorks Hosting Solution Engine	• Ideal for enterprise and service providers with e-business data center facilities
	• Granular user access model to partition network resources for Layer 4-7 services and switch ports, and authorize user group access to individual application services
	• Robust Layer 4-7 service configuration and service activation of server load balancing devices, including virtual servers, real servers, and content owners and rules

Key Features

• Granular user access to partition network resources for Layer 4-7 services as well as switch ports; authorize user group access to individual application services

• Robust Layer 4-7 service configuration and service activation of content switches

• Monitoring and reporting of SSL Proxy services on Cisco Catalyst 6000 Series with SSL Service Modules and Cisco Content Services Switch

• Flexible fault and performance monitoring of Cisco routers, switches, Cisco PIX® Firewalls, Cisco Content Engines, Cisco Content Switches and L4-7 services

• HTML-based, secure graphic user interface with easy customer view/report personalization and historical data reporting

• Upper layer NMS/OSS integration with SYSLOG, trap, email notifications and historical data XML export

Selected Part Numbers and Ordering Information[1]

Cisco 1105 Hosting Solution Engine

CWHSE1105-1.5-K9	CiscoWorks Hosting Solution Engine; includes 1105 hardware platform with software version 1.5; can be configured for international power cords

1. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: http://www.cisco.com/dprg (limited country availability).

For More Information

See the 1105 Hosting Solution Engine Web site: *http://www.cisco.com/go/1105hse*

Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 2.2)

The Cisco Network Analysis Module (NAM) 1 and 2, second generation high performance network analysis modules for the Cisco Catalyst 6500 Series provides network monitoring instrumentation and web-browser based traffic analysis for Catalyst based AVVID environments. The NAM enables network managers to gain application-level visibility into network traffic with the ultimate goal of improving performance, reducing failures, and maximizing returns on network investment. The new NAMs are available in two hardware versions, NAM-1 and NAM-2, to meet diverse network analysis needs in a scalable switching environment running up to gigabit speeds. The NAMs come with an embedded, Web-based traffic analyzer, which provides full scale remote monitoring and troubleshooting capabilities that are accessible through a Web browser.

When to Sell

Sell This Product	When a Customer Needs These Features
Catalyst 6500 Series Network Analysis Module 1 and 2 (with NAM software version 2.2)	• Needs Application-Level visibility built into the network • Provides network managers visibility into all layers of network traffic • Monitoring in a scalable switching environment that supports traffic monitoring in a scalable switching environment • Offers investment protection by interfacing with both the bus and the crossbar switching fabric-based architectures in the Cisco Catalyst 6500 Series

Key Features

- Provides application-level Remote Monitoring (RMON) functions based on RMON2 and other advanced Management Information Bases (MIBs)
- Collects statistics on both data and VoIP streams flowing through the host switch using the Switch Port Analyzer (SPAN) and NetFlow Data Export features of the Cisco Catalyst 6500 Series
- Collects data from remote switches using the remote SPAN (RSPAN) feature of the Cisco Catalyst 6500 and 4000 Series switches
- Easy to deploy and use at LAN aggregation where they can see most of the traffic, at service points where performance is critical and at important access points where quick troubleshooting is required
- Application monitoring can be done using RMON, RMON2, and several extended RMON MIBs, which can detect the applications on the network and provide detailed information about how these applications utilize the bandwidth, which hosts access those applications, and which client/server pairs generate the most traffic
- Performance management provides valuable information about the delays in server responses to client requests

Selected Part Numbers and Ordering Information[1]

Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 2.2)

WS-SVC-NAM-1	Catalyst 6500 Series Network Analysis Module 1. To order the NAM individually, please use the spare part number of WS-SVC-NAM-1=
WS-SVC-NAM-2	Catalyst 6500 Series Network Analysis Module 2. To order the NAM individually, please use the spare part number of WS-SVC-NAM-2=

1. Some parts have restricted access or are not available through distribution channels.

For More Information

See the Cisco NAM Web site: *http://www.cisco.com/go/6000nam*