



# Cisco Router Guide

For teleworkers, small offices, small to medium-sized businesses,  
and enterprise branch and head offices

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Cisco Integrated Services Routers: Cisco 850, 870, 1800 (fixed), 1800 (modular), 2800, 3800 Series;

Cisco Access Routers: Cisco SOHO, SB 100, 820/830, 1700, 2600, 3700 Series;

Cisco Services Aggregation Routers: Cisco 7200, 7300, 7600 Series

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# Cisco Router Guide

For Medium-sized Businesses, Enterprise Branches,  
Head Offices, and the Service Provider Edge

This is your guide to Cisco® Services Aggregation Routers and Cisco Integrated Services Routers, the broadest and most versatile portfolio of products for enabling the deployment of multiple advanced services.

Cisco is the worldwide leader in networking systems for organizations of all sizes, offering solutions that fully support enterprise-wide deployment of networked business applications. A foundation of the Intelligent Information Network, Cisco routers provide high availability, comprehensive security, integrated wireless, ease of management, and advanced quality of service (QoS) for today's most demanding network services, including IP communications, video, customer relationship management, financial transactions, and other real-time applications.

This guide shows how Cisco Services Aggregation Routers and Cisco Integrated Services Routers enable you to meet your current and future needs with modular designs, allowing incremental migration as your business and network requirements change.

In this guide, you can see for yourself how Cisco delivers benefits beyond basic data access, providing services such as voice, security, and wireless as part of an integrated routing system that maximizes productivity and investment protection.

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# Series Overview

For Medium-sized Businesses, Enterprise Branches, Head Offices, and the Service Provider Edge

Cisco offers the industry's broadest and most versatile portfolio of secure, high-performance Integrated Services Routers, enabling the deployment of a wide array of services to the farthest reaches of an organization, from the home office to the small office to the large enterprise branch and head office.



### Cisco 850 Series

Small Offices

- Manageability and reliability of Cisco IOS® Software

#### Secure Connectivity

- Stateful inspection firewall
- VPN 3DES encryption (hardware-accelerated)

#### Fixed Configuration

- Asymmetric DSL (ADSL) over analog telephone lines (Cisco 857)
- 100 MB Ethernet (Cisco 851)
- Secure WLAN 802.11b/g option with a single fixed antenna
- 4-port 10/100Base-T switch with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover



### Cisco 870 Series

Small Offices and Teleworker Deployments

- Secure, concurrent services for broadband access
- Manageability and reliability of Cisco IOS Software

#### Business-class Security

- Stateful inspection firewall
- VPN 3DES encryption and Advanced Encryption Standard (AES) encryption

- Intrusion Prevention System (IPS)
- URL Filtering

#### Fixed Configuration

- 4-port 10/100 managed switch with VLAN support
- Secure WLAN 802.11b/g option with a single fixed antenna with replaceable diversity antennas
- 100 MB Ethernet (Cisco 871)
- ADSL over ISDN (Cisco 876)
- ADSL over analog telephone lines (Cisco 877)
- G.SHDSL (Cisco 878)



### Cisco 1800 Series (Fixed-configuration)

Small Offices and Small Enterprise Branch Offices

- Secure, concurrent services for broadband access with WAN high availability
- Manageability and reliability of Cisco IOS Software

#### Business-class Security

- Stateful firewall with URL filtering
- VPN 3DES encryption and Advanced Encryption Standard (AES) encryption
- Dynamic Multipoint VPN (DMVPN)
- Intrusion Prevention System (IPS)

#### Fixed Configuration

- Secure broadband access at broadband performance
- Integrated ISDN Basic Rate S/T Interface (BRI), analog modem, or Ethernet backup port for redundant WAN links and load balancing
- Secure wireless LAN option for simultaneous 802.11a and 802.11b/g with use of multiple antennas
- 8-port 10/100 managed switch with 802.1q VLAN support and optional Power over Ethernet (PoE)



### Cisco 1800 Series (Modular)

Small- to Medium-sized Businesses and Small Enterprise Branch Offices

- Wire-speed performance with secure data services enabled at up to T1/E1/xDSL rates
- Increased services density for secure data services
- Support for next-generation High-speed WAN Interface Cards
- Increased flexibility through support of internal AIM slot for high-speed VPN and future applications
- Built-in dual Fast Ethernet ports
- Support for over 30 existing and new modules

#### Secure Networking

- Hardware-based VPN acceleration on motherboard
- Antivirus defense
- Intrusion Prevention System (IPS)
- SDM Support

#### Integrated Switching

- Support for the 4-port 10/100 managed EtherSwitch module



### Cisco 2800 Series

Small- to Medium-sized Businesses and Enterprise Branch Offices

- Wire-speed performance up to multiple T1/E1/xDSL rates
- Increased services density for security, voice, caching, video, network analysis, and L2 switching
- Support for enhanced interfaces (NME, HWIC, EVM, and PVDM2)
- Built-in dual Fast Ethernet or Gigabit Ethernet ports
- Support for over 90 existing and new modules
- Optional support for integrated Power over Ethernet (PoE)

#### Secure Networking

- Hardware-based VPN acceleration on motherboard
- Antivirus Defense
- Intrusion Prevention System (IPS)

#### IP Communications and IP

- Telephony Support
- IP Communications Express (CCME/SRST/CUE)

- Enhanced Modularity (EVM and PVDM2 support)

#### Integrated Switching

- Up to 64 powered 10/100 switch ports
- 802.3af Power over Ethernet compliance



### Cisco 3800 Series

Medium-sized to Large Businesses and Enterprise Branch Offices

- Wire-speed performance with services enabled at up to T3/E3 rates
- Increased services density for security, voice, caching, video, network analysis, and L2 switching
- Support for enhanced interfaces (NME, HWIC, EVM, and PVDM2)
- Built-in dual Gigabit Ethernet ports
- Support for over 90 existing and new modules
- Single small form pluggable Gigabit Ethernet port
- High availability and resiliency through online insertion and removal support, as well as redundant systems and optional inline power

#### Secure Networking

- Hardware-based VPN acceleration on motherboard
- Antivirus defense through Network Admission Control
- Intrusion Prevention System (IPS)

#### IP Communications and IP

- Telephony Support
- IP Communications Express (CCME/SRST/CUE)

- Enhanced Modularity (EVM and PVDM2 support)

#### Integrated Switching

- Up to 112 powered 10/100 switch ports
- 802.3af Power over Ethernet compliance

## Series Overview continued

Extend services from the WAN to the campus edge with the industry's most extensive WAN and MAN aggregation platform portfolio, which includes the Cisco 7200, 7301, 7304, and 7600 Series Routers and the Cisco Catalyst 6500 Series Switches, each providing a comprehensive set of highly secure, concurrent, and integrated services for enterprise customers.



### Cisco 7200 Series

Enterprise Head Offices and Service Provider Edge

#### Application Versatility

- Managed Network Services, WAN Aggregation, MPLS, VPN, broadband aggregation, QoS, IP-to-IP Gateway, and multiservice

#### Business-class security VPN

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN
- Group Encrypted Transport VPN (GETVPN)
- Service-level validation features
- Intrusion Prevention System (IPS)

#### Multiservice Data/Voice

- Analog and digital voice
- Survivable Remote Site Telephony (SRST)
- Multiservice interchange (MIX)-enabled backplane for service integration

#### Modularity

- Supports over 70 interfaces, providing a comprehensive range of connectivity options from FE to GbE, and DS0 through OC-3/STM-1
- Shared Interfaces with Cisco 7201, 7301, 7304, 7500, and 7600 routers provides ease of management and investment protection
- Built-in FE/GbE ports on the NPE-G2 processor for high-performance LAN connectivity
- Upgradable processors, including NPE-G2 with up to 2 Mpps routing performance
- High-performing, hardware-based encryption support of up to 600 Mbps with the C7200-VSA security module
- Comprehensive management services through Cisco Element Manager Framework (CEMF)

#### Modularity (continued)

- Increased slot capacity utilizing I/O slot for modules with port adapter jacket card
- Cisco 7201 offers a very compact form factor (1-RU) with up to 2 Mpps routing performance and 4 built-in Gigabit Ethernet ports



### Cisco 7301 Series

Enterprise Head Office and Service Provider Environments

#### Application Versatility

- Managed Network Services, MPLS VPN, broadband aggregation, IP-to-IP Gateway, Mesh Wireless and Public Wireless LAN Solutions, BGP Route Reflector, Large-branch-office router, Enterprise High Speed Internet Gateway, and Secure Internet gateway

#### Business-class Security VPN

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN
- Group Encrypted Transport VPN (GETVPN)
- Service-level validation features
- Intrusion Prevention System (IPS) Multiservice data/voice
- Analog and digital voice
- Survivable Remote Site Telephony (SRST)

#### Modularity

- Compact, power-efficient 1-RU form factor with single port adapter slot
- Supports over 70 interfaces, providing a comprehensive range of connectivity options from FE to GbE, and DS0 through OC-3/STM-1
- Shared Interfaces with Cisco 7304, 7500, and 7600 series routers providing ease of management and investment protection
- Three onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports with Pluggable Gigabit Ethernet optics (Small Form-Factor Pluggable [SFP] optics) support
- Front-to-back airflow and single-sided management
- High-performing, hardware based encryption support with new SA-VAM2+ security module
- Comprehensive management services through Cisco Element Manager Framework (CEMF)



### Cisco 7304 Series

Enterprise Head Office Environments

- High-performance connectivity up to OC-48 speeds
- Built-in GbE for high-performance LAN connectivity
- Hardware-accelerated services with Parallel Express Forwarding
- Optional redundant processor and power supplies for high availability in a single box solution
- Multiprotocol support

#### Business-class Security VPN

- Hardware-accelerated Access Control Lists
- Stateful inspection firewall

#### Modularity

- More than 20 network line cards
- Chassis supports up to 4 line cards or port adapters
- Built in GbE ports on processor
- Support for Cisco port adapters
- Manageability and reliability of Cisco IOS Software



### Cisco 7600 Series

Enterprise Head Offices High-end CPE Small Service Provider POP Environments

- Ideal for Enterprise WAN aggregation or service provider environments

#### Business-class Security VPN

- Supports Services modules such as IPSec, firewall, SSL VPN
- Intrusion Prevention System (IPS)

#### Modularity

- Chassis supports up to 4-, 6-, 9-, and 13-slot chassis for redundant supervisors and line cards
- Supervisor engines supporting up to 15 Mpps with broad range of edge services
- Support for Shared Port Adapter (SPA) and SPA Interface Processors (SIP), which offers intelligent services. Supports up to 12 SPA bays
- Support for the Enhanced FlexWAN module, which offers Port Adapter investment protection



### Cisco Catalyst® 6500 Series

Optimized for secure, converged voice, video, and data networks, the Catalyst 6500 offers industry-leading scalability (32 Gbps to 720 Gbps), operational control, and investment protection to meet the needs of head-end enterprises service aggregation, Internet access, data center interconnectivity, and service providers' POP.

#### Integrated Security

- Support of integrated multi-gigabit security Services Modules offering intrusion detection and prevention, firewall, scalable IPSec VPN solutions, and Secure Sockets Layer (SSL)

#### Modularity and Flexibility

- Modular 3-, 4-, 6-, 9-, and 13-slot chassis with support of redundant supervisors and LAN/WAN line cards
- Application intelligence support with PISA technology ensures application performance (NBAR) and security (FPM) in the LAN/WAN network
- Supports WAN interfaces from DS0 to OC-192, 10/100/1000/10GbE with the flexibility of the Shared Port Adapter (SPA) and SPA Interface Processor (SIP)
- Support of the Enhanced FlexWAN module for investment protection

#### Manageability

- Subsystem ISSUs with IOS modularity; integrated TDR; Encapsulated Remote Span (ERSPAN); Embedded Event Manager (EEM); Network Analysis Module (NAM); CiscoWorks; CNA

#### Scalable Performance

- Up to 400 Mpps with a distributed forwarding architecture

#### Operational Consistency

- Addresses WAN applications and LAN/Core/Distribution/Data Center needs, reducing spares expense and enabling operational efficiencies

#### Validated Solutions

- LAN/ Distribution/Core/WAN/DC applications are tested in Safe Harbor for end-to-end proven solutions

## Product Transition Matrix

### CISCO SOHO 90 AND 850 PRODUCT COMPARISON

	Cisco SOHO 91, SOHO 97	Cisco 851, 857
<b>Form Factor</b>	Desktop	Desktop
<b>DRAM (default)</b>	64 MB	64 MB
<b>DRAM (maximum)</b>	64 MB	64 MB
<b>Flash (default)</b>	8 MB	20 MB
<b>Flash (maximum)</b>	8 MB	20 MB
<b>Integrated LAN Switch</b>	4-port Switch	4-port Switch
<b>Integrated Hardware-based Encryption</b>	No	Yes
<b>Out of Band Management</b>	External Modem	External Modem
<b>Wireless Option</b>	No	Integrated 802.11b/g
<b>Fast Ethernet WAN</b>	No	1 Port (851)

### CISCO 820, 830 AND 870 PRODUCT COMPARISON

	Cisco 831, 836, 837, 828	Cisco 871, 876, 877, 878
<b>Form Factor</b>	Desktop	Desktop
<b>DRAM (default)</b>	16-64 MB (Depends on model)	128 MB
<b>DRAM (maximum)</b>	32-80 MB (Depends on model)	256 MB
<b>Flash (default)</b>	8-24 MB (Depends on model)	24 MB
<b>Flash (maximum)</b>	8-24 MB (Depends on model)	52 MB
<b>Integrated LAN Switch</b>	4-port Switch	4-port Managed Switch
<b>Integrated Hardware-based Encryption</b>	Yes (except 828)	Yes
<b>Out of Band Management</b>	External Modem (831, 837) / ISDN S/T BRI (836)	External Modem (871, 877) / ISDN S/T BRI (876, 878) (Out of Band Management only on 878)
<b>Wireless Option</b>	No	Integrated 802.11b/g
<b>Fast Ethernet WAN</b>	No, only 10 Mbps (831)	1 Port (871)
<b>2 USB Ports for Security Tokens</b>	No	Yes (871)
<b>Power over Ethernet Support</b>	No	Optional

## Transition Matrix continued

## CISCO FIXED DSL 1700/1800 PRODUCT COMPARISON

	Cisco 1701	Cisco 1801, 1802, 1803
Form Factor	Desktop	Desktop
Rack/Wall Mountable	No	Yes
DRAM (default)	96 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	128 MB
Integrated LAN Switch	No	8-port Switch
DSL Technology	ADSL over POTS	ADSL over POTS (1801), ADSL over ISDN (1802) G.SHDSL (1803)
ADSL 2/2+	No	Yes
Wireless Option	No	802.11a/b/g
Fast Ethernet WAN	1 Port	1 Port
Integrated Power over Ethernet	No	Optional

## CISCO FIXED FE WAN 1700/1800 PRODUCT COMPARISON

	Cisco 1711, 1712	Cisco 1811, 1812
Form Factor	Desktop	Desktop
Rack/Wall Mountable	No	Yes
DRAM (default)	96 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	128 MB
Integrated LAN Switch	4-port Switch	8-port Switch
Fast Ethernet WAN	1 Port	2 Ports
Back-up WAN	v.90 Modem (1711)/ ISDN S/T BRI (1712)	v.92 Modem (1811)/ ISDN S/T BRI (1812)
Wireless Option	No	Integrated 802.11a/b/g
USB Ports (v 2.0)	None	2 Ports
Integrated Power over Ethernet Support	No	Optional
Real Time Clock	No	Yes

## Transition Matrix continued

## CISCO 1721/1841 PRODUCT COMPARISON

	Cisco 1721	Cisco 1841
Form Factor	Desktop	Desktop (1RU)
Chassis Type	Plastic	Metal
DRAM (default)	64 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	Up to 128 MB
AC Power Supply	External	Internal
Onboard AIM Slot	0	1
Support for High Speed WICs (HWICs)	No	Yes
LAN Ports	1 10/100	2 10/100
Integrated Hardware-based Encryption	Optional	Yes
USB Ports (v1.1)	No	1
Console Port (Up to 115.2 Kbps)	1	1
Auxiliary Port (Up to 115.2 Kbps)	1	1

## CISCO 1751/1760, 2600, AND 2800 PRODUCT COMPARISON

	Cisco 1751, 1760	Cisco 2600	Cisco 2800
Form Factor	Desktop and 19" Rack Mount	19" Rack Mount (Up to 2RU)	19" and 23" Rack Mount Options
DRAM (default)	128 MB	256 MB	256 MB
DRAM (maximum)	128 MB (1751) 160 MB (1760)	256 MB	1 GB
Flash (default)	32 MB	Up to 32 MB	64 MB
Flash (maximum)	64 MB (1760)	Up to 128 MB	Up to 256 MB
Onboard DSP Slot	2	0	Up to 3
Onboard AIM Slot	0	1	2
Support for High Speed WICs (HWICs)	No	No	Yes
LAN Ports	1 10/100	Up to 2 10/100	2 10/100 or 10/100/1000
Integrated Hardware-based Encryption	Optional	Optional	Yes
Integrated Inline Power/ PoE Support	No	No	Yes
USB Ports	No	No	Yes, up to 2
Console Port (Up to 115.2 Kbps)	1	1	1
Auxiliary Port (Up to 115.2 Kbps)	1	1	1

Transition Matrix *continued*

## CISCO 3700/3800 PRODUCT COMPARISON

	Cisco 3700	Cisco 3800
<b>Form Factor</b>	19" and 23" Rack Mount (2 and 4 RU)	19" and 23" Rack Mount (2 and 4 RU)
<b>DRAM (default)</b>	256 MB	256 MB
<b>DRAM (maximum)</b>	Up to 512 MB (3745)	Up to 1 GB
<b>Flash (default)</b>	32 MB	64 MB
<b>Flash (maximum)</b>	128 MB	Up to 256 MB
<b>Onboard DSP Slot</b>	0	Up to 4
<b>Onboard AIM Slot</b>	2	2
<b>Support for High Speed WICs (HWICs) or Enhanced Network Modules</b>	No	Yes
<b>LAN Ports</b>	2 10/100	2 10/100/1000
<b>Integrated Hardware-based Encryption</b>	Optional	Yes
<b>Integrated Inline Power/PoE Support</b>	Yes (No PoE)	Yes
<b>USB Ports (v1.1)</b>	No	Yes, 2
<b>Console Port (Up to 115.2 Kbps)</b>	1	1
<b>Auxiliary Port (Up to 115.2 Kbps)</b>	1	1



## Cisco 850 Series

The Cisco 850 Series of secure broadband and wireless routers is part of the Cisco Integrated Services Router portfolio. Designed for small offices, the routers provide secure WAN connectivity with optional integrated 802.11b/g WLANs in a single device. Easy setup allows the Cisco 850 Series to be deployed at small remote offices and small businesses, and remote management features enable IT managers and service providers to better support remote sites.

## Benefits and Advantages

## Integrated Services

Cisco 850 Series Integrated Services Routers are fixed-configuration routers that support broadband cable and Asymmetric DSL (ADSL) over analog telephone line connections in small offices. They provide the performance needed to run concurrent services, including firewall and encryption for VPNs. An optional 802.11b/g wireless option offers a secure broadband router and wireless access point for WLANs in a single device. The stateful inspection firewall and IPSec VPN support provide secure access when connecting to the Internet or connecting small offices to a central site. High-speed LAN ports connect multiple devices to the small office network.

## Easy Setup and Deployment

The Cisco Router and Security Device Manager (SDM) Web-based configuration tool simplifies setup and deployment, and centralized management capabilities give network managers visibility and control of router configurations at the remote site. Cisco Configuration Express Service supports factory-loaded configurations in high-volume deployments. Support for the Cisco Configuration Engine enables plug-and-play installations with centralized configuration management.

## Remote Management

Cisco 850 Series routers are ideally suited for small office and remote office deployments. Out-of-band management with an external modem through the auxiliary port allows IT managers to remotely manage routers at small office sites to quickly troubleshoot any network issues. Optional integrated secure WLAN connectivity simplifies the number of devices that need to be managed at the remote site. Cisco SDM helps resellers and customers to quickly and easily deploy, configure, and monitor a Cisco access router without knowledge of the Cisco IOS Software command-line interface (CLI).



## Security Features

### Cisco 850 Security Features

- Stateful inspection firewall
- Hardware-accelerated Triple Data Encryption Standard (3DES) for IPSec
- Hardware-accelerated Advanced Encryption Standard (AES) for IPSec
- IPSec 3DES termination/initiation
- IPSec pass-through
- Point-to-Point Tunneling Protocol (PPTP) pass-through
- L2TP pass-through

## WLAN Features

### WLAN Hardware

- 802.11b/g
- Wi-Fi and Wireless Multi-Media (WMM) Certified
- Automatic rate selection for 802.11b/g
- Single, fixed antenna
- WECA interoperability
- Default antenna gain: 2.2 dBi

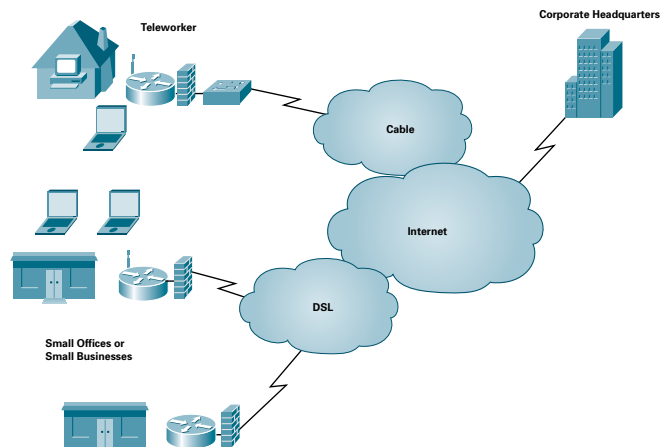
### WLAN Software Features

- Maximize throughput or maximize range option
- Software configurable transmit power
- SSID Globalization
- SSIDs = 10
- Wireless VLANs = 10
- Encrypted Wireless VLANs = 4
- MBSSIDs = 1

### WLAN Security Features

- 802.1X
- 802.11i
- Wi-Fi Protected Access (WPA) and AES (WPA2)
- EAP Authentication: Cisco LEAP, PEAP, EAP-TLS, EAP-FAST, EAP-SIM, EAP-MD5, EAP-TTLS
- Static and dynamic Wired Equivalent Privacy (WEP)
- Temporal Key Integrity Protocol (TKIP)/SSN Temporal Key Integrity Protocol/Simple Security Network encryption
- MAC authentication/filter
- User database for survivable local authentication using LEAP and EAP-FAST
- Configurable limit to the number of wireless clients
- Configurable RADIUS accounting for wireless clients
- PSK (Pre Shared Keys) (WPA-SOHO)

## Network Example



## When to Deploy

### Deploy the Cisco 850 Series when you need:

- Secure connectivity with stateful inspection firewall and IP Security (IPSec) VPN support for small offices
- Four-port 10/100 switch
- Secure WLAN 802.11b/g option with a single fixed antenna
- Easy setup, deployment, and remote management capabilities through Web-based tools and Cisco IOS Software

## Series Distinctions

### Cisco 850 Series

#### WAN Technologies

- Cisco 851 – 100 MB Ethernet
- Cisco 857 – ADSL over analog telephone lines

#### LAN Switch

4-port 10/100Base-T switch with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover

#### Security

Stateful firewall, IPSec, and AES VPNs

#### WLAN Option

802.11b/g with single fixed antenna

## Platform Overview

Models	WAN Interface	LAN Interface	802.11b/g
Cisco 851	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	No
Cisco 851W	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	Yes
Cisco 857	ADSL	4-port 10/100 Mbps managed switch	No
Cisco 857W	ADSL	4-port 10/100 Mbps managed switch	Yes

### PHYSICAL SPECIFICATIONS

#### Dimensions (H x W x D)

Dimensions with antenna connectors: 2.00 x 10.25 x 9.13 in. (50.8 x 260.4 x 231.9 mm)

Dimensions without antenna connectors: 2.00 x 10.25 x 8.50 in. (50.8 x 260.4 x 215.9 mm)

#### Weight

2.10 lb

### POWER DISSIPATIONS

#### AC Input Voltage

100–240 VAC

#### Frequency

50–60 Hz

#### Maximum Output Power

26W

#### Output Voltages

5 and 12V

### ENVIRONMENTAL SPECIFICATIONS

#### Operating Temperature

32 to 104°F (0 to 40°C)

#### Non-operating Temperature

-4 to 149°F (-20 to 65°C)

#### Relative Humidity (non-condensing)

10 to 95%

#### Operating Altitude

0 to 15,000 ft. (0 to 4570 m)

Platform Overview continued

## REGULATORY COMPLIANCE

## Approvals and Compliance

- UL 1950/CSA 950-95, Third Edition
- IEC 950: Second Edition with Amendments 1, 2, 3, and 4
- IEC/EN 60950-1, 1st Edition
- CS-03, Canadian Telecom Requirements
- FCC Part 68 U.S. Telecom Requirements
- AS/NZS 3260: 1996 with Amendments 1, 2, 3, and 4
- ETSI 300-047
- TS 001 with Amendment 1
- EMI
- AS/NRZ 3548: 1992 Class B
- CFR 47 Part 15 Class B
- EN60555-2 Class B
- EN55022 Class B
- VCCI Class II
- ICES-003, Issue 2, Class B, April 1997S
- IEC 1000-3-2
- UNI 3.1/4.0 PVC
- ITU G.99.1.2 G.SHDSL

## Series Specifications

Flash Memory	20 MB
System DRAM Memory	64 MB
External Power Supply	Universal 100–240 VAC
Console Port	RJ-45
802.11b/g WLANs	Optional on both models
LEDs	PPP, VPN, ADSL, WLAN, LAN
Auxiliary Port	Virtual AUX port

## Ordering Information

Product Name	Product Number	Product Description
Cisco 851	CISCO851-K9	Ethernet to Ethernet router
	CISCO851W-G-A-K9	Ethernet to Ethernet wireless router
	CISCO851W-G-E-K9	Ethernet to Ethernet wireless router
	CISCO851W-G-J-K9	Ethernet to Ethernet wireless router
Cisco 857	CISCO857-K9	ADSL router
	CISCO857-W-G-A-K9	ADSL wireless router
	CISCO857-W-G-E-K9	ADSL wireless router
	CISCO857-W-G-J-K9	ADSL SOHO Router with 802.11g Japan Compliant

**Note:** For Cisco 850 Series wireless router part numbers, the following letters are associated with specifications meeting wireless regulations in the respective regions: A = U.S. and Americas, E = Europe, J = Japan.



## Cisco 870 Series

The Cisco 870 Series Integrated Services Routers extend to small offices the high-performance Cisco Integrated Services Router capabilities of running secure concurrent services, including firewall, VPNs, and WLANs, at broadband speeds. Easy deployment and centralized management features enable the Cisco 870 Series to be deployed in small office or teleworker sites as part of an enterprise network, by small to medium-sized business customers for secure WAN and WLAN connectivity, or used by service providers to offer business-class broadband and WLAN services.

## Benefits and Advantages

## Increased Performance to Run Concurrent Services

The performance in a Cisco 870 Series router allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, and video services.

## Advanced Security

The Cisco 870 Series delivers enterprise-class security services, including an Integrated Stateful Inspection Firewall for network perimeter security, high-speed IP Security (IPSec), Triple Data Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption for data privacy over the Internet, Intrusion Prevention System (IPS), and antivirus support through Network Admission Control (NAC) to enforce security policy in a larger enterprise or service provider network.

## Four-port 10/100 Mbps Managed Switch

Allows multiple devices to be connected in a small office, with the ability to designate a port as network DMZ. An optional external PoE adapter is available for powering IP phones to avoid individual power supplies or power injectors. VLANs allow for secure segmentation of network resources.

## Optional 802.11b/g WLANs with Support for Multiple Antennas

- Broadband router with secure WLAN in a single device
- Diversity antennas for optimizing coverage in a small office
- Options for replaceable external antennas, to get wireless coverage in areas away from where the router is located

## Cisco SDM and Cisco IOS Software for Remote Management

Using smart wizards and task-based tutorials, Cisco Security Device Manager (SDM) helps resellers and customers quickly and easily deploy, configure, and monitor a Cisco access router without requiring knowledge of the Cisco IOS Software command-line interface (CLI). Dial backup and out-of-band management allow IT managers to remotely manage the router at small office and teleworker sites. Cisco Configuration Express Service supports factory-loaded configurations in high-volume deployments. Support for the Cisco Configuration Engine enables plug-and-play installations with centralized configuration management.

## Security Features

### Cisco 870 Security Features

- Stateful inspection firewall
- Intrusion Prevention System (IPS)
- Antivirus support through Network Admission Control (NAC) and enforcement of secure access policies
- URL Filtering

### Cisco 870 VPN Features

- Hardware-accelerated 3DES for IPSec
- Hardware-accelerated AES for IPSec
- Cisco Easy VPN Client and Server
- IPSec 3DES termination/initiation
- IPSec pass-through
- Point-to-Point Tunneling Protocol (PPTP) pass-through
- L2TP pass-through
- 802.1X
- Secure HTTP (HTTPS), FTP, and Telnet authentication proxies
- Dynamic Multipoint VPN (DMVPN), SSL VPN, and Group Encrypted Transport (GET VPN)

## WLAN Features

### WLAN Hardware

- 802.11b/g
- Wi-Fi and Wireless Multi-Media (WMM) Certified
- Automatic rate selection for 802.11b/g
- Field-replaceable external antennas
- Antenna diversity
- WECA interoperability
- Default antenna gain: 2.2 dBi
- PoE (optional external adapter for inline power) for IP phones or external wireless access points

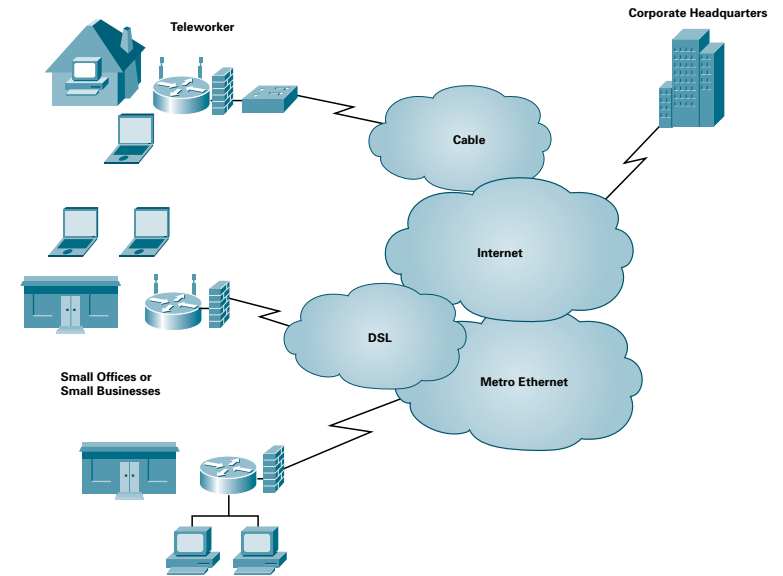
### WLAN Software Features

- Maximize throughput or maximize range option
- Software configurable transmit power
- SSID Globalization
- SSIDs = 10
- Wireless VLANs = 10
- Encrypted Wireless VLANs = 4
- MBSSIDs = 2
- Universal Client Mode

### WLAN Security Features

- 802.1X
- 802.11i
- Wi-Fi Protected Access (WPA) and AES (WPA2)
- EAP Authentication: Cisco LEAP, PEAP, EAP-TLS, EAP-FAST, EAP-SIM, EAP-MD5, EAP-TTLS
- Static and dynamic Wired Equivalent Privacy (WEP)
- Temporal Key Integrity Protocol (TKIP)/SSN Temporal Key Integrity Protocol/Simple Security Network encryption
- MAC authentication/filter
- User database for survivable local authentication using LEAP and EAP-FAST
- Configurable limit to the number of wireless clients
- Configurable RADIUS accounting for wireless clients
- PSK (Pre Shared Keys) (WPA-SOHO)

## Network Example



## When to Deploy

**Deploy the Cisco 870 Series when you need the following in a small remote office, or teleworker and small business sites:**

- Secure, concurrent services for broadband connection
- High-speed VPN solution
- Advanced security with firewall, VPNs, IPS, NAC, DMVPNs, Easy VPNs
- Integrated 802.11b/g with replaceable diversity antennas
- Four-port 10/100 managed switch
- Easy to set up solution with Cisco SDM and remote management capabilities

## Series Distinctions

### Cisco 870 Series

<b>WAN Technologies</b>	<ul style="list-style-type: none"> <li>• Cisco 871 – 100 MB Ethernet</li> <li>• Cisco 876 – ADSL over ISDN (ADSL2/ADSL2+)</li> <li>• Cisco 877 – ADSL over analog telephone lines (ADSL2/ADSL2+)</li> <li>• Cisco 878 – G.SHDSL (2- and 4-wire support)</li> </ul>
<b>LAN Switch</b>	Managed 4-port 10/100Base-T switch with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover
<b>Network Security</b>	Firewall, IPSec and AES High Speed Encryption, IPS, Antivirus through Cisco NAC, IPSec, and AES High Speed Encryption, Cisco Easy VPN, DMVPN, DMZ, GET VPN
<b>Upgradeability</b>	Cisco IOS Software upgrades and updates, memory upgrades

## Platform Overview

Models	WAN Interface	LAN Interfaces	802.11b/g Option	Integrated ISDN Dial Backup
Cisco 871	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	Yes (Cisco 871W)	
Cisco 876	Asymmetric DSL (ADSL) over ISDN	4-port 10/100 Mbps managed switch	Yes (Cisco 876W)	Yes
Cisco 877	ADSL	4-port 10/100 Mbps managed switch	Yes (Cisco 877W)	
Cisco 878	G.SHDSL	4-port 10/100 Mbps managed switch	Yes (Cisco 878W)	

## PHYSICAL SPECIFICATIONS

<b>Dimensions (H x W x D)</b>	2.00 x 10.25 x 9.13 in. (50.8 x 260.4 x 231.9 mm) (wireless models with antenna connectors, excludes antennae) 2.00 x 10.25 x 8.50 in. (50.8 x 260.4 x 215.9 mm) (non-wireless models)
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<b>Weight</b>	2.10 lbs.
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## POWER DISSIPATIONS

<b>AC Input Voltage</b>	100–240 VAC
<b>Frequency</b>	50–60 Hz
<b>Maximum Output Power</b>	26W (80W for optional external Inline PoE adapter)
<b>Output Voltages</b>	5 and 12V (48 VDC for optional external Inline PoE adapter)

## ENVIRONMENTAL SPECIFICATIONS

<b>Operating Temperature</b>	32–104°F (0 to 40°C)
<b>Non-operating Temperature</b>	-4–149°F (-20 to 65°C)
<b>Relative Humidity (non-condensing)</b>	10–85%
<b>Operating Altitude</b>	0–10,000 ft. (0 to 3000 m)

## REGULATORY COMPLIANCE

<b>Approvals and Compliance</b>	<ul style="list-style-type: none"> <li>• UL 1950/CSA 950-95, Third Edition</li> <li>• IEC 950: Second Edition with Amendments 1, 2, 3, and 4</li> <li>• IEC/EN 60950-1, 1st Edition</li> <li>• CS-03, Canadian Telecom Requirements</li> <li>• FCC Part 68 U.S. Telecom Requirements</li> <li>• AS/NZS 3260: 1996 with Amendments 1, 2, 3, and 4</li> <li>• ETSI 300-047</li> <li>• TS 001 with Amendment 1</li> <li>• EMI</li> <li>• AS/NRZ 3548: 1992 Class B</li> <li>• CFR 47 Part 15 Class B</li> <li>• EN60555-2 Class B</li> <li>• EN55022 Class B</li> <li>• VCCI Class II</li> <li>• ICES-003, Issue 2, Class B, April 1997S</li> <li>• IEC 1000-3-2</li> <li>• UNI 3.1/4.0 PVC</li> <li>• ITU G.99.1.2 G.SHDSL</li> </ul>
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## Series Specifications

<b>Flash Memory</b>	24 MB (expandable to 52 MB)
<b>System DRAM Memory</b>	128 MB (expandable to 256 MB)
<b>External Power Supply</b>	Universal 100–240 VAC
<b>Console Port</b>	RJ-45
<b>802.11b/g WLANs</b>	Optional on all models
<b>LEDs</b>	PPP, VPN, ADSL, G.SHDSL, WLAN, LAN
<b>USB 2.0 Ports for Advanced Security Features Such as Security Tokens</b>	2 USB 2.0 ports cannot be used for connecting external devices than specified for the Cisco 871
<b>ISDN Basic Rate Interface (BRI) S/T</b>	Only available on Cisco 876 for out-of-band management
<b>Power over Ethernet</b>	Optional external adapter for inline PoE for IP phones or external wireless access point

## High-Availability Features

## Cisco IOS Software features on Cisco 870 routers—Advanced Security feature set (default):

- Virtual Router Redundancy Protocol (VRRP) (RFC 2338)
- Hot Standby Router Protocol (HSRP)
- Out-of-band management with external modem through virtual auxiliary port
- Dial backup with external modem through virtual auxiliary port
- ISDN S/T port for out-of-band management (Cisco 876 and 878 only)

## Cisco IOS Software Advanced IP Services feature set (optional software upgrade):

- Multigroup HSRP (MHSRP)

## Advanced Enterprise Cisco IOS Software feature set (optional software upgrade on Cisco 876 only):

- Integrated dial backup for ADSL using ISDN S/T port

## Ordering Information

Product Name	Product Number	Product Description
<b>Cisco 871</b>	CISCO871-K9	Ethernet to Ethernet Router
	CISCO871-SEC-K9	Cisco 871 Security Bundle with Advanced IP Services
<b>Cisco 871W</b>	CISCO871W-G-A-K9	Ethernet to Ethernet Wireless Router
	CISCO871W-G-E-K9	
	CISCO871W-G-J-K9	
<b>Cisco 876</b>	CISCO876-K9	ADSL over ISDN Router
	CISCO876-SEC-I-K9	Cisco 876 Security Bundle with Advanced Enterprise features
	CISCO876-SEC-K9	Cisco 876 Security Bundle with Advanced IP Services

## Ordering Information continued

Product Name	Product Number	Product Description
<b>Cisco 876W</b>	CISCO876W-G-E-K9	ADSL over ISDN Wireless Router
<b>Cisco 877</b>	CISCO877-K9	Cisco 877 ADSL Router
	CISCO877-SEC-K9	Cisco 877 ADSL Security Bundle with Advanced IP Services
<b>Cisco 877W</b>	CISCO877W-G-A-K9	ADSL Wireless Router
	CISCO877W-G-E-K9	
<b>Cisco 877M-W</b>	CISCO877W-G-E-M-K9	ADSL Annex M Wireless Router
<b>Cisco 877M</b>	CISCO877-M-K9	ADSL Annex M Router
<b>Cisco 878</b>	CISCO878-K9	G.SHDSL Router
	CISCO878-SEC-K9	Cisco 878 Security Bundle with Advanced IP Services Feature Set
<b>Cisco 878W</b>	CISCO878W-G-A-K9	G.SHDSL Wireless Router
	CISCO878W-G-E-K9	

For Cisco 870 Series wireless router part numbers, the following letters are associated with specifications meeting wireless regulations in the following regions: A = U.S. and Americas, E = Europe, J = Japan

## Cisco 1800 Series (Fixed-Configuration)



Cisco is redefining best-in-class enterprise and small- to medium-sized business routing with a new line of Integrated Services Routers that are optimized for the secure delivery of data services. Founded on 20 years of leadership and innovation, the Cisco 1800 Series Integrated Services Routers intelligently embed data, security, and wireless technology into a single, resilient system for fast, secure, scalable delivery of mission-critical business applications. The Cisco 1800 Series architecture has been specifically designed to meet requirements of small- to medium-sized businesses (SMBs), small enterprise branch offices, and service provider-managed services applications for delivery of concurrent services for broadband access. The integrated secure systems architecture of the Cisco 1800 Series delivers maximum business agility and investment protection.

### Benefits and Advantages

Cisco 1800 Series Integrated Services Routers are the next evolution of the award-winning Cisco 1700 Series modular and fixed-configuration routers. The Cisco 1801, 1802, 1803, 1811, and 1812 Integrated Services Routers are fixed-configuration, while the Cisco 1841 Integrated Services Router is modular. The routers are designed for secure broadband, Metro Ethernet, and wireless connectivity, and provide significant performance improvements, feature capability, versatility, and additional value compared to prior generations of Cisco 1700 Series. The Cisco 1800 Series fixed-configuration routers provide:

- Secure broadband access with concurrent services for branch and small offices
- Integrated ISDN Basic Rate S/T Interface (BRI), analog modem, or Ethernet backup port for redundant WAN links and load balancing
- Secure wireless LAN option for simultaneous 802.11a and 802.11b/g with use of two dual-mode antennas
- Advanced security including: Stateful Inspection Firewall, IP Security (IPSec) VPNs (Triple Data Encryption Standard [3DES] or

Advanced Encryption Standard [AES]), Intrusion Prevention System (IPS), Antivirus support through Network Admission Control (NAC) and enforcement of secure access policies

- 8-port 10/100 managed switch with 802.1q VLAN support and optional Power over Ethernet (PoE)
- Easy deployment and remote-management capabilities through Web-based tools and Cisco IOS Software

Cisco 1801, 1802, and 1803 routers provide high-speed DSL broadband access through asymmetric DSL (ADSL) over basic telephone service (Cisco 1801), ADSL over ISDN (Cisco 1802), or Symmetrical High-Data-Rate DSL (G.SHDSL) (Cisco 1803) while helping to ensure reliable networking with integrated ISDN S/T BRI backup. The Cisco 1811 and 1812 provide high-speed broadband or Ethernet access through two 10/100BASE-T Fast Ethernet WAN ports and also provide integrated WAN backup through a V.92 analog modem (Cisco 1811) or ISDN S/T BRI interface (Cisco 1812).

## Benefits and Advantages continued

The Cisco 1800 Series fixed-configuration routers help enable a network infrastructure for SMBs and enterprise small branch offices, providing access to the Internet, corporate headquarters, or other remote offices, while securing and protecting critical data with integrated Cisco IOS Software security features and capabilities. They also help businesses reduce costs by enabling deployment of a single

device to provide multiple services (integrated router with redundant link, LAN switch, firewall, VPN, IPS, wireless technology, and quality of service [QoS]) typically performed by separate devices. Cisco IOS Software allows this flexibility, providing the industry's most robust, scalable, and feature-rich internetworking support, using the accepted standard networking software for the Internet and private WANs.

## Security Features

### Cisco IOS Firewall

- Stateful firewall with URL filtering
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall

### VPN

- Advanced Encryption Standard (AES) 128, 192, and 256
- Triple Data Encryption Standard (3DES), and DES encryption
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote and server support
- Dynamic Multipoint VPN (DMVPN)
- Group Encrypted Transport VPN (GET VPN)

### Onboard USB Port

- USB 2.0 ports (2) (Cisco 1811 and 1812 models only)

### IPS

- More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures

### URL Filtering

- Local URL filtering in Cisco IOS Software based on external server (Websense and N2H2)
- Stateful firewall contains URL filtering

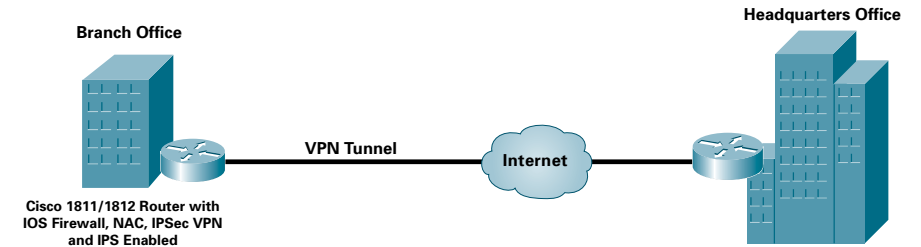
### Cisco SDM

- Cisco Router and Security Device Manager (SDM)

### IOS WebVPN (SSL VPN)

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Cisco 1801 and 1812 supports up to 10 users
- Requires IOS WebVPN feature license FL-WEBVPN-10
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

## Security Application Example



## Wireless

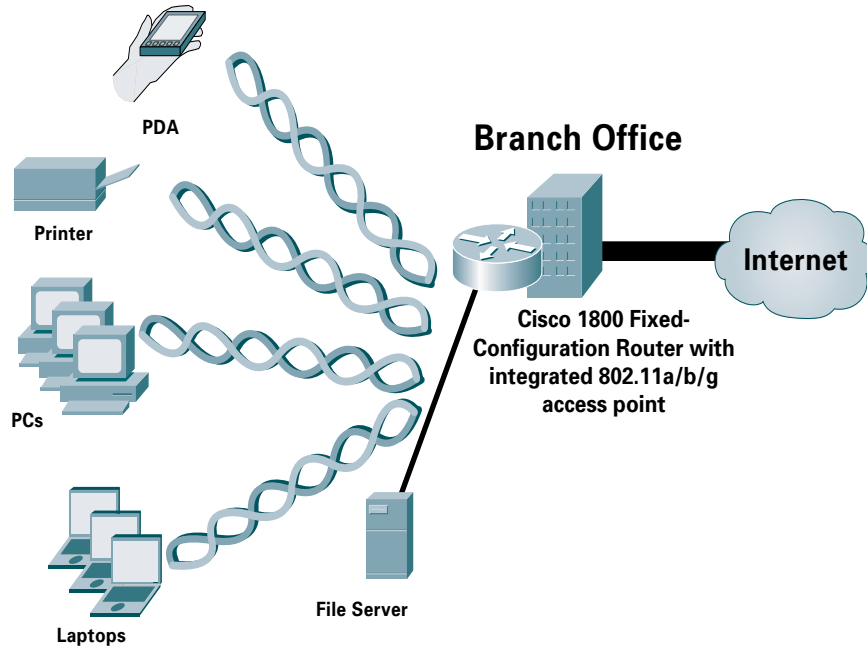
### Integrated Wireless LAN Capability

Cisco 1800 Series of fixed-configuration routers includes models with an integrated wireless access point, providing secure router and secure wireless LAN services in one device, helping businesses reduce total cost of ownership with simplified WLAN deployment and management capabilities. The integrated wireless access point supports IEEE 802.11a/b/g simultaneously to provide high-speed wireless capability and flexibility to support 2.4-GHz and 5-GHz dual-band simultaneous operation, making them ideal choices for hotspot deployments and wireless office solutions. Wi-Fi Certified client devices including Cisco Aironet, Wi-Fi Certified and Cisco Compatible client devices are fully supported.

The Cisco 1800 Series routers with integrated wireless access points are Wi-Fi certified and support WPA and WPA2 providing secure mutual authentication and encryption via Cisco IOS Software features to meet the strict demands of

today's businesses. These products also provide support for multiple BSSIDs (8) and multiple wireless VLANs (16 with 8 encrypted) that can be configured to provide additional security, segmentation, and separation of user groups. When using the routers in conjunction with the Cisco Service Selection Gateway (SSG) and Subscriber Edge Services Manager (SESM), managed service providers can incorporate service-based authorization and accounting, and service and subscriber management for customizable, on-demand wireless services such as hotspots. Additional features such as Universal Client mode allow the router to wirelessly connect to an AP (such as an outdoor wireless Mesh network) and local authentication allow users to maintain wireless connectivity to the router in the event that a remote authentication server goes down. Quality of Service (QoS) via Wi-Fi Multimedia (WMM) is also supported.

## Wireless Example



## When to Deploy

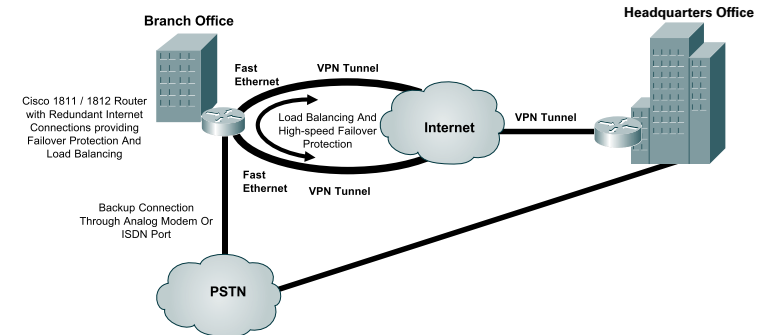
### Deploy the Cisco 1800 Series fixed-configuration routers when you need:

- An application-specific configured router
- Fully integrated DSL/Security/Wireless router
- To support high performance Internet access
- High availability Internet connections and load balancing
- Easy to order products
- Ability to connect several LAN devices

## High-Availability Features

The Cisco IOS Software Advanced IP Services feature set offers basic and advanced routing capabilities to deliver failover protection and load balancing. These capabilities include Border Gateway Protocol (BGP), Open Shortest Path First (OSPF) Protocol, Enhanced Interior Gateway Routing Protocol (EIGRP), and Routing Information Protocol (RIP) routing protocols along with dial-on-demand routing (DDR) Reliable Static Routing Using Object Tracking. Each of the Cisco 1800 Series fixed-configuration routers is equipped with either an ISDN BRI, V.92 analog modem, or Ethernet port for secondary WAN backup connection. If the primary DSL, cable, or Ethernet-access WAN experiences a link failure or loss of connectivity, the router will detect this failure and will fail over to the secondary backup WAN. The Cisco 1800 Series fixed-configuration routers help enable customers to deliver high-performance and high-availability, mission-critical business applications.

## High-Availability Features Example



## Platform Overview

Models	FE WAN Ports	Switch Ports	WAN	Wireless Option	DRAM (MB) Default Max	Compact Flash (MB) Default Max	Power Supply		
Cisco 1801	1	8	ADSL	Yes	128	384	32	128	AC
Cisco 1802	1	8	ADSLoISDN	Yes	128	384	32	128	AC
Cisco 1803	1	8	G.SHDSL	Yes	128	384	32	128	AC
Cisco 1811	2	8	10/100 Ethernet	Yes	128	384	32	128	AC
Cisco 1812	2	8	10/100 Ethernet	Yes	128	384	32	128	AC

## Series Specifications

<b>Dimensions (H x W x D)</b>	12.5 x 9.5 in. (34.3 x 274 cm)
<b>Console Port</b>	1 (up to 115.2 Kbps)
<b>Auxiliary Port</b>	1 (up to 115.2 Kbps)
<b>USB Port</b>	2 (USB 2.0) on Cisco 1811 and 1812 only. The Cisco 1801, 1802, and 1803 do not offer USB support
<b>Wireless LAN</b>	IEEE 802.11a,b,g (W models)
<b>V.92 Analog Modem Port</b>	One analog modem port on Cisco 1811
<b>Integrated Channel Service Unit/Data Service Unit (CSU/DSU)</b>	No, see Cisco 1841
<b>Voice/Data Support</b>	Only data support
<b>Encryption</b>	Hardware support on motherboard (3DES and AES)
<b>10/100 Switch Ports</b>	8 10/100BASE-T fully managed switch ports with 802.3af PoE support
<b>Integrated Modems</b>	1 (Cisco 1811 model only) V.92
<b>Default 10/100 WAN Ports</b>	1 (Cisco 1801, 1802, 1803, and 1812 models), 2 (Cisco 1811 and 1812 models)
<b>ISDN Basic Rate Interface (BRI) Ports S/T</b>	1 (Cisco 1801, 1802, 1803, and 1812 models only)

## Ordering Information

Product Number	Product Description
<b>CISCO1801</b>	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS IP broadband, 32 MB of Flash memory, and 128 MB of DRAM. IOS Security services are not included
<b>CISCO1801/K9</b>	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1802/K9</b>	ADSL over ISDN router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1803/K9</b>	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1801W-AG-E/K9</b>	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
<b>CISCO1802W-AG-E/K9</b>	ADSL over ISDN router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
<b>CISCO1803W-AG-A/K9</b>	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated FCC-compliant 802.11a,b,g wireless capability
<b>CISCO1803W-AG-E/K9</b>	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
<b>CISCO1811/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1812/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1811W-AG-A/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated FCC-compliant 802.11a,b,g wireless capability
<b>CISCO1812W-AG-E/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
<b>CISCO1801-M</b>	ADSL over POTS Annex M router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1801-M/K9</b>	ADSL over POTS Annex M router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS IP Broadband, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1802</b>	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS IP Broadband, 32 MB of Flash memory, and 128 MB of DRAM
<b>CISCO1801W-AG-C/K9</b>	ADSL over ISDN router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated China-compliant 802.11a,b,g wireless capability

## Ordering Information

Product Number	Product Description
<b>CISCO1801W-AG-N/K9</b>	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated Australia/New Zealand-compliant 802.11a,b,g wireless capability
<b>CISCO1801WM-AGE/K9</b>	ADSL over POTS Annex M router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
<b>CISCO1811W-AG-N/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated Australia/New Zealand-compliant 802.11a,b,g wireless capability
<b>CISCO1811W-AG-C/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated China-compliant 802.11a,b,g wireless capability
<b>CISCO1812W-AG-C/K9</b>	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated China-compliant 802.11a,b,g wireless capability



## Cisco 1800 Series (Modular)



Cisco is redefining best-in-class enterprise and small- to medium-sized business (SMB) routing with a line of Integrated Services Routers that are optimized for the secure, wire-speed delivery of data services. Founded on 20 years of leadership and innovation, Cisco 1800 Series Integrated Services Routers intelligently embed data and security into a single, resilient system for fast, scalable delivery of mission-critical business applications. The Cisco 1800 Series architecture has been specifically designed to meet requirements of SMBs, small enterprise branch offices, and service-provider-managed services applications for delivery of concurrent secure data services at wire-speed performance. The integrated, secure systems architecture of the Cisco 1800 Series delivers maximum business agility and investment protection.

### Benefits and Advantages

#### Enhanced Architecture

The Cisco 1841 Integrated Services Router provides secure data connectivity at up to one T1/E1/xDSL WAN connectivity rates. It provides significant additional value compared to prior generations of Cisco 1700 Series routers by offering more than a five-fold performance increase, integrated onboard hardware-based encryption enabled by an optional Cisco IOS Software security image, and a dramatic increase in interface card slot performance and density. Support for one internal Advanced Integration Module (AIM) slot is provided for additional hardware-accelerated encryption and scalability. The modular architecture on the Cisco 1841 router also supports two high-speed WAN interface card (HWIC) slots which significantly increase data-throughput capability (up to 800 Mbps aggregate). The Cisco 1841 also offers integrated dual high-speed Ethernet LAN ports to allow LAN segmentation and to help enable connectivity speeds up to 100BASE-T Ethernet technology. Ample default memory (Flash, SDRAM) is provided to support deployment of concurrent services.

#### Flexibility and Investment Protection

The modular architecture of the Cisco 1841 router offers a wide variety of LAN and WAN

options; interface cards and modules are field-upgradable to accommodate future technologies. The Cisco 1841 delivers investment protection with support for more than 30 modules and interface cards, including existing WICs and voice WAN interface cards (VWICs—on the Cisco 1841 router for data support only) as well as Advanced Integration Modules (AIM). This Integrated Services Router provides 2 slots that are WIC/HWIC/VWIC (data) capable and enables multiple services on an integrate-as-you-grow basis.

#### Market-leading Integrated Security

A primary component of the Cisco Self-defending Network, the Cisco 1841 Integrated Services Router ships with the industry's most comprehensive security services embedded within the router that can be enabled with a Cisco IOS Security Image. This provides customers with a single, resilient platform to rapidly deploy secure networks and applications. The Cisco 1800 Series was designed with integrated security to provide a tight coupling among security, routing, and other integrated services throughout the network. With a Cisco IOS Software-based VPN, firewall, and intrusion prevention system (IPS), as well as optional enhanced VPN acceleration, and Network

**Benefits and Advantages** *continued*

Admission Control (NAC) support for anti-virus defense, the Cisco 1841 offers a robust and adaptable security solution for branch-office routers. Every Cisco 1800 Series router comes with the factory-installed Cisco Router and Security Device Manager (SDM). Cisco SDM is an intuitive, Web-based device manager that offers easy router configuration and monitoring, startup wizards for quick deployment and lock-down, smart wizards to help enable security and routing features, Cisco Technical Assistance Center (TAC)-approved router configurations, and subject-related educational content.

**Integrated Services**

By providing integrated services, as well as

great modular density and high performance, the Cisco 1841 router provides security, versatility, scalability, and flexibility for multiple applications to the small- to-medium-sized business, small enterprise branch office, and the service provider customer edge. The Cisco 1841 router easily accommodates several network applications, such as secure branch-office data access (including NAC for antivirus defense), VPN access and firewall protection, business-class DSL, IPS support, inter-VLAN routing, and serial device concentration. The Cisco 1841 router provides customers with the industry's most flexible, secure, and adaptable infrastructure to meet both today's and tomorrow's business requirements for maximum investment protection.

**Security Features****IPSec VPN**

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS—Preclassification support
- Support for up to 800 IPSec tunnels using the AIM-VPN/BPII-PLUS

**Multiprotocol Label Switching (MPLS) VPN Support**

- Support for VRF-lite and VRF aware IPSec

**Cisco IOS IPS**

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

**Cisco IOS Firewall**

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
  - HTTP inspection engine
  - E-mail inspection engines (SMTP, ESMTP, IMAP, POP)

**IOS WebVPN (SSL VPN)**

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Cisco 1841 supports up to 25 users
- Requires IOS WebVPN feature license FL-WEBVPN-10 or FL-WEBVPN-25
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

**Security Features** *continued***Network Foundation Protection**

- Control Plane Policing (CPP)
- AutoSecure
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

**URL Filtering**

- Local URL filtering in Cisco IOS software based on external server

**Onboard USB 1.1 Port**

- Single onboard USB 1.1 port
- Secure token and Flash memory support

**Security Solutions**

- Network Admission Control (NAC)

**Optional Security Modules**

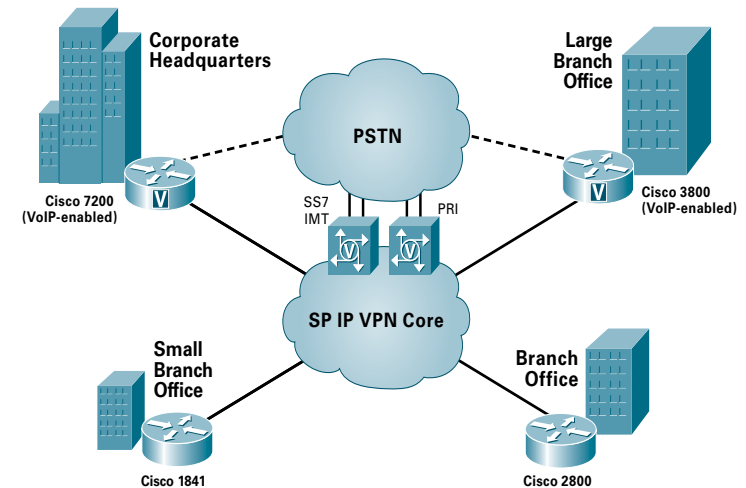
- VPN and Encryption Advanced Integration Modules (AIM-VPN/BPII-PLUS)

**Cisco Router and Security Device Manager (SDM)**

- Ships by default

**Certifications**

- ICSA IPSec
- ICSA Firewall
- Common Criteria IPSec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2 (in process)

**Security Example**

Branch office Network Admission Control (NAC) helps ensure that every endpoint complies with network security policies before being granted access, protecting the network from viruses and worms.

## When to Deploy

### Deploy the Cisco 1800 Series when you need:

- Performance and densities for concurrent data and security services up to one T1/E1/xDSL WAN connectivity rates
- The flexibility to add or change WAN services to support changing needs and applications, including serial T1, E1, ISDN and broadband DSL, etc.
- VPN connections, or plan to migrate to them over time
- Low density (up to four ports) of integrated 10/100 switching
- Integrated security services as part of the Cisco Self-Defending Network, which enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Advanced management for security, routing, quality of service (QoS), and switching services with Cisco SDM Version 2.0

## Platform Overview

	Fixed LAN Ports	HWIC Slots	AIM Slots	PVDM* Slots	NME* Slots	EVM* Slots	DRAM (MB)		Flash (MB)		Power Supply
							Default	Max	Default	Max	
<b>Cisco 1841</b>	2	2	1	0	0	0	128	384	32	128	AC

\*NME = Enhanced Network Module; EVM = Extension Voice Module; PVDM = Packet Voice/Digital Signal Processor Module

## Series Specifications

<b>Dimensions (H x W x D)</b>	1.73 x 13.5 x 10.8 in. (43.9 x 343 x 274 mm)
<b>Console Port</b>	1 (up to 115.2 Kbps)
<b>Auxiliary Port</b>	1 (up to 115.2 Kbps)
<b>USB Port</b>	1
<b>Integrated Channel Service Unit/Data Service Unit (CSU/DSU)</b>	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support Unit/Data Service Unit (CSU/DSU)
<b>Voice/Data Support</b>	Only data support
<b>Compression</b>	Software and hardware
<b>Encryption</b>	Hardware support on motherboard; optional AIM for enhanced performance
<b>Maximum 10/100 Switch Ports</b>	4 (without onboard Fast Ethernet ports)
<b>Maximum Integrated Modems</b>	4
<b>Maximum ISDN Basic Rate Interface (BRI) Ports</b>	2

## Ordering Information

Product Number	Product Description
<b>CISCO 1800 SERIES BASE CHASSIS PART NUMBERS</b>	
<b>CISCO1841</b>	Cisco 1800 Series Modular Router with two integrated Fast Ethernet slots, two WAN slots, IP BASE, 32 MB of Flash memory and 128 MB of DRAM

## Product Bundles

Product Number	Product Description
<b>SECURITY</b>	
<b>CISCO1841-SEC/K9</b>	Cisco 1841 security bundle with advanced security, 64 MB Compact Flash/256 MB DRAM
<b>CISCO1841-HSEC/K9</b>	Cisco 1841 security bundle with AIM-VPN/BPII-PLUS, Advanced IP Services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO1841-T1SEC/K9</b>	Cisco 1841 security bundle with WIC-1DSU-T1-V2, Advanced Security, 64 MB Compact Flash/256 MB DRAM
<b>BROADBAND BUNDLES</b>	
<b>CISCO1841-ADSL</b>	Cisco 1841 asymmetric DSL (ADSL) over POTS (ADLSO POTS) bundle, IP broadband, 32 MB Compact Flash/128 MB DRAM
<b>CISCO1841-ADSL2</b>	Cisco 1841 bundle, HWIC-1ADSL, IOS IP Broadband, 32 MB Flash/128 MB DRAM
<b>CISCO1841-ADSL2-B</b>	Cisco 1841 bundle, HWIC-ADSL-B/ST, IOS IP Broadband, 32 MB Flash/128 MB DRAM
<b>CISCO1841-ADSLI</b>	Cisco 1841 ADSLoSDN bundle, IP broadband, 32 MB Compact Flash/128 MB DRAM
<b>CISCO1841-ADSL-DG</b>	Cisco 1841 ADSLoPOTS bundle with Dying Gasp, IP broadband, 32 MB Compact Flash/128 MB DRAM
<b>CISCO1841-SHDSDL-V3</b>	Cisco 1841 bundle, WIC-1SHDSL-V3, IOS IP Broadband, 32 MB Flash/128 MB DRAM
<b>CISCO1841-2SHDSL</b>	Cisco 1841 2-pair G.SHDSL bundle, HWIC-2SHDSL, IP Base, 64 MB Flash/128 MB DRAM
<b>CISCO1841-4SHDSL</b>	Cisco 1841 4-pair G.SHDSL bundle, HWIC-2SHDSL, IP Base, 64 MB Flash/128 MB DRAM
<b>T1 BUNDLES</b>	
<b>CISCO1841-T1</b>	Cisco 1841 T1 bundle, advanced security, 32 MB Compact Flash/128 MB DRAM



## Cisco 2800 Series

Cisco is redefining best-in-class enterprise and small- to medium-sized business routing with a new line of Integrated Services Routers that are optimized for the secure, wire-speed delivery of concurrent data, voice, and video services. Founded on 20 years of leadership and innovation, Cisco 2800 Series integrated services routers intelligently embed data, security, and voice services into a single, resilient system for fast, scalable delivery of mission-critical business applications. The unique integrated systems architecture of the Cisco 2800 Series delivers maximum business agility and investment protection.

### Benefits and Advantages

#### Enhanced Architecture

The Cisco 2800 Series features support for new interface cards. Depending on the router model, this can include up to four high-speed WAN interface card (HWIC) slots, up to one Enhanced Network Module (NME) slot, and up to one Extension Voice Module (EVM) slot. Embedded on the motherboard of the router is a hardware-based VPN accelerator, up to three PVDM (Packet Voice DSP Module) slots for integrated digital signal processor (DSP) modules, two advanced integration module (AIM) slots, up to two USB 1.1 ports, and two Fast Ethernet 10/100 ports (Cisco 2801, 2811) or two Gigabit Ethernet 10/100/1000 ports (Cisco 2821, 2851). Additionally, optional support for inline power (including 802.3af) is offered.

#### Investment Protection and Versatility

The Cisco 2800 Series provides significant additional value compared to prior generations of Cisco routers such as the Cisco 1700 and 2600 Series routers at similar price points by offering up to a five-fold performance improvement, up to a ten-fold increase in security and voice performance, new embedded service options, and dramatically increased slot performance and density while maintaining support for most of the more than 90 existing modules that are available today for the Cisco 1700 Series and Cisco 2600 Series.

#### Integrated Switching

With support of up to 64 ports of integrated switching with inline power, the Cisco 2800 Series offers an excellent platform for combining two of the most common components of any network infrastructure. Additionally, with support for the 802.3af (Power over Ethernet [PoE]) standard, the 4- and 9-port Cisco EtherSwitch HWICs and the 16-, 24-, and 48-port EtherSwitch Service Modules can provide power to any 802.3af-compliant devices, greatly expanding the number and types of devices that can be powered from the router's integrated switch ports. An optional upgrade to the internal power supply provides power to the integrated switch ports.

#### Integrated Services

With the optional integration of numerous services modules, the Cisco 2800 Series offers the ability to easily integrate the functions of standalone network appliances and components into the Cisco 2800 Series chassis itself. Many of these modules, such as the Cisco Network Analysis Module, Cisco Unity™ Express Voice-mail Module, Cisco Intrusion Prevention Module, and Cisco Content Engine Module, have embedded processors and hard drives that allow them to run largely independently of the router while allowing management from a single management interface. This flexibility greatly

**Benefits and Advantages** *continued*

expands the potential applications of the Cisco 2800 Series beyond traditional routing, while maintaining the benefits of integration.

**Secure Networking**

Integrated on the motherboard of every Cisco 2800 Series router is hardware-based encryption acceleration that offloads the encryption processes to provide greater IPSec throughput with less overhead for the router CPU, when compared with software-based solutions. With the optional integration of VPN modules (for enhanced performance and tunnel count), content engine network modules for URL filtering, or intrusion-prevention network modules, combined with the rich Cisco IOS Software security feature set that includes firewall, network admission control (NAC), voice and video-enabled VPN (V3PN), intrusion prevention, and Dynamic Multipoint VPN (DMVPN), Cisco

offers the industry's most robust and adaptable security solution for branch-office routers.

**IP Telephony**

The Cisco 2800 Series allows network managers to provide scalable analog and digital telephony without investing in a one-time solution, giving enterprises greater control of their converged telephony needs. Using voice and fax modules, the Cisco 2800 Series can be deployed for applications ranging from voice over IP (VoIP) and voice over Frame Relay (VoFR) transport to robust, centralized solutions using the Cisco Survivable Remote Site Telephony (SRST) solution or distributed call processing using Cisco CallManager Express (CCME). The architecture is highly scalable with the ability to support up to 96 IP phones, 12 T1/E1s trunks, 52 foreign-exchange-station (FXS) ports, or 36 foreign-exchange-office (FXO) ports concurrent with data routing and other services.

**Security Features****IPSec VPN**

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote; Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- VPN QoS—Preclassification support
- Support for up to 1500 VPN tunnels with the AIM-VPN module

**Multiprotocol Label Switching (MPLS) VPN Support**

- Specific provider edge capabilities
- Virtual Routing and Forwarding (VRF) firewall and VRF IPSec

**Cisco IOS IPS**

- Inline ability to drop packet, reset connection, locally shun, or send an alarm; dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

**IOS WebVPN (SSL VPN)**

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Cisco 2801 supports up to 25 users, Cisco 2811 and 2821 support up to 50 users, and Cisco 2851 supports up to 75 users.
- Requires IOS WebVPN feature license FL-WEBVPN-10 or FL-WEBVPN-25 (purchase multiple quantities to add up to the desired number of users)
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

**Cisco IOS Firewall**

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
  - HTTP inspection engine
  - E-mail inspection engines (SMTP, ESMTP, IMAP, POP)

**Security Features** *continued***Network Foundation Protection**

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

**URL Filtering**

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

**Onboard USB 1.1 port**

- 1 or 2 onboard USB 1.1 ports
- Secure token and Flash memory support

**Security Solutions**

- Network Admission Control (NAC)
- Voice and Video Enabled IPSec VPN (V3PN)

**Optional Security Modules**

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

**Cisco Router and Security Device Manager (SDM)**

- Ships by default

**Certifications**

- ICSA IPSec
- ICSA Firewall
- Common Criteria IPSec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2 (in process)

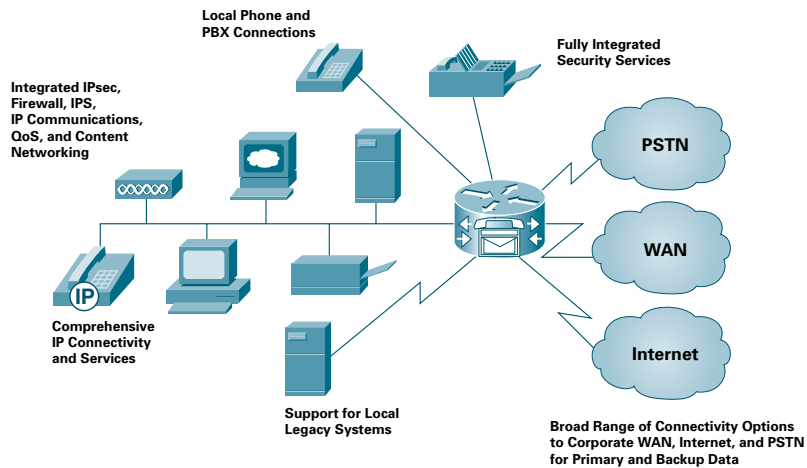
**Series Features Overview**

Features	Details
<b>Multiprotocol Label Switching (MPLS) VPN Support</b>	Specific Provider Edge (PE) capabilities
<b>Intrusion Prevention System (IPS)</b>	More than 1600 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures  Optional high-performance IPS Network Module with more than 2000 signatures
<b>URL Filtering</b>	Onboard filtering with an optional content engine network module  Local URL filtering in Cisco IOS Software based on external server
<b>Cisco Router and Security Device Manager (SDM), version 2.0 and Above</b>	Comes standard on all Cisco 2800 Series routers
<b>Media Authentication and Encryption</b>	Standards-based authentication and encryption using secure RTP provides a secure environment for IP Communications  Advanced Encryption Standard (AES) 256-bit cryptography support
<b>IP TELEPHONY FEATURES</b>	
<b>IP Phone Support</b>	Optional integrated power supply with inline power, 802.3af support  Up to 360W of inline power (Note: requires power supply upgrade)
<b>Analog Voice Support</b>	One EVM on the Cisco 2821 and Cisco 2851  Up to 52 FXS and 36 FXO ports
<b>Digital Voice Support</b>	Up to 192 calls
<b>DSP (PVD) Slots on Motherboard</b>	Up to three DSP slots on motherboard  Local Conferencing and Transcoding
<b>Cisco CallManager Express (CCME)</b>	Up to 96 phones

## Series Features Overview

Features	Details
<b>Cisco SRST</b>	Up to 96 phones
<b>Voice Mail and Automated Attendant</b>	Up to 250 mailboxes with up to 16 concurrent sessions using Cisco Unity™ Express Network Module
<b>Voice Interfaces</b>	FXS, FXO, Direct Inward Dial (DID), E&M, Centralized Automated Message Accounting (CAMA), Cisco Unity Express (CUE), Basic Rate Interface (BRI), T1, E1 Primary Rate Interface (PRI), Q.SIG, channel associated signaling (CAS)

## Network Example



## When To Deploy

### Deploy the Cisco 2800 Series when you need:

- Performance and densities for concurrent data, security, voice, and advanced services up to multiple T1/E1/xDSL connections
- VPN connections, or plan to migrate to them over time
- Integrated security services as part of the Cisco Self Defending Network, which enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Ability to upgrade the internal power supply to support integrated 10/100 switching with PoE support for up to 64 ports with inline power
- High-availability features such as an integrated Redundant Power Supply (RPS) connector for quick connections to an external redundant power supply, Error Correction Code (ECC) Double Data Rate (DDR) SDRAM memory to detect and correct SDRAM errors without user intervention, and Cisco IOS Software warm reboot support for reduced downtime caused by system reboots (Note: Cisco 2801 does not support ECC DDR DRAM.)
- Secure integrated call processing, voice mail and automated attendant, flexible telephony interfaces, redundancy for centralized call processing, or robust DSP support, including local conferencing and transcoding
- Advanced management for security, routing, quality of service (QoS), and switching services with Cisco SDM Version 2.0

## Platform Overview

Models	NME	EVM	AIM	HWIC	PVDM*	Fixed LAN Ports		DRAM (MB)		Compact Flash (MB)		Power Supply
						Default	Max	Default	Max	Default	Max	
<b>Cisco 2801</b>	0***	0	2	2**	2	2	FE	128	384	64	128	AC, AC-IP
<b>Cisco 2811</b>	1	0	2	4	2	2	FE	256	768	64	256	AC, AC-IP, DC
<b>Cisco 2821</b>	1 NME or NME-X	1	2	4	3	2	GE	256	1024	64	256	AC, AC-IP, DC
<b>Cisco 2851</b>	1 NME, NMD, NME-X, or NME-XD	1	2	4	3	2	GE	256	1024	64	256	AC, AC-IP, DC

\* Number of PVDM slots on the motherboard, additional DSP resources can be added using a network module

\*\* Four interface card slots total are supported on the Cisco 2801 router; two slots support HWIC, WIC, VIC, or VWIC modules; one slot supports WIC, VIC, or VWIC modules; one slot supports VIC or VWIC modules (in voice mode only)

\*\*\* Cisco 2801 router does not support network modules

## Series Specifications

### Dimensions (H x W x D)

<b>Cisco 2801</b>	1.72 x 17.5 x 16.5 in. (43.7 x 445 x 419 mm); 1-rack-unit (RU) height
<b>Cisco 2811</b>	1.75 x 17.25 x 16.4 in. (44.5 x 438.2 x 416.6 mm); 1-RU height
<b>Cisco 2821, Cisco 2851</b>	3.5 x 17.25 x 16.4 in. (88.9 x 438.2 x 416.6 mm) 2-RU height

**Console Port** 1 (up to 115.2 Kbps)

**Auxiliary Port** 1 (up to 115.2 Kbps)

### USB Port

<b>Cisco 2801</b>	1
<b>Cisco 2811, Cisco 2821, and Cisco 2851</b>	2

**Integrated Channel Service Unit/ Data Service Unit (CSU/DSU)** Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support

**Voice/Data Support** Yes, for voice through VIC, VWIC, NM, and EVM

**Compression** Software and hardware, with optional AIM support

**Encryption** Hardware support on motherboard; optional AIM for enhanced performance

Series Specifications continued

## Maximum 10/100 Switch Ports with

## Inline Power

Cisco 2801	16
Cisco 2811	32
Cisco 2821	40
Cisco 2851	64

## Maximum Inline Power Distribution

Cisco 2801	120W
Cisco 2811	160W
Cisco 2821	240W
Cisco 2851	360W

## Maximum 1 GB Ports

5, including HWIC and NME modules (not supported on Cisco 2801)

## Maximum Token Ring Ports

0

Maximum High-speed Serial  
(up to 2 Mbps)

20

Maximum Low-speed Serial  
(up to 128 Kbps)

48 synchronous, 96 asynchronous

## Maximum Integrated Modems

24 analog

## Maximum ISDN BRI Ports

20

## Maximum ISDN PRI Ports

2

## Integrated RPS Connector

Cisco 2801	No
Cisco 2811, Cisco 2821, Cisco 2851	Yes; use Cisco RPS-675 Redundant Power System

## Minimum Cisco IOS Software Release

Cisco 2801	12.3(8)T4
Cisco 2811	12.3(8)T4
Cisco 2821	12.3(8)T4
Cisco 2851	12.3(8)T4

## Ordering Information

All Cisco 2800 Series chassis ship with IP Base software, 64 MB of Compact Flash, either 128 or 256 MB of SDRAM, console, auxiliary and LAN cables, a power cord, 19-inch rack-mount brackets, and blank panels that cover unused WIC or network module slots.

## Optional items:

- Cisco IOS Software feature set upgrade or revision; IP Base is default and included with the chassis
- Several voice/WAN interface card options
- Several WAN/LAN network module options
- Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards
- Between 2 and 3 PVDMs plus additional PVDM capacity on select network modules
- Several services module options, including content engine, IPS, network analysis, and CESoIP
- Up to 2 AIMs
- Cisco EtherSwitch modules (4-, 9-, 16-, 24- [Cisco 2821 or 2851 only] or 48-port [Cisco 2851 only])
- External RPS (Cisco RPS-675 [not supported on 2801])
- Flash/SDRAM memory upgrade
- Cables
- Feature license for IP Telephony

## Product Number      Product Description

## CISCO 2800 SERIES BASE CHASSIS PART NUMBERS

<b>CISCO2851</b>	Integrated Services Router with AC power; 2 GbE, slots for 1 NME-XD, 1EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2851-AC-IP</b>	Integrated Services Router with AC power including inline power distribution capability, 2 GbE, slots for 1 NME-XD, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2851-DC</b>	Integrated Services Router with DC power; 2 GbE, slots for 1 NME-XD, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2821</b>	Integrated Services Router with AC power; 2 GbE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2821-AC-IP</b>	Integrated Services Router with AC power including inline power distribution capability, 2 GbE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2821-DC</b>	Integrated Services Router with DC power; 2 GbE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2811</b>	Integrated Services Router with AC power; 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2811-AC-IP</b>	Integrated Services Router with AC power including inline power distribution, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2811-DC</b>	Integrated Services Router with DC power; 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2801</b>	Integrated Services Router with AC power; 2FE, slots for 4 Interface Cards, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2801-AC-IP</b>	Integrated Services Router with AC power including inline power distribution, 2FE, slots for 4 Interface Cards, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software

## Product Bundles

Product Number	Product Description
<b>SECURE VOICE BUNDLES</b>	
<b>CISCO2801-V3PN/K9</b>	Cisco 2801 V3PN bundle, with AIM-VPN, PVDM2-8, FL-CCME-24, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>CISCO2811-V3PN/K9</b>	Cisco 2811 V3PN bundle with AIM-VPN, PVDM2-16, CCME-36, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>CISCO2821-V3PN/K9</b>	Cisco 2821 V3PN bundle with AIM-VPN, PVDM2-32, CCME-48, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>CISCO2851-V3PN/K9</b>	Cisco 2851 V3PN bundle with AIM-VPN, PVDM2-48, CCME-72, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2801-VSEC-CCME/K9</b>	Cisco 2801 VSEC Bundle with PVDM2-8, FL-CCME-24, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2801-VSEC-SRST/K9</b>	Cisco 2801 VSEC Bundle with PVDM2-8, FL-SRST-24, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2811-VSEC-CCME/K9</b>	Cisco 2811 VSEC Bundle with PVDM2-16, FL-CCME-36, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2811-VSEC-SRST/K9</b>	Cisco 2811 VSEC Bundle with PVDM2-16, FL-SRST-36, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2821-VSEC-CCME/K9</b>	Cisco 2821 VSEC Bundle with PVDM2-32, FL-CCME-48, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2821-VSEC-SRST/K9</b>	Cisco 2821 VSEC Bundle with PVDM2-32, FL-SRST-48, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2851-VSEC-CCME/K9</b>	Cisco 2851 VSEC Bundle with PVDM2-48, FL-CCME-96, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2851-VSEC-SRST/K9</b>	Cisco 2851 VSEC Bundle with PVDM2-48, FL-SRST-96, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2801-VSEC/K9</b>	Cisco 2801 Voice Security Bundle, PVDM2-8, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2811-VSEC/K9</b>	Cisco 2811 Voice Security Bundle, PVDM2-16, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2821-VSEC/K9</b>	Cisco 2821 Voice Security Bundle, PVDM2-32, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2851-VSEC/K9</b>	Cisco 2851 Voice Security Bundle, PVDM2-48, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C2821-BIAB-24/K9</b>	Cisco 2821 with AC-IP power, integrated PoE EtherSwitch, Cisco Unity Express AIM, Packet Voice Digital Module (PVDM2), Cisco CallManager Express (CME), CUE and CCME license, Cisco IOS Advanced IP Services and 64 MB Compact Flash, 256 MB DRAM Memory

## Product Bundles continued

Product Number	Product Description
<b>VOICE BUNDLES</b>	
<b>CISCO2851-V/K9</b>	Cisco 2851 voice bundle with PVDM2-48, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2851-CCME/K9</b>	Cisco 2851 voice bundle with PVDM2-48, CCME featuring 96-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2851-SRST/K9</b>	Cisco 2851 voice bundle with PVDM2-48, SRST featuring 96-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-V/K9</b>	Cisco 2821 voice bundle with PVDM2-32, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-CCME/K9</b>	Cisco 2821 voice bundle with PVDM2-32, CCME featuring 48-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-SRST/K9</b>	Cisco 2821 voice bundle with PVDM2-32, SRST featuring 48-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-V/K9</b>	Cisco 2811 voice bundle with PVDM2-16, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-CCME/K9</b>	Cisco 2811 voice bundle with PVDM2-16, CCME featuring 36-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-SRST/K9</b>	Cisco 2811 voice bundle with PVDM2-16, SRST featuring 36-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2801-V/K9</b>	Cisco 2801 voice bundle, PVDM2-8, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO2801-CCME/K9</b>	Cisco 2801 voice bundle with CCME featuring 24-phone license, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO2801-SRST/K9</b>	Cisco 2801 voice bundle with SRST featuring 24-phone license, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
<b>SECURITY BUNDLES</b>	
<b>CISCO2851-SEC/K9</b>	Cisco 2851 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
<b>CISCO2851-HSEC/K9</b>	Cisco 2851 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
<b>CISCO2821-SEC/K9</b>	Cisco 2821 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
<b>CISCO2821-HSEC/K9</b>	Cisco 2821 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
<b>CISCO2811-SEC/K9</b>	Cisco 2811 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
<b>CISCO2811-HSEC/K9</b>	Cisco 2811 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
<b>CISCO2801-SEC/K9</b>	Cisco 2801 Security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
<b>CISCO2801-HSEC/K9</b>	Cisco 2801 security bundle with AIM-VPN-EPII-PLUS, Cisco IOS advanced IP services, and 64 MB Compact Flash/256 MB DRAM



**Product Bundles** continued

Product Number	Product Description
<b>BROADBAND BUNDLES</b>	
<b>CISCO2811-ADSL/K9</b>	Cisco 2811 ADSL bundle, WIC-1ADSL (ADSLoPOTS), 64 MB Compact Flash/256 MB DRAM, Cisco IOS SP services
<b>CISCO2801-ADSL/K9</b>	Cisco 2801 DSL bundle, WIC-1ADSL (ADSLoPOTS), Cisco IOS SP services, 64 MB Compact Flash/192 MB DRAM
<b>CISCO2801-ADSL2/K9</b>	Cisco 2801 bundle, HWIC-1ADSL, SP Services, 64 MB Flash/192 MB DRAM
<b>CISCO2811-ADSL2/K9</b>	Cisco 2811 bundle, HWIC-1ADSL, SP Services, 64 MB Flash/256 MB DRAM
<b>C2801-SHDSL-V3/K9</b>	Cisco 2801 bundle, WIC-1SHDSL-V3, SP Services, 64 MB Flash/256 MB DRAM
<b>C2801-2SHDSL/K9</b>	Cisco 2801 2-pair G.SHDSL bundle, HWIC-2SHDSL, SP Services, 64 MB Flash/192 MB DRAM
<b>C2801-4SHDSL/K9</b>	Cisco 2801 4-pair G.SHDSL bundle, HWIC-4SHDSL, SP Services, 64 MB Flash/192 MB DRAM
<b>C2811-SHDSL-V3/K9</b>	Cisco 2811 DSL bundle, WIC-1SHDSL-V3 (4-wire), SP Services, 64 MB Flash/256 MB DRAM
<b>C2811-2SHDSL/K9</b>	Cisco 2811 2-pair G.SHDSL bundle, HWIC-2SHDSL, SP Services, 64 MB Flash/256 MB DRAM
<b>C2811-4SHDSL/K9</b>	Cisco 2811 4-pair G.SHDSL bundle, HWIC-4SHDSL, SP Services, 64 MB Flash/256 MB DRAM
<b>C2821-4SHDSL/K9</b>	Cisco 2821 4-pair G.SHDSL bundle, HWIC-4SHDSL, SP Services, 64 MB Flash/256 MB DRAM
<b>WAN OPTIMIZATION BUNDLES</b>	
<b>CISCO2821-AA/K9</b>	Cisco 2821 Basic WAN Optimization Bundle
<b>CISCO2821-SAA/K9</b>	Cisco 2821 Secure WAN Optimization Bundle
<b>CISCO2851-AA/K9</b>	Cisco 2851 Basic WAN Optimization Bundle
<b>CISCO2851-SAA/K9</b>	Cisco 2851 Secure WAN Optimization Bundle



## Cisco 3800 Series

Based on 20 years of innovation, Cisco 3800 Integrated Services Routers extend Cisco' leadership in multiservice routing by providing customers with unparalleled network agility, performance, and intelligence. The Cisco 3800 Series is the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, and secure enterprise communications.

These new routers offer the performance and reliable packet delivery necessary to deliver mission-critical network capabilities efficiently, including real-time applications such as voice over IP (VoIP), business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types. These design achievements complement the Cisco IOS Software features and superior investment protection that this platform inherits from the Cisco 3700 Series.

The Cisco 3800 Series, comprised of the Cisco 3825 and Cisco 3845, serves as a catalyst for midsize organizations and enterprise branch offices that want to gracefully scale their enterprise edges and take advantage of converged business services, while minimizing the cost and complexity of network upgrades.

### Benefits and Advantages

#### Enhanced Architecture

The Cisco 3800 Series offers two modular platforms optimized for the secure delivery of concurrent voice, video, and data. The integrated services architecture of the Cisco 3800 Series builds on the highly successful Cisco 3700 Series design, and adds embedded security and voice processing to a highly modular system that is optimized for rapid deployment of intelligent network services and converged communications. The Cisco 3800 Series supports the bandwidth requirements for multiple Fast Ethernet interfaces per slot, time-division multiplexing (TDM) interconnections, and fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE), while supporting the existing portfolio of modular interfaces.

#### Integrated Switching

With support for up to 112 ports of integrated switching with inline power, the Cisco 3800 Series offers an excellent platform for combining two of the most common components of any network infrastructure. The Cisco 3800 Series supports the 16-, 24-, and 48-port Cisco EtherSwitch® Service Network Modules which adhere to the 802.3af (PoE) standard. When partnered with the optional internal power supply upgrade, the EtherSwitch Service Network Modules and high-density WAN interface cards (HWICs) power any 802.3af compliant device through their integrated switch ports.

#### Investment Protection and Versatility

The Cisco 3800 Series provides significant additional value compared to prior generations of Cisco routers at similar price points by

**Benefits and Advantages** continued

offering up to three times the performance, new embedded service options, and dramatically increased slot performance and density while maintaining support for most of the more than 90 existing modules that are available today for the Cisco 3700 Series. This helps to ensure continuing investment protection to accommodate network expansion or changes in technology as new services and applications are deployed. By integrating the functions of multiple separate devices into a single, compact unit, Cisco 3800 Series Integrated Services Routers dramatically reduce the cost and complexity of managing remote networks. The Cisco 3800 Series delivers multiple concurrent services at wire-speed performance of up to T3/E3 speeds. The Cisco 3845 features a removable motherboard, fan assembly, and supports high-availability features such as online insertion and removal (OIR) of like network modules, and redundant integrated system and inline power supplies.

**Integrated Services**

With the optional integration of numerous services modules, the Cisco 3800 Series offers the ability to easily integrate the functions of standalone network appliances and components into the Cisco 3800 Series chassis itself. Many of these modules, such as the Cisco Network Analysis Module, Cisco Unity Express™ Voice Mail Module, Cisco Intrusion Prevention Module, and Cisco Content Engine Module, have embedded processors and hard drives that allow them to run largely independently of the router while allowing management from a single management interface. This flexibility greatly expands the potential applications of the Cisco 3800 Series beyond traditional routing, while maintaining the benefits of integration. The Cisco 3845 Integrated Services Router is optimized for the concurrent delivery of voice, video, and data at T3 wire-rate performance. The architecture provides high-performance embedded security and voice processing for reliable delivery of mission-critical traffic such as VoIP, business video, and collaborative communications.

The Cisco 3845 is engineered to help customers effectively scale deployment of services, offering the following hardware features:

- Two built-in autosensing 10/100/1000 Ethernet ports

- One small form-factor pluggable (SFP) slot gigabit Ethernet
- Two built-in USB ports
- Four network module slots for single-wide or extended network modules, two double-wide or extended double-wide network modules (NME-XD), or two extension voice/fax modules (EVM-HD)
- Four single-wide or two double-wide HWICs
- Two advanced integration modules (AIMs)
- Four Packet Voice DSP Modules (PVDM) slots for voice processing
- Onboard IP Security (IPsec) acceleration
- 802.3af-compliant inline power for IP phones or wireless access points

The Cisco 3825 is engineered to help customers effectively scale deployment of services, offering the following hardware features:

- Two built-in autosensing 10/100/1000 Ethernet ports
- One SFP slot gigabit Ethernet
- Two built-in USB ports
- Two network module slots for single-wide or extended network modules, one double-wide or extended double-wide network module (NME-XD), or one extension voice/fax module (EVM-HD)
- Four single-wide or two double-wide HWICs
- Two AIMs
- Four PVDM slots for voice processing
- Onboard IPsec encryption acceleration
- 802.3af-compliant inline power for IP phones or wireless access points
- External Redundant Power Supply (RPS) for system power and external redundant inline power for IP phones

**Secure Networking**

Integrated on the motherboard of every Cisco 3800 Series router is hardware-based encryption acceleration that offloads the encryption processes to provide greater IPsec throughput with less overhead for the router CPU when compared with software-based solutions. The integration of optional VPN modules (for enhanced performance and tunnel count), content-engine network modules for URL filtering, or intrusion prevention network modules, combined with the rich Cisco IOS Software security feature set that includes firewall, Network Access Control (NAC), voice- and video-enabled VPN (V3PN), intrusion prevention, and

**Benefits and Advantages** continued

Dynamic Multipoint VPN (DMVPN), Cisco offers the industry's most robust and adaptable security solution for branch office routers.

**IP Telephony**

The Cisco 3800 Series allows network managers to provide scalable analog and digital telephony without investing in a one-time solution, giving enterprises greater control of their converged telephony needs. Using voice and fax modules, the Cisco 3800 Series can be deployed for

applications ranging from VoIP and Voice-over-Frame Relay (VoFR) transport to robust, centralized solutions using the Cisco Survivable Remote Site Telephony (SRST) solution or distributed call processing using Cisco CallManager Express (CME). The architecture is highly scalable with the ability to support up to 168 IP phones with the 3825 router and 240 IP phones with the 3845 router, 24 T1/E1s trunks, 88 foreign-exchange-station (FXS) ports, or 56 foreign-exchange-office (FXO) ports concurrent with data routing and other services.

**Security Features****IPSec VPN**

- Advanced Encryption Standard (AES) 128, 192, and 256 bit keys; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS—Preclassification support
- Support for up to 2500 tunnels with AIM-VPN

**Multiprotocol Label Switching (MPLS) VPN Support**

- Specific provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPsec

**Cisco IOS IPS**

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

**Network Foundation Protection**

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

**IOS WebVPN (SSL VPN)**

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Cisco 3825 and 3845 support up to 100 users
- Requires IOS WebVPN feature license FL-WEBVPN-10, FL-WEBVPN-25 or FL-WEBVPN-100 (purchase multiple quantities to add up to the desired number of users)
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

**Media Authentication and Encryption**

- Standards-based authentication and encryption using secure RTP provides a secure environment for IP Communications
- Advanced Encryption Standard (AES) 128-bit cryptography support

**Cisco IOS Firewall**

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
  - HTTP inspection engine
  - E-mail inspection engines (SMTP, ESMTP, IMAP, POP)

## Security Features continued

### URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

### Onboard USB 1.1 port

- 2 onboard USB 1.1 ports
- Secure token and Flash memory support

### Security Solutions

- Network Admission Control (NAC)
- Voice and Video Enabled IPSec VPN (V3PN)

### Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

### Cisco Router and Security Device Manager (SDM)

- Ships by default

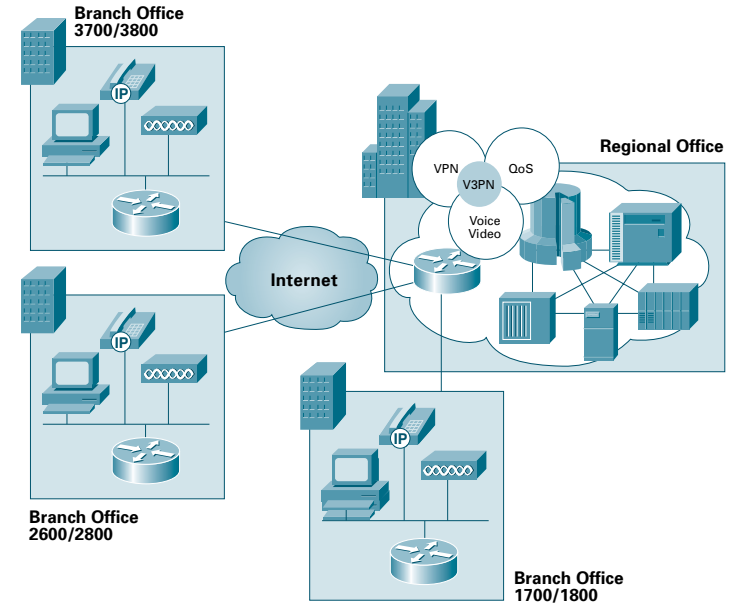
### Certifications

- ICSA IPSec
- ICSA Firewall
- Common Criteria IPSec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2

## IP Telephony Features

<b>IP Phone Support</b>	Optional integrated power supply with inline power, 802.3af support, 360W of inline power
<b>Analog Voice Support</b>	Up to 88 FXS and 56 FXO ports
<b>Digital Voice Support</b>	Up to 720 calls
<b>Packet Voice Digital Signal Processor (DSP) Module (PVDM) Slots on Motherboard</b>	4 PVDM slots on motherboard, local conferencing and transcoding
<b>Cisco CallManager Express</b>	Up to 240 phones for the Cisco 3845 router, and up to 168 phones for the Cisco 3825 router
<b>SRST</b>	Up to 720 phones for the Cisco 3845 router, and up to 336 phones for the Cisco 3825 router
<b>Voice Mail and Automated Attendant</b>	Up to 250 mailboxes with up to 16 concurrent sessions using Cisco Unity™ Express Network Module
<b>Voice Interfaces</b>	FXS, FXO, Direct Inward Dial (DID), E&M, Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, Primary Rate Interface (PRI), Q.SIG, channel associated signaling (CAS)

## Network Example



The figure above shows the Cisco 3800 Series routers converge voice, video, and data across a secure IPSec VPN network with high-quality, reliable performance. DMVPN creates tunnels on-the-fly based on user traffic. V3PN functionality provides QoS, multiprotocol, ease of provisioning, and secure connectivity.

## When To Deploy

### Deploy the Cisco 3800 Series when you need:

- The highest performance and densities for concurrent data, security, voice, and advanced services with headroom for growth
- Higher availability and resiliency with OIR, redundant system, and inline power options
- Higher WAN or voice densities with an additional (fourth) HWIC
- Low density (up to 96 ports), integrated 10/100 switching with PoE support; up to 48 ports with Cisco Inline Power
- Efficient, robust Error Correction Code (ECC) DDR SDRAM memory to detect and correct SDRAM errors without user intervention
- Integrated security services as part of Cisco Self Defending Network, which enable network

device protection, threat defense, secure connectivity, and endpoint protection and control

- Integrated PVDMs, industry-leading call processing and autoattendant solutions, and high-density voice cards and modules that speed IP Communications and give customers a choice of telephony interface devices
- Advanced management for security, routing, QoS, and switching services with Cisco Router and Security Device Manager (SDM) 2.0
- Secure integrated call processing, voice mail and automated attendant, flexible telephony interfaces, redundancy for centralized call processing, with robust DSP support, including local call conforming and transcoding

## Platform Overview

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
<b>Network Module Slots</b> (These slots can accommodate standard network module, NME, and NME-X slots. The NME has the same form factor as the standard network module. The EVM-HD is supported. The NME-X, when available, will have a wider form factor than the NME. Two side-by-side NME slots can be combined to accommodate one NMD or, when available, a NME-XD.)	NM NME NME-X NMD NME-XD EVM-HD	NM NME NME-X NMD NME-XD EVM-HD
<b>Maximum Number of Network Modules, NMEs, and NME-Xs Supported</b>	2	4
<b>Maximum Number of NMD/NME-XDs Supported</b>	1	2
<b>Maximum Number of EVM-HDs Supported</b>	1	2
<b>Number of HWIC Slots</b> (These HWIC slots also support voice interface cards (VICs), voice/WAN interface cards (VWICs), and WICs)	4	4
<b>Number of Fixed LAN Ports</b> (fixed RJ-45 port for 10/100/1000 connectivity)	2 Gigabit Ethernet (10/100/1000)	2 Gigabit Ethernet (10/100/1000)
<b>Number of Fixed SFP Ports</b> (for SFP Gigabit Ethernet connectivity)	1	1
<b>Number of AIM Slots</b> (for optional AIMS for offloading compute-intensive features)	2	2
<b>Number of PVDM Slots</b> (for optional PVDM2s)	4	4
<b>Number of USB 1.1 Ports</b> (secure USB eToken and USB flash memory for secure Cisco IOS Software configuration distribution, and off-platform storage of VPN credentials)	4	2
<b>Embedded VPN</b> (hardware-based VPN encryption acceleration)	Yes	Yes
<b>Number of Console Ports</b> (up to 115.2 Kbps)	1	1
<b>Number of Auxiliary Ports</b> (up to 115.2 Kbps)	1	1
<b>Memory</b> (external compact Flash and internal DDR SDRAM with ECC)	Default: 64 MB Compact Flash; 256 MB DDR SDRAM  Maximum: 256 MB Compact Flash; 1 GB DDR SDRAM	Default: 64 MB Compact Flash; 256 MB DDR SDRAM  Maximum: 256 MB Compact Flash; 1 GB DDR SDRAM
<b>PHYSICAL SPECIFICATIONS</b>		
<b>Dimensions</b> (H x W x D)	3.5 x 17.1 x 14.7 in. 2 rack-unit (RU)	5.25 x 17.25 x 16 in. 3 RU
<b>Weight</b> (minimum)	23 lb	45 lb
<b>Rack-mounting</b>	Yes; 19- and 23-inch options	Yes; 19- and 23-inch options
<b>Wall-mounting</b>	No	No

## Platform Overview continued

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
<b>AC: Input Voltage</b>	100–240 VAC, autoranging	100–240 VAC, autoranging
<b>AC: Input Frequency</b>	47–63 Hz	47–63 Hz
<b>AC: Input Current</b>	3A (110V) 2A (230V)  Startup current 50A maximum (one cycle)	4A (110V) 2A (230V)  Startup current 50A maximum (one cycle)
<b>DC: Input Voltage</b>	24–60 VDC, auto-ranging positive or negative	24–60 VDC, auto-ranging positive or negative
<b>DC: Input Current</b>	12A (24V) 5A (60V)  Startup current 50A<10 ms	18A (24V) 7A (60V)  Startup current 50A<10 ms
<b>Output</b>	AC or DC power supply: 210W for system  AC-IP power supply: 210W for system 360W for IP phones (-48V)	AC or DC power supply: 300W for system  AC-IP power supply: 300W for system 360W for IP phones (-48V)
<b>RPS</b>	External only (Cisco RPS 675)	Internal AC, AC-IP, or DC RPS
<b>Recommended RPS Unit</b>	Cisco RPS 675	N/A
<b>POWER DISSIPATIONS</b>		
<b>AC without IP Phone Support</b>	300W (1025 BTU/hr)	435W (1485 BTU/hr)
<b>AC with IP Phone Support: System Only</b>	370W (1262 BTU/hr)	555W (1890 BTU/hr)
<b>AC with IP Phone Support: IP Phones</b>	360W (1128 BTU/hr)	360W (1128 BTU/hr)
<b>DC</b>	325W (1100 BTU/hr)	460W (1570 BTU/hr)
<b>Environmental Specifications</b>		
<b>Operating Temperature</b>	32–104°F (0 to 40°C)	32–104°F (0 to 40°C)
<b>Non-operating Temperature</b>	-40–185°F (-40 to 85°C)	-40–185°F (-40 to 85°C)
<b>Relative Humidity</b> (non-condensing)	5–95%	5–95%
<b>Operation Altitude</b>	Up to 6500 ft (2000 m), derate 1C per 1000 ft	Up to 6500 ft (2000 m), derate 1C per 1000 ft
<b>Noise Level</b> (minimum)	50 dBA typical, 53 dBA maximum	56 dBA typical, 58 dBA maximum
<b>REGULATORY COMPLIANCE</b>		
<b>Safety</b>	UL 60950 CAN/CSA C22.2 No. 60950 EN 60950 AS/NZS 60950	UL 60950 CAN/CSA C22.2 No. 60950 EN 60950 AS/NZS 60950

Platform Overview continued

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
<b>REGULATORY COMPLIANCE CONTINUED</b>		
<b>EMC</b>	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI V-3 EN 300386 EN 61000	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI V-3 EN 300386 EN 61000
<b>TELCOM</b>	47 CFR, Part 68 TIA/EIA/IS-968 CS-03 RTTE Directive	47 CFR, Part 68 TIA/EIA/IS-968 CS-03 RTTE Directive

## Application Examples

## Options

- Complete Cisco IP Communications and voice gateway capabilities
- Cisco Survivable Remote Site Telephony (SRST)
- Cisco CallManager Express and Cisco Unity™ Express
- V3PN-enabled routers
- Integrated stateful firewall
- Network access control (NAC), DMVPN, and intrusion prevention
- Web Cache Communication Protocol (WCCPv2) for content networking
- Business video and web application acceleration
- Network Analysis
- Circuit Emulation over IP (CEoIP)
- Integrated low-density switching with PoE support

## High-Availability Features

Support for optional redundant system and inline power supply is offered on both the Cisco 3845 (internal) and the Cisco 3825 (external). OIR for network modules is offered on the Cisco 3845 only. Removable and field-replaceable components include the CPU motherboard, power supplies, and fan tray assembly (Cisco 3845 only).

## Ordering Information

- All Cisco 3800 Series Integrated Services Routers ship with Cisco IOS IP Base Software; 64 MB of Compact Flash and 256 MB of SDRAM; console, auxiliary and LAN cables; a power cord; 19-inch rack-mount brackets; and blank panels that cover unused WIC or network module slots. Optional items include:
- Cisco IOS Software feature set upgrade or revision
  - Numerous voice/WAN interface card options
  - Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards
  - Numerous WAN/LAN Network Modules
  - Numerous service modules, including content engine, IPS, network analysis, and Circuit Emulation over IP
  - Up to 2 AIMS
  - 16-, 24-, or 48-port EtherSwitch modules
  - Integrated redundant system and inline power AC-IP power supplies (3845 only)
  - Flash/SDRAM memory upgrade
  - WAN interface cables

Ordering Information continued

Product Number	Product Description
<b>CISCO3825</b>	Cisco 3825 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and AC power
<b>CISCO3825-AC-IP</b>	Cisco 3825 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, with AC Power and PoE
<b>CISCO3825-DC</b>	Cisco 3825 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and DC power
<b>CISCO3845</b>	Cisco 3845 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and AC power
<b>CISCO3845-AC-IP</b>	Cisco 3845 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and AC Power with PoE
<b>CISCO3845-DC</b>	Cisco 3845 Integrated Services Router with 2 GbE, 1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and DC power

## Product Bundles

Product Number	Product Description
<b>SECURE VOICE BUNDLES</b>	
<b>CISCO3825-V3PN/K9</b>	Cisco 3825 V3PN bundle w/AIMVPN, PVDM2-64, CCME-168, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>CISCO3845-V3PN/K9</b>	Cisco 3845 V3PN bundle, AIM-VPN, PVDM2-64, CCME-240, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3825-VSEC/K9</b>	Cisco 3825 Voice Security Bundle, PVDM2-64, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3825-VSEC-CCME/K9</b>	Cisco 3825 VSEC Bundle w/PVDM2-64, FL-CCME-168, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3825-VSEC-SRST/K9</b>	Cisco 3825 VSEC Bundle w/PVDM2-64, FL-SRST-168, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3845-VSEC/K9</b>	Cisco 3845 Voice Security Bundle, PVDM2-64, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3845-VSEC-CCME/K9</b>	Cisco 3845 VSEC Bundle w/PVDM2-64, FL-CCME-240, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3845-VSEC-SRST/K9</b>	Cisco 3845 VSEC Bundle w/PVDM2-64, FL-SRST-240, IOS Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>C3825-BIAB-24/K9</b>	Cisco 3825 with AC-IP power, integrated PoE EtherSwitch, Cisco Unity Express AIM, Packet Voice Digital Module (PVDM2), Cisco CallManager Express (CME), CUE and CCME license, Cisco IOS Advanced IP Services and 64 MB Compact Flash, 256 MB DRAM Memory
<b>C3845-BIAB-24/K9</b>	Cisco 3845 with AC-IP power, integrated PoE EtherSwitch, Cisco Unity Express Network Module, Packet Voice Digital Module (PVDM2), Cisco CallManager Express (CME), CUE and CCME license, Cisco IOS Advanced IP Services and 64 MB Compact Flash, 256 MB DRAM Memory
<b>C3845-BIAB-48/K9</b>	Cisco 3845 with AC-IP power, integrated PoE EtherSwitch, Cisco Unity Express Network Module, Packet Voice Digital Module (PVDM2), Cisco CallManager Express (CME), CUE and CCME license, Cisco IOS Advanced IP Services and 64 MB Compact Flash, 256 MB DRAM Memory

**Product Bundles** continued

Product Number	Product Description
<b>SECURITY BUNDLES</b>	
<b>CISCO3825-SEC/K9</b>	Cisco 3825 security bundle, advanced security, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3845-SEC/K9</b>	Cisco 3845 security bundle, advanced security, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3825-HSEC/K9</b>	Cisco 3825 security bundle, AIM-VPN/HPII-PLUS, advanced IP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3845-HSEC/K9</b>	Cisco 3845 security bundle, AIM-VPN/HPII-PLUS, advanced IP services, 64 MB Compact Flash/256 MB DRAM
<b>VOICE BUNDLES</b>	
<b>CISCO3825-V/K9</b>	Cisco 3825 voice bundle, PVDM2-64, SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3845-V/K9</b>	Cisco 3845 voice bundle, PVDM2-64, SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3825-SRST/K9</b>	Cisco 3825 voice bundle, PVDM2-64, FL-SRST-168, SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3845-SRST/K9</b>	Cisco 3845 voice bundle, PVDM2-64, FL-SRST-240, SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3825-CCME/K9</b>	Cisco 3825 voice bundle, PVDM2-64, FL-CCME-168, SP services, 64 MB Compact Flash/256 MB DRAM
<b>CISCO3845-CCME/K9</b>	Cisco 3845 voice bundle, PVDM2-64, FL-CCME-240, SP services, 64 MB Compact Flash/256 MB DRAM
<b>WAN OPTIMIZATION BUNDLES</b>	
<b>CISCO3825-AA/K9</b>	Cisco 3825 Basic WAN Optimization Bundle
<b>CISCO3825-SAA/K9</b>	Cisco 3825 Secure WAN Optimization Bundle
<b>CISCO3845-AA/K9</b>	Cisco 3845 Basic WAN Optimization Bundle
<b>CISCO3845-SAA/K9</b>	Cisco 3845 Secure WAN Optimization Bundle



## Cisco 7200 Series

Enterprises and service providers can meet new services aggregation requirements without expensive equipment upgrades or radical network redesigns by taking advantage of the industry's most popular WAN and MAN aggregation platform.

### SERVICES AGGREGATION IN THE WAN AND MAN

As companies deploy more services in branch offices using Cisco Integrated Services Routers, the role of the WAN aggregation router at the headend is being redefined. With more than 350,000 installed Cisco 7200 Series routers, Cisco is helping customers deploy new services and migrate to new WAN architectures using their existing networks.

### NETWORK SECURITY

The Cisco 7200 Series—which includes Cisco 7200 VXR Series routers and the 1-RU form factor Cisco 7201—plays a key role in the Cisco Self-Defending Network strategy by enabling:

- WAN and VPN aggregation: Scalable connectivity and IPSec encryption
- Data and identity protection: Perimeter defense, outbreak prevention, and identity-based access control
- Business continuity: Network availability and uninterrupted services

### VOICE, VIDEO, AND APPLICATION SUPPORT

Cisco 7200 VXR Series routers offer integrated voice, video, and applications support, which includes the TDM-enabled VXR chassis, voice port adapters, IP-to-IP gateway support and comprehensive Cisco IOS Software features supporting optimum voice and video delivery to the extended enterprise.

Both the Cisco 7200 VXR Series and the Cisco 7201 deliver exceptional versatility in a compact form factor, and are especially suitable for applications that require Gigabit Ethernet and OC3/STM-1 connectivity with services being deployed. Offering processing speeds up to two million packets per second, three built-in Gigabit Ethernet ports on the routing engine (four on the Cisco 7201), interfaces ranging from NxDS0 to OC-3 POS and STM1, and an unparalleled number of high-touch IP services, the

Cisco 7200 VXR is an ideal high-end access router for large office environments.

A key strength of the Cisco 7200 VXR Series is its modularity and flexibility. It offers a selection of processors, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies, enabling customers to customize their systems to achieve desired levels of performance, connectivity, and capacity. With the Port Adapter Jacket Card, Cisco 7200 VXR series 4- and 6-slot chassis can be turned into a 5- and 7-slot chassis for selected high-speed WAN port and security adapters. It is typically used for WAN and MAN services aggregation, voice over IP, security, and various other IP applications due to its exceptionally broad feature offerings.

As a 1-RU form factor of a Cisco 7200 VXR Series, the Cisco 7201 provides packet forwarding speeds up to 2 Mpps. It also offers extensive port and service adapter support. In comparison to the Cisco 7200 VXR Series with NPE-G2 engine, the Cisco 7201 provides an additional fourth built-in Ethernet ports (10/100/1000) with support for one port adapter. The Cisco 7201 also supports AC and DC power supply with the option of dual DC power supply.

The Cisco 7201 is most attractive to customers looking for the functionality and performance of Cisco 7200 VXR Series routers, but less concerned with port density than a compact form factor and lower power consumption. Cisco 7301 continues to be available for applications where performance above 1 Mpps is not required.

## Benefits and Advantages

### Compact Form Factor

The Cisco 7200 VXR Series can support up to seven port/service adapters when utilizing the port adapter jacket card in its fully modular 3-RU form factor chassis. Up to 16 chassis can be supported in a 7' rack. The Cisco 7201 is the most powerful 1-RU router solution in the industry.

### Exceptional Value

As the most powerful Cisco single-processor platform, the Cisco 7200 VXR Series offers customers a superior price/performance ratio supporting high-speed media and high-density configurations with up to 2 million packets per second processing at a competitive price point.

### Simplified Network Convergence

The Cisco 7200 VXR Series' Multiservice Interchange (MIX)-enabled backplane allows for integration of data, voice, and video in a single WAN Edge device. With the latest quality-of-service (QoS) features, the Cisco 7200 VXR Series enables enterprises to save money by bypassing their carrier's long distance charges.

### VPN Support

The dedicated VPN acceleration adapters supported in Cisco 7200 VXR and 7201 routers enable an integrated solution for routing and security including QoS, multicast, and multiprotocol traffic across the VPN. Utilizing the VPN Acceleration Module (SA-VAM2+) or VPN Services Adapter (C7200-VSA), the Cisco 7200 VXR series delivers up to 600 Mbps for the most demanding head-end, site-to-site VPN deployments. Cisco 7200 VXR and 7201 routers provide an integrated security solution which includes IPSec, FW, and IDS features sets.

### Enhanced Security

Cisco 7200 VXR and Cisco 7201 routers help ensure the highest levels of network security. All Cisco 7200 Series routers support integrated SSL VPN, access control lists (ACLs), Network Address Translation (NAT), full Netflow, firewall, intrusion prevention systems, IP Service Level Agreements (IP SLA), and a new category of IPSec Virtual Private Network (GET VPN) that eliminates the need for tunneling and enables higher levels of scalability.

## Benefits and Advantages continued

### Maximum ROI

A low price point makes the Cisco 7200 Series very attractive, while allowing customers to easily upgrade and redeploy their equipment as network needs change.

### Connectivity/Flexibility

Providing high port density and an extensive range of LAN and WAN media, plus the three built-in GbE ports on the NPE-G1 and NPE-G2 engines, the Cisco 7200 Series dramatically reduces the cost per port and allows for flexible configurations to meet customers' specific network needs.

### 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, security, and voice services.

### Common Port Adapters

The Cisco 7200 VXR series shares the majority of the port adapters with Cisco 7201, Cisco 7301, Cisco 7304, Cisco 7500 Series, and Cisco 7600 Series routers, which simplifies inventory management and increases investment protection.

## Security Features

### IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Group Encrypted Transport VPN (GET VPN)
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS—Preclassification support
- Support for up to 5000 IPSec tunnels

### Multiprotocol Label Switching (MPLS) VPN Support

- Comprehensive provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPSec

### Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

### Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)

- Command Line Interface (CLI)
- Committed Access Rate (CAR)

### Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
  - HTTP inspection engine
  - E-mail inspection engines (SMTP, ESMTP, IMAP, POP)

### IOS WebVPN (SSL VPN)

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Cisco 7204VXR, Cisco 7206VXR, and Cisco 7201 routers support up to 150 users
- Requires IOS WebVPN feature license (licenses are per user) FL-WEBVPN-10, FL-WEBVPN-25 or FL-WEBVPN-100 (licenses are per user, purchase multiple quantities to add up to the desired number of users)
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

## Security Features continued

### URL Filtering

- Local URL filtering in Cisco IOS software based on external server

### Security Solutions

- Network Admission Control (NAC)
- Voice and Video Enabled IPsec VPN (V3PN)
- Group Encrypted Transport VPN (GET VPN) Tunnel-less VPN offering higher scalability
- Dynamic Multipoint VPN (DMVPN)

### Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Service Adapters (SA-VAM2+C7200-VSA [on Cisco 7204 VXR and Cisco 7206VXR chassis only])

### Cisco Router and Security Device Manager (SDM)

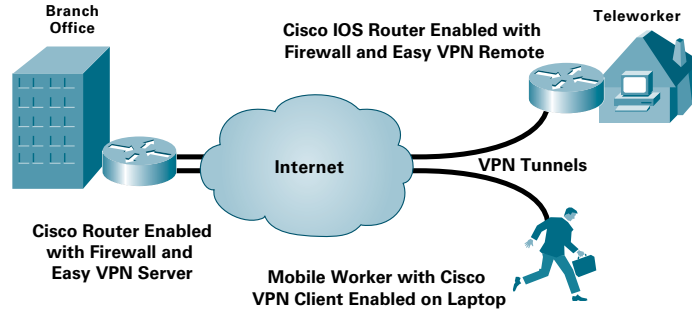
- Ships by default with Cisco 7200 VXR and Cisco 7201 security bundles

### Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4)
- Common Criteria Firewall (EAL4+)
- FIPS 140-2, Level 2

## Security Solutions Example

### Easy VPN Server Application



### When To Deploy

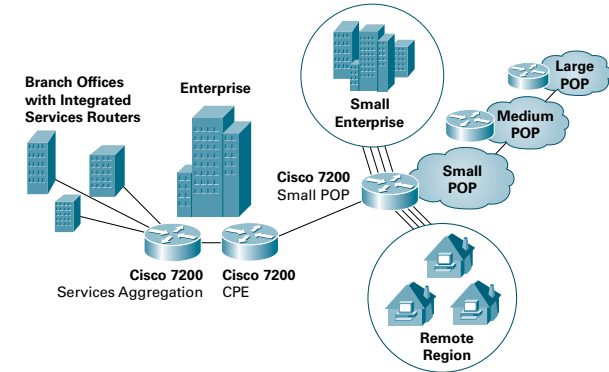
Deploy the Cisco 7200 VXR Series when you need a high-performance access solution offering:

- Headquarters service aggregation with Integrated Services Routers at branch sites
- Flexibility in configurations
- A wide range of services
- A wide range of connectivity options
- High performance in a compact form factor

Deploy the Cisco 7201 router when you need high performance in a 1-RU form factor.

The Cisco 7201 router makes a very attractive security appliance given its 1-RU form factor with the four built-in Gigabit Ethernet ports and the integrated Network Processing Engine NPE-G2, offering up to 2 million packets per second routing performance.

## Application Example



## Series Specifications

These specifications apply to Cisco 7200 VXR routers with NPE-G1 and NPE-G2 as well as Cisco 7201 routers.

<b>Flash Memory</b>	NPE-G1: 64 MB (expandable to 256 MB) NPE-G2 and 7201: 256 MB
<b>System DRAM Memory</b>	NPE-G1: 256 MB (expandable to 1 GB) NPE-G2 and 7201: 1 GB (expandable to 2 GB)
<b>Modular Slots</b>	4- or 6-port/service adapter slots plus one additional slot when using the Port Adapter Jacket Card, 1 NPE slot, 1 I/O controller card slot
<b>Supported Port Adapters</b>	70+
<b>Internal Power Supply</b>	AC or DC, dual option
<b>Dimensions (H x W x D)</b>	Cisco 7201: 1.73 x 17.3 x 13.87 in. Cisco 7204 VXR: 5.25 x 16.8 x 17 in. Cisco 7206 VXR: 5.25 x 16.8 x 17 in.
<b>Performance</b>	Up to 2 Mpps with Cisco 7201 or NPE-G2 engine running inside the Cisco 7200 VXR chassis
<b>Console Port</b>	1
<b>Auxiliary Port</b>	1
<b>Base Configuration: Cisco 7201</b>	NPE-G2, 1 GB memory, 256 MB Flash, 4 fixed 10/100/1000 ports (can accommodate any one of the port adapters supported on the Cisco 7200 VXR Series), dual power supplies, IP software
<b>Base Configuration: Cisco 7204 VXR</b>	4-slot chassis, 1 AC power supply, IP software
<b>Base Configuration: Cisco 7206 VXR</b>	6-slot chassis, 1 AC power supply, IP software
<b>Maximum Ethernet Ports</b>	Cisco 7201: 12 Cisco 7204 VXR: 32 Cisco 7206 VXR: 48
<b>Maximum Token Ring Ports</b>	Cisco 7204 VXR: 16 Cisco 7206 VXR: 24



Series Specifications continued

These specifications apply to Cisco 7200 VXR routers with NPE-G1 and NPE-G2 as well as Cisco 7201 routers.

**Maximum High-speed Serial (up to 52 Mbps)**

Cisco 7201	1
Cisco 7204 VXR	8
Cisco 7206 VXR	12

**Maximum Low-speed Serial (up to 2 Mbps)**

Cisco 7201	8
Cisco 7204 VXR	32
Cisco 7206 VXR	48

**Voice/Data Support** Yes

**Integrated Modems** No

**Maximum Number of ISDN BRI Ports**

Cisco 7204 VXR	32
Cisco 7206 VXR	48

**Maximum Number of ISDN PRI Ports**

Cisco 7204 VXR	32
Cisco 7206 VXR	48

**Integrated CSU/DSU** Yes (dependent on port adapter configuration)

**Compression** Supported in software (C7200-VSA is supported in Cisco 7204 VXR and Cisco 7206 VXR chassis only)

**Encryption** Supported in hardware (with SA-VAM2+ or C7200-VSA)

**Redundant Power Supply Support** Yes, for AC or DC. Cisco 7201 comes by default with either dual AC or dual DC power supplies.

**Minimum Cisco IOS Release** NPE-G2: Supported as of 12.4(4)XD, 12.4 (5th release) T, 12.2SB (4th release) and later Cisco IOS releases, 12.5 Mainline, and later Cisco IOS releases NPE-G1: Supported as of: 12.2(4)BW, 12.2(15)B, 12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B, and later Cisco IOS releases. Cisco IOS 12.0(1)XE or later NPE-400: 12.1(3A)E, 12.1(5)T1, 12.0(14)S, and later Cisco IOS releases. NPE-225: Supported as of: 12.0(9)S, 12.1(1)E, 12.1(1)T, 12.1(1), 12.2(1), 12.2(2)T and later Cisco IOS releases, and Cisco 7201: 12.4(XD)7, 12.2(31)SB5, sixth release of 12.4T.

## Ordering Information

## CISCO 7201 BUNDLES AND OTHER PART NUMBERS

Product Number	Product Description
<b>BASE SYSTEM</b>	
<b>CISCO7201</b>	Cisco 7201 Chassis, 1 GB memory, dual power supply, 256 MB Flash
<b>POWER SUPPLIES</b>	
<b>PWR-7201-DC=</b>	Cisco 7201 DC48 power supply option spare
<b>PWR-7201-DC</b>	Cisco 7201 DC48 power supply option system
<b>PWR-7201-AC=</b>	Cisco 7201 AC power supply option spare
<b>PWR-7201-AC</b>	Cisco 7201 AC power supply option system
<b>MEMORY OPTIONS</b>	
<b>MEM-7201-FLD256=</b>	Cisco 7201 Compact Flash disk, 256 MB spare
<b>MEM-7201-FLD256</b>	Cisco 7201 Compact Flash disk, 256 MB system
<b>MEM-7201-1GB=</b>	Cisco 7201 Series 1 GB memory spare
<b>MEM-7201-1GB</b>	Cisco 7201 Series 1 GB memory system
<b>MEM-7201-2GB=</b>	Cisco 7201 Series 2 GB memory spare
<b>MEM-7201-2GB</b>	Cisco 7201 Series 2 GB memory system
<b>MEMORY OPTIONS</b>	
<b>RCKMNT-7201=</b>	Rack mount kit for Cisco 7201

## CISCO 7204 VXR/CISCO 7206 VXR BUNDLES, NETWORK PROCESSING ENGINES AND I/O CONTROLLER CARDS

Product Number	Product Description
<b>BASE SYSTEM</b>	
<b>CISCO7201</b>	Cisco 7201 Chassis, 1 GB memory, dual power supply, 256 MB Flash
<b>7206VXR/NPE-G2</b>	Cisco 7206 VXR with NPE-G2 includes 3 GB E/FE/E Ports and IP Software
<b>7206VXR/NPE-G1</b>	Cisco 7206 VXR with NPE-G1 includes 3 GB E/FE/E Ports and IP Software
<b>C7206VXR/400/GE</b>	Cisco 7206 VXR with NPE-400 and GE+E I/O Controller
<b>C7206VXR/400/2FE</b>	Cisco 7206 VXR with NPE-400 and I/O Controller with 2 FE/E Ports
<b>CISCO7204VXR/225</b>	Cisco 7204 VXR Bundle with NPE-225 and I/O Controller with 2 FE/E Ports
<b>SECURITY</b>	
<b>7206VXR/VSA+VPNK9</b>	Cisco 7206 VXR, NPE-G2, C7200-VSA, AC power, 1 GB system memory, SDM
<b>7206VXRG2/2+VPNK9</b>	Cisco 7206 VXR, NPE-G2, VAM2+C7200-JC-PA, AC power, 1 GB system memory, SDM
<b>SECURITY</b>	
<b>7206VXRG1/2+VPNK9</b>	Cisco 7206 VXR, NPE-G1, VAM2+, AC power, 512 MB system memory, SDM
<b>7206VXR400/2+VPNK9</b>	Cisco 7206 VXR, NPE-400, VAM2+, AC power, 512 MB system memory, SDM

Ordering Information continued**BROADBAND**

**CISCO7206-BB** Cisco 7206 Broadband Bundle NPE-G1 includes 3GE/FE/E Ports

**VOICE**

**C7206VXR/VOICE/400** Cisco 7206 VXR w/ NPE-400, Voice PA PA-VXC-2TE1+, I/O Controller with 2FE Ports

**MPLS/IPV6**

**7206-IPV6/ADSVC/K9** Cisco 7206 VXR IPv6/Advantage Entertainment Services bundle with NPE-G2

**CPE**

**7204VXR/CPE** Cisco 7204 VXR with NPE-225, 2 FE I/O, choice of specified WAN PA

**CISCO 7204 VXR/CISCO 7206 VXR BUNDLES, NETWORK PROCESSING ENGINES AND I/O CONTROLLER CARDS continued**

Product Number	Product Description
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**CHANNEL**

**CISCO7206VXR-CH** Cisco 7206 VXR, 6-slot chassis, 1 AC power supply with IP Software

**CISCO7204VXR-CH** Cisco 7204 VXR, 4-slot chassis, 1 AC power supply with IP Software

**BASE CHASSIS**

**CISCO7206VXR** Cisco 7206 VXR, 6-slot chassis, 1 AC power supply with IP Software

**CISCO7204VXR** Cisco 7204 VXR, 4-slot chassis, 1 AC power supply with IP Software

**CISCO7206VXR-DC** Cisco 7206 VXR, 6-slot chassis, 1 DC power supply with IP Software

**CISCO7204VXR-DC** Cisco 7204 VXR, 4-slot chassis, 1 DC power supply with IP Software

**PROCESSING ENGINES**

**NPE-G2** Cisco 7200 Series NPE-G2 engine with 3 GE/FE/E ports

**NPE-G1** Cisco 7200 Network Processing Engine with 3 GE/FE/E ports

**NPE-400** Cisco 7200 VXR NPE-400 (256 MB default memory)

**NPE-225** Network Processing Engine NPE-225 (128 MB default memory)

**INPUT/OUTPUT CONTROLLER**

**C7200-I/O** Cisco 7200 Input/Output Controller

**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 GbE and Ethernet

**POWER SUPPLIES**

**PWR-7200-DC+=** Cisco 7200 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

Ordering Information continued**MEMORY OPTIONS**

**MEM-NPE-G1-FLD64=** Cisco 7200 Compact Flash disk for NPE-G1, 64 MB option

**MEM-NPE-G1-FLD128=** Cisco 7200 Compact Flash disk for NPE-G1, 128 MB option

**MEM-NPE-G1-FLD256=** Cisco 7200 Compact Flash disk for NPE-G1, 256 MB option

**MEM-NPE-G1-256MB=** 2 128 MB memory modules (256 MB total) for NPE-G1 in 7200, spare

**MEM-NPE-G1-512MB=** 2 256 MB memory modules (512 MB total) for NPE-G1 in 7200

**MEM-NPE-G1-1GB=** 2 512 MB memory modules (1 GB total) for NPE-G1 in 7200

**MEM-NPE-G2-FLD256=** Cisco 7200 Compact Flash disk for NPE-G2, 128 MB option

**MEM-NPE-G2-2GB=** 7200 Series NPE-G2 2 GB memory spare

**MEM-SD-NPE-128MB=** 128 MB memory upgrade kit for rNPE-300/NPE-225/NPE-175

**MEM-SD-NSE-256MB=** 256 MB memory for NPE-225 or NSE-1 in 7200 Series, spare

**MEM-NPE-400-256MB=** 256 MB memory for NPE-400 in 7200 Series

**MEM-NPE-400-512MB** 512 MB memory for NPE-400 in 7200 Series

## Cisco 7301 Series



The Cisco 7301 Series Router is a compact, high-performance single-rack-unit (1-RU) router coupled with a broad set of interfaces and Cisco IOS Software features, which makes it ideal for both service providers and enterprise applications.

Cisco 7301 Series is based on the Cisco 7200 NPE-G1 engine. The Cisco 7301 packs high performance in a space- and power-efficient chassis that includes a single Cisco 7000 Series port adapter slot, three onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports, and new high-speed bus technologies.

### THE KEY FEATURES OF THE CISCO 7301 ROUTER ARE:

- Compact, power-efficient 1-RU form factor
- Single Cisco 7000 Series port adapter slot
- Complete Cisco IOS Software feature support
- Three onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports
- Pluggable Gigabit Ethernet optics (Small Form-Factor Pluggable [SFP] optics)
- Up to 1 GB of available DRAM, supporting up to 1 million routes
- Up to 256 MB of removable compact Flash memory
- Front-to-back airflow and single-sided management

### NEXT-GENERATION POLICY AND SUBSCRIBER SOLUTION

The Cisco 7301 supports Cisco Intelligent Services Gateway (ISG), the next-generation policy and subscriber management solution to deliver dynamic session awareness. Cisco ISG supports IP, Ethernet, ATM, Multiprotocol Label Switching (MPLS), and VPN architectures, whether the business model is for retail, wholesale, or business services. Cisco ISG allows for zero-touch provisioning, and provides the per-flow granularity and dynamic control required for triple-play services. Unlike some competitive offerings, Cisco ISG is standards-based for multi-vendor deployment. With RADIUS Change of Authorization (RFC 3576), subscriber profiles can be changed dynamically based on user self-management (through a Web portal) or through an OSS process. Network utilization improves because per-subscriber bandwidth needs are managed dynamically, increasing customer satisfaction.

Cisco ISG is a software feature set available in Cisco IOS Software Release 12.2(28)SB for the 7200 Series, and 7301 Routers. Cisco ISG takes advantage of Cisco IOS routing capabilities to provide uplink redundancy, load-balancing, and MPLS integration. Cisco ISG is highly scalable, with consistent performance regardless of the features used. It can define and enforce local policy embedded directly in the network, or interact with centralized policy-management systems. Its integral role within the Cisco IP Next-Generation Network (NGN) Service Exchange Framework helps create consistent services in a highly flexible way.

#### VOICE, VIDEO, AND APPLICATION SUPPORT

The Cisco 7301 Services Aggregation Routers offer integrated voice, video, and applications support, which include the TDM-enabled VXR chassis, voice port adapters, IP-to-IP gateway support, and comprehensive Cisco IOS Software features supporting optimum voice and video delivery to the extended enterprise.

The Cisco 7301 delivers exceptional versatility in a compact form factor, and are especially suitable for applications that require Gigabit Ethernet and OC3/STM-1 connectivity with services being deployed. Offering processing speeds up to one million packets per second, three built-in Gigabit Ethernet ports on the routing engine, interfaces ranging from NxDS0 to OC-3 POS and STM1, and an unparalleled number of high-touch IP.

### Benefits & Advantages

#### Compact Form Factor and Low Power Consumption

With a processing performance of nearly 1 million-packets-per-second (Mpps), customers can maximize router performance where space is constrained. "Rack and stack" functionality allows customers to maximize the use of space in expensive Internet service provider (ISP) data centers. This is ideal for a dedicated security or QoS appliance at the edge of enterprise networks.

#### Exceptional Value

A powerful single-processor platform, the Cisco 7301 offers customers a superior price/performance ratio supporting high-speed media and high-density configurations with up to 1 million packets per second processing at a competitive price point.

#### VPN Support

The dedicated VPN acceleration adapters supported in the Cisco 7301 enable an integrated solution for routing and security including QoS, multicast, and multi-protocol traffic across the VPN. Utilizing the VPN Acceleration Module (SA-VAM2+), the Cisco 7301 delivers 3-Key Triple DES (168-bit) algorithms at speeds up to 260 Mbps for the most demanding headend, site-to-site VPN deployments. The Cisco 7301 provides an integrated security solution, which includes IPsec, FW, and IDS features sets.

#### Enhanced Security

With support for SSL VPN, access control lists (ACL), Network Address Translation (NAT), Netflow, along with firewall, intrusion prevention, service level validation features, and a new category of Virtual Private Network (GET VPN) that eliminates the need for tunnels and increases scalability, the Cisco 7301 is an ideal platform for ensuring network security.

### Benefits & Advantages continued

#### Maximum ROI

A low price point makes the Cisco 7301 very attractive, while allowing customers to easily upgrade and redeploy their equipment as network needs change.

#### Feature-Rich

The Cisco 7301 delivers a full suite of Cisco IOS Software services for managing network security, allocating quality of service (QoS) among applications and users, and providing value-added services such as NetFlow accounting and encryption. QoS applications such as Committed

Access Rate (CAR), Weighted Random Early Detection (WRED), and Weighted Fair Queuing (WFQ) can be flexibly applied to provide precedence across IP addresses, applications, or specific users with a high level of granularity.

#### Common Port Adapters

The Cisco 7301 shares a majority of port adapters with the Cisco 7200 VXR, Cisco 7201, Cisco 7304, Cisco 7500, and Cisco 7600 series, which simplifies inventory management as well as provides investment protection through compatible interfaces amongst different router series.

### Security Features

#### IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptography support
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS—Preclassification support
- Support for up to 5000 IPSec tunnels

#### Multiprotocol Label Switching (MPLS) VPN Support

- Comprehensive provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPSec

#### Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

#### Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

#### Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
  - HTTP inspection engine
  - E-mail inspection engines (SMTP, ESMTP, IMAP, POP)

#### IOS WebVPN (SSL VPN)

- Secure remote access for mobile users without installing PC client software
- Integrated into the router—no separate appliance required
- Supports up to 150 users
- Requires IOS WebVPN feature license (licenses are per user) FL-WEBVPN-10, FL-WEBVPN-25 or FL-WEBVPN-100 (licenses are per user, purchase multiple quantities to add up to the desired number of users)
- Requires an IOS security feature set (IOS security feature set is included in all secure router bundles)

#### URL Filtering

- Local URL filtering in Cisco IOS software based on external server

## Security Features continued

### Security Solutions

- Network Admission Control (NAC)
- Voice and Video Enabled IPsec VPN (V3PN)
- Group Encrypted Transport VPN (GET VPN) tunnel-less VPN offering higher scalability

### Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Service Adapters (SA-VAM2+)

### Cisco Router and Security Device Manager (SDM)

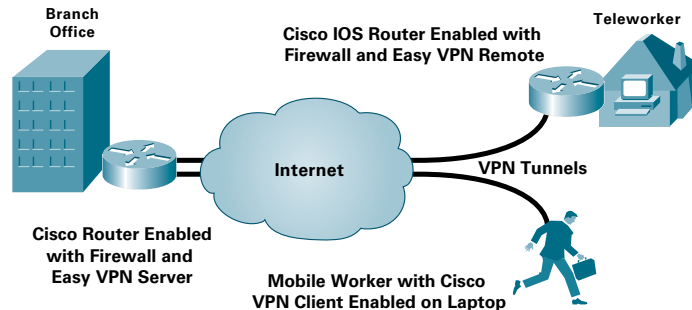
- Ships by default with Cisco 7301 security bundles

### Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4)
- Common Criteria Firewall (EAL4+)
- FIPS 140-2, Level 2

## Security Solutions Example

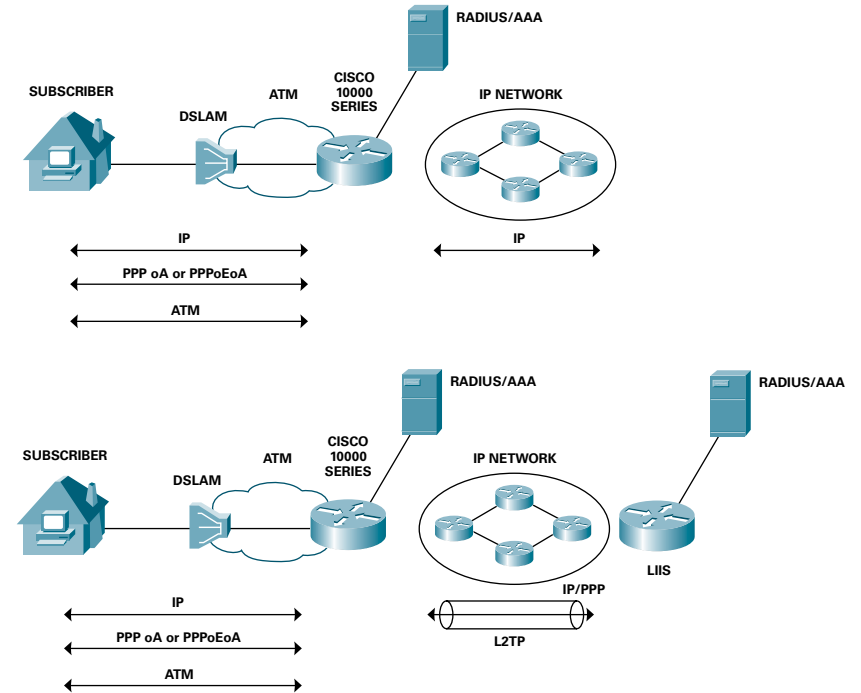
### Easy VPN Server Application



### When To Deploy

With its combination of scalable performance, compact architecture, high density, and low price per port, the Cisco 7301 is ideally suited for a variety of key applications within both the service provider and enterprise markets.

## Application Example



## Key Application Service Providers

- **Broadband aggregation:** PTA/LAC or LNS/TS (Tunnel Switching) aggregation router capable of handling up to 8000 subscribers with per sessions features enabled and up to 16,000 simultaneous sessions with basic non-CPU intensive features and allowing for a pay-as-you-grow "rack and stack" architecture.
- **Managed services:** High-end customer premises equipment (CPE) or Multiprotocol Label Switching-customer edge (MPLS-CE) devices in managed L2 and L3 VPN solutions due to its high-performance, feature-rich support with both Gigabit Ethernet LAN connectivity and WAN port adapter connectivity
- **Mesh Wireless and Public Wireless LAN Solutions:** With Intelligent Service Gateway the Cisco 7301 is ideal platform for these wireless solutions. ISG offers dynamic subscriber awareness, authentication, authorization, accounting, billing, and a customized portal
- **High-availability design:** 100 percent redundancy via 2 CPEs configured for Hot Standby Router Protocol (HSRP) or Layer 3 load balancing
- **Cost-effective BGP Route Reflector:** Ideally suited as a low cost route reflector with its ability to hold one million routes with its 1 GB of memory

## Key Applications for Enterprise deployments

- Large-branch-office router:** High-performance with features enabled branch-office router with support for up to OC-3/STM-1 or Gigabit Ethernet connectivity. It is ideal for Branch-office Internet gateway, Voice (IP-to-IP) Gateway and Site-to-Site Gateway
  - Enterprise High Speed Internet Gateway:** Dedicated high-performance Internet gateway with the option to connect to service provider by either using on board FE/GbE Ethernet ports or traditional WAN PA in one PA slot
  - Secure Internet gateway:** Support for features such as IP Security (IPSec) Protocol and stateful firewall at very high speeds make it an ideal Internet gateway (security) appliance
  - Key in different enterprise applications:** Master Controller in Optimized Edge Routing (OER) application, Key server or group member in Group Encrypted Transport (GET) VPN application, DMVPN hub, and Cisco IOS IP SLAs
  - Ideally suited as a low cost route reflector with its ability to hold one million routes with its 1 GB of memory
- By enabling the multifunction capabilities of the Cisco 7301 router, customers can simplify their network architectures, significantly reduce initial equipment costs, and increase revenue opportunities through value-added services.

## Series Specifications

<b>Flash Memory</b>	64 MB (expandable to 256 MB)
<b>System DRAM Memory</b>	256 MB (expandable to 1 GB)
<b>Modular Slots</b>	1-port/service adapter slot
<b>Supported Port Adapters</b>	70+
<b>Internal Power Supply</b>	AC or DC, dual option
<b>Dimensions (H x W x D)</b>	1.73 in. x 17.3 in. x 13.87 in. (4.39 cm x 43.9 cm x 35.23 cm)
<b>Performance</b>	Up to 1 Mpps
<b>Console Port</b>	1
<b>Auxiliary Port</b>	1
<b>Base Configuration: Cisco 7301</b>	Includes the network processing engine NPE-G1, 3 fixed 10/100/1000 ports (can accommodate any one of the port adapters that are supported on the Cisco 7200 VXR series) with AC Power Supply, 256 MB of DRAM and 64 MB of Flash, and IP Software
<b>Maximum Ethernet Ports Cisco 7301</b>	5
<b>Maximum High-speed Serial (up to 52 Mbps) Cisco 7301</b>	1
<b>Maximum Low-speed Serial (up to 1 Mbps) Cisco 7301</b>	8
<b>Voice/Data Support</b>	Yes
<b>Integrated Modems</b>	No
<b>Integrated CSU/DSU</b>	Yes (dependent on port adapter configuration)
<b>Compression</b>	Supported in software
<b>Encryption</b>	Supported in hardware (with SA-VAM2+)
<b>Redundant Power Supply Support</b>	Yes, for AC or DC

## Series Specifications continued

<b>Minimum Cisco IOS Release</b>	12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B, 12.4T and later Cisco IOS releases
<b>Weight</b>	Chassis fully configured with a port adapter 10.5 lb approximately (4.76 kg)
<b>Heat dissipation</b>	50W (170 BTU typical, 75W (255 BTU) maximum)
<b>Power dissipation</b>	75W maximum configuration
<b>Temperature</b>	32 to 104°F (0 to 40°C), operating; -4 to 149°F (-20 to 65°C), nonoperating
<b>Humidity</b>	10 to 90% humidity noncondensing

## Ordering Information

### CISCO 7301 BUNDLES AND OTHER PART NUMBERS

Product Number	Product Description
<b>SECURITY</b>	
<b>CISCO7301/2+VPNK9</b>	Cisco 7301, VAM2+, AC power, 512 MB system memory, SDM
<b>BROADBAND</b>	
<b>CISCO7301-BB</b>	Cisco 7301, 512 MB Memory, 16k License, 64 MB Flash, AC power, IP/IOS
<b>CISCO7301-BB-8K</b>	Cisco 7301, 256 MB SDRAM, 8K Sub Broadband Feature License
<b>CISCO7301BB-1G</b>	Cisco 7301, 1 GB Memory, 64 MB FI, AC power, IP IOS, up to 16k Sub BBA License
<b>CISCO7301BB-8K-1G</b>	Cisco 7301, 1 GB Memory, 64 MB FI, AC power, IP IOS, up to 8k SubBBA License
<b>VOICE</b>	
<b>CISCO7301/ITP/BUN</b>	ITP Signaling Gateway Bundle
<b>BASE CHASSIS</b>	
<b>CISCO7301</b>	Cisco 7301 Chassis, 256 MB memory, AC power, 64 MB Flash
<b>CISCO7301-2AC=</b>	Cisco 7301 Chassis with Dual AC power supply spare
<b>CISCO7301-2DC48=</b>	Cisco 7301 Chassis with Dual DC 48 power supply spare
<b>POWER SUPPLIES</b>	
<b>PWR-7301-AC</b>	Cisco 7301 Chassis, 256 MB memory, AC power, 64 MB Flash
<b>PWR-7301/2-AC</b>	Cisco 7301 Dual AC power supply option
<b>PWR-7301/2-DC48</b>	Cisco 7301 Dual DC 48 power supply option
<b>MEMORY OPTIONS</b>	
<b>MEM-7301-1GB=</b>	1 GB memory upgrade for Cisco 7301

**Ordering Information** continued

Product Number	Product Description
<b>MEMORY OPTIONS</b> continued	
<b>MEM-7301-512MB=</b>	512 MB memory upgrade for Cisco 7301
<b>MEM-7301-256=</b>	256 MB memory upgrade for Cisco 7301
<b>MEM-7301-FLD64</b>	Compact Disk Flash for Cisco 7301, 64 MB option
<b>MEM-7301-FLD64=</b>	Compact Disk Flash for Cisco 7301, 64 MB option
<b>MEM-7301-FLD128</b>	Compact Disk Flash for Cisco 7301, 128 MB option
<b>MEM-7301-FLD128=</b>	Compact Disk Flash for Cisco 7301, 128 MB option
<b>MEM-7301-FLD128=</b>	Compact Disk Flash for Cisco 7301, 256 MB option
<b>MEM-7301-FLD128=</b>	Compact Disk Flash for Cisco 7301, 256 MB option
<b>CISCO 7301 ACCESSORIES</b>	
<b>RCKMNT-7301=</b>	Rack mount kits for 7301
<b>7206VXRG2/2+VPNK9</b>	Cisco 7206 VXR, NPE-G2, VAM2+C7200-JC-PA, AC power, 1 GB system memory, SDM
<b>CISCO 7301 FEATURE LICENSES</b>	
<b>FR-ISG73=</b>	ISG-SSG Feature License for 7301
<b>FL731-LI=</b>	Lawful Intercept Upgrade for Cisco 7301 Series
<b>FL-GK-IPIP7301</b>	Cisco 7301 IP-to-IP Gateway
<b>FL-GK-NEW-7301=</b>	License For A 7301 Based GK For Voice

**Notes**



## Cisco 7304 Series

Cisco 7304 Series Routers are designed for the network edge where high-performance IP services and redundancy are required to maintain profitability, service differentiation, and business agility. Using a compact, modular form factor, the Cisco 7304 delivers high-touch IP services at multi-gigabit speeds necessary for applications in the enterprise and service provider high-end customer premise equipment (CPE). This versatile platform delivers a breadth of Cisco IOS features in addition to an evolving set of hardware-accelerated IP services. Providing a range of IP connectivity up to Gigabit Ethernet/OC-48, engineered for high availability and multiprotocol support, the Cisco 7304 scales to meet critical application needs of today and in the future.

### Benefits and Advantages

#### High-performance IP/MPLS Services

The Cisco 7304 Series Routers take advantage of innovative Cisco adaptive network processing capabilities to power a broad set of network applications and services. The performance of the Cisco 7304 Series Routers make them ideal for high performance, multi-gigabit applications. The Cisco 7304, with modular engine support, uses the Network Service Engine (NSE-150) to power IP/MPLS services at up to 3.5 Mpps while delivering multiple IP/MPLS features such as MPLS, NAT, QoS, and NetFlow accounting.

#### Highly Scalable and Available

Cisco 7304 Series Routers can support a broad set of interfaces from DS-0 to OC-48 speeds, including built-in Fast Ethernet and Gigabit Ethernet interfaces—meeting performance demands well into the future. The Cisco 7304 is designed with the necessary memory and processing power for the next generation of applications that require large route table support, optical interfaces, and high-performance services processing. The Cisco 7304 supports dual route processors and power supplies, making it an ideal solution for providing mission-critical network availability.

#### Exceptional Value

Meeting today's connectivity needs, the Cisco 7304 Series Routers deliver built-in Ethernet interfaces, while supporting a wide variety of Cisco 7000 Series port adapters. With both copper and optical Gigabit Ethernet capabilities, these routers offer exceptional value for customers linking to high-speed LAN or Ethernet WAN connections without additional cost or interfaces.

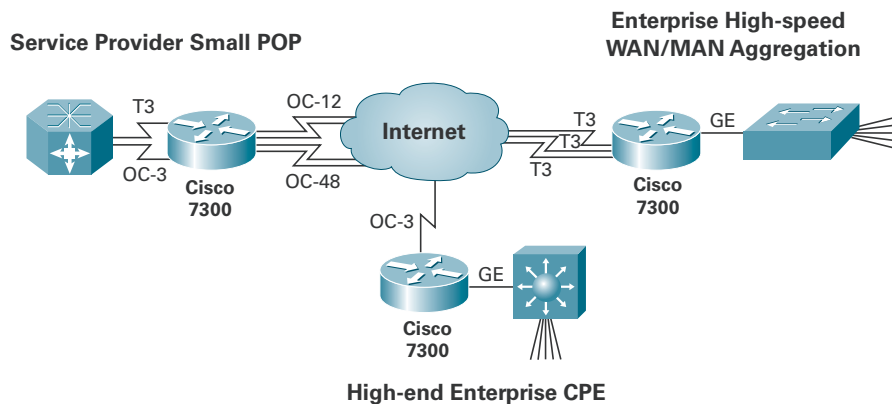


## When to Deploy

### Deploy the Cisco 7304 when you need:

- A compact and modular form factor that allows for incremental investments
- Scalable deployment with a range of connectivity options, including OC-12 POS and OC-48 POS
- High availability support, including redundant route processor and power supply
- Multiple OC-3 performance or greater—NSE-150 Network Services Engine offers up to 3.5 Mpps forwarding performance
- Built-in Gigabit Ethernet (GbE)—4 GbE ports per NSE-150 enable cost-effective and high-performance GbE connectivity
- Hardware-accelerated services for feature performance of up to 3.5 Mpps
- Multiprotocol support

## Application Example



## Series Specifications

<b>Base Configuration</b>	4-slot chassis, NSE-100, NSE-150, or NPE-G100, 1 AC power supply, 512 MB
<b>Processor</b>	NPE-G100: SiByte BCM1250 at 800 MHz NSE-100: Parallel Express Forwarding (PXF) and R7000 CPU at 350 MHz NSE-150: PXF and SiByte BCM1250 at 800 MHz
<b>Redundant Processor</b>	Optional, uses 2 interface card slots
<b>WAN Interface Range</b>	DS0 to OC-48/STM-16
<b>Forwarding Rate</b>	NSE-100: Up to 3.5 Mpps NPE-G100: Up to 1 Mpps NSE-150: Up to 3.5 Mpps
<b>Backplane Capacity</b>	16 Gbps
<b>Compact Flash Memory</b>	NSE-100: 256 MB NSE-150: 256 MB NPE-G100: 256 MB

## Series Specifications continued

<b>System DRAM Memory</b>	NSE-100: 512 MB NPE-G100: 1 GB NSE-150: 2 GB
<b>Modular Slots</b>	4
<b>Fixed Ports</b>	NSE-100: 2 Gigabit Ethernet Ports NSE-150: 4 Gigabit Ethernet Ports NPE-G100: 3 Gigabit Ethernet Ports
<b>Console Port</b>	1
<b>Auxiliary Port</b>	1
<b>Maximum Ethernet Ports</b>	4 fixed GbE ports
<b>Performance</b>	Up to 3.5 Mpps
<b>Voice/Data Support</b>	No
<b>Integrated Modems</b>	No
<b>Integrated CSU/DSU</b>	Yes (T3)
<b>Compression</b>	SW
<b>Encryption</b>	No
<b>Internal Power Supply</b>	AC or DC (both redundant)
<b>Redundant Power Supply Support</b>	Yes
<b>Chassis Height</b>	4 RU
<b>Rack Mountable</b>	Yes, up to 11 per rack
<b>Dimensions (H x W x D)</b>	7 x 17.2 x 20.5 in.
<b>Minimum Cisco IOS Release</b>	Cisco IOS 12.2S and 12.2SB

## Ordering Information

Product Number	Product Description
<b>CISCO7304</b>	4-slot chassis, NSE100, 1 Power Supply, 512 MB Memory
<b>CISCO7304=</b>	Cisco 7304, 4-slot chassis
<b>CISCO7304-CH</b>	Channel bundle: chassis,NSE-100,PWR-AC,MEM512,CFM-254,IOS,FAN
<b>CISCO7304-G100</b>	4-slot chassis, NPE-G100, 1 Power Supply
<b>CISCO7304-G100-CH</b>	Channel bundle:chassis,G100,PWR-AC,MEM-1GB,CFM-256,IOS,FAN
<b>CISCO7304-NSE-150</b>	4-slot chassis, NSE-150, 1 Power Supply, 2 GB Memory
<b>CISCO7304CH-NSE150</b>	Channel bundle:chassis,NSE-150,PWR-AC, IOS IP PLUS, FAN

Ordering Information continued

Product Number	Product Description
<b>CISCO 7304 PROCESSORS</b>	
<b>7300-NSE-100</b>	Cisco 7304 NSE-100 w/512 MB SDRAM, 256 MB Flash, (2) GbE
<b>7300-NSE-100/2</b>	Redundant Cisco 7304 NSE-100
<b>7304-NPE-G100</b>	Cisco 7304 NPE-G100 w/1 GB SDRAM, 256 MB Flash, (3)GE/FE/E
<b>7304-NPE-G100/2</b>	Redundant 7304 NPE-G100 w/1 GB SDRAM, 256 MB Flash, (3)GE/FE/E
<b>7300-NSE-150/2</b>	Redundant Cisco 7304 NSE-150 w/2 GB SDRAM, 256 MB Flash, (4) GbE
<b>7300-NSE-150</b>	Cisco 7304 NSE-150 w/2 GB SDRAM, 256 MB Flash, (4) GbE
<b>CISCO 7304 POWER SUPPLIES</b>	
<b>7300-PWR-DC=</b>	Cisco 7304 DC Power Supply Spare
<b>7300-PWR-AC=</b>	Cisco 7304 AC Power Supply Spare
<b>7300-PWR/2-DC</b>	Cisco 7304 Redundant DC Power Supply Option
<b>7300-PWR/2-AC</b>	Cisco 7304 Redundant AC Power Supply Option
<b>CISCO 7304 MEMORY OPTIONS</b>	
<b>7300-MEM-512=</b>	512 MB SDRAM for 7304 NSE-100, spare
<b>7304-MEM-G100-1GB=</b>	1 GB SDRAM for NPE-G100, spare
<b>CISCO 7304 SERIES COMPACT FLASH OPTIONS</b>	
<b>7304-I/O-CFM-256M=</b>	Cisco 7304 Compact Flash Memory, 256 MB
<b>CISCO 7304 LINE CARDS</b>	
<b>7300-10C48POS-SMI=</b>	1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR
<b>7300-10C12ATM=</b>	1xOC12 ATM Line Card
<b>7300-20C3ATM-MM=</b>	2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode
<b>7300-20C3ATM-SMI=</b>	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR
<b>SPA-4FE-7304=</b>	4-port 10/100 Fast Ethernet Shared Port Adapter
<b>SPA-2GE-7304=</b>	2-port Half-Height Gigabit Ethernet Shared Port Adapter
<b>CISCO 7304 CARRIER CARDS</b>	
<b>7300-CC-PA=</b>	7304 Carrier Card for 7200 Series Port Adapters
<b>7304-MSC-100=</b>	Cisco 7304 SPA Modular Services Carrier Card
<b>CISCO 7304 PORT ADAPTERS</b>	
<b>PA-A3-8E1IIMA=</b>	8-port ATM Inverse Mux E1 (120 Ohm) Port Adapter, Spare
<b>PA-A3-8T1IIMA=</b>	8-port ATM Inverse Mux T1 Port Adapter, Spare
<b>PA-A6-E3=</b>	1-port Enh ATM E3 Port Adapter
<b>PA-A6-OC3MM=</b>	1-port Enh ATM OC3c/STM1 Multimode Port Adapter
<b>PA-A6-OC3SMI=</b>	1-port Enh ATM OC3c/STM1 Singlemode (IR) Port Adapter
<b>PA-A6-OC3SML=</b>	1-port Enh ATM OC3c/STM1 Singlemode (LR) Port Adapter
<b>PA-A6-T3=</b>	1-port Enh ATM DS3 Port Adapter
<b>PA-POS-10C3=</b>	1-port Packet/SONET OC3c/STM1 Port Adapter

Ordering Information continued

Product Number	Product Description
<b>CISCO 7304 PORT ADAPTERS</b>	
<b>PA-POS-20C3=</b>	2-port Packet/SONET OC3c/STM1 Port Adapter
<b>PA-POS-10C3-2PAK=</b>	Packet over SONET OC3 2 PACK Bundle
<b>PA-4E1G/75=</b>	4-port E1 G.703 Serial Port Adapter (75ohm/Unbalanced)
<b>PA-4E1G/120=</b>	4-port E1 G.703 Serial Port Adapter (120ohm/Balanced)
<b>PA-4T+=</b>	4-port Serial Port Adapter, Enhanced
<b>PA-8T-232=</b>	8-port Serial, 232 Port Adapter
<b>PA-8T-V35=</b>	8-port Serial, V.35 Port Adapter
<b>PA-8T-X21=</b>	8-port Serial, X.21 Port Adapter
<b>PA-E3=</b>	1-port E3 Serial Port Adapter with E3 DSU
<b>PA-2E3=</b>	2-port E3 Serial Port Adapter with E3 DSUs
<b>PA-T3+=</b>	1-port T3 Serial Port Adapter Enhanced
<b>PA-2T3+=</b>	2-port T3 Serial Port Adapter Enhanced, Spare
<b>PA-H=</b>	1-port HSSI Port Adapter, Spare
<b>PA-2H=</b>	2-port HSSI Port Adapter, Spare
<b>PA-MC-2E1/120=</b>	2-port multichannel E1 port adapter with G.703 120ohm interf
<b>PA-MC-2T1=</b>	2-port multichannel T1 port adapter with integrated CSU/DSUs
<b>PA-MC-4T1=</b>	4-port multichannel T1 port adapter with integrated CSU/DSUs
<b>PA-MC-8TE1+=</b>	8-port multichannel T1/E1 8PRI port adapter
<b>PA-MC-E3=</b>	1-port Multi-Channel E3 port adapter
<b>PA-MC-STM-1MM=</b>	1-port multichannel STM-1multimode port adapter
<b>PA-MC-STM-1SMI=</b>	1-port multichannel STM-1 single mode port adapter
<b>PA-MC-T3=</b>	1-port multichannel T3 port adapter
<b>PA-MC-2T3+=</b>	2-port multichannel T3 port adapter
<b>PA-4E=</b>	4-port Ethernet 10BaseT Port Adapter
<b>PA-8E=</b>	8-port Ethernet 10BaseT Port Adapter
<b>PA-2FE-FX=</b>	2-port Fast Ethernet 100Base FX Port Adapter
<b>PA-2FE-TX=</b>	2-port Fast Ethernet 100Base TX Port Adapter
<b>PA-GE=</b>	Gigabit Ethernet Port Adapter
<b>CISCO 7304 SHARED PORT ADAPTERS</b>	
<b>SPA-2XT3/E3=</b>	2-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-4XT3/E3=</b>	4-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-2XOC3-POS=</b>	2-port OC3/STM1 POS Shared Port Adapters
<b>SPA-4XOC3-POS=</b>	4-port OC3/STM1 POS Shared Port Adapters
<b>SPA-1XOC12-POS=</b>	1-port OC12/STM4 POS Shared Port Adapters
<b>SPA-BLANK=</b>	Blank Cover for regular SPA

**Ordering Information** continued

Product Number	Product Description
<b>CISCO 7304 ACCESSORIES</b>	
<b>7300-HALFSLOTBLNK=</b>	Cisco 7304 Half-slot Blank card, spare
<b>7300-4RU/RCKBRKT=</b>	Cisco 7304 Chassis Rackmount Bracket Spare
<b>7300-CNTR-SPTUM=</b>	Cisco 7304 Center Septum Spare
<b>CISCO 7304 SOFTWARE OPTIONS</b>	
<b>S73A-12231SB</b>	Cisco 7300 Series IOS ENTERPRISE
<b>S73AR1K91-12231SB</b>	Cisco 7300 Series IOS ENTERPRISE/SNASW SECURED SHELL 3DES
<b>S73C-12231SB</b>	Cisco 7300 Series IOS IP PLUS
<b>S73Z-12231SB</b>	Cisco 7300 Series IOS SERVICE PROVIDER
<b>S73ZK91-12231SB</b>	Cisco 7300 Series IOS SERVICE PROVIDER/SECURED SHELL 3DES
<b>S73AR1K91-12228SB</b>	Cisco 7300 Series IOS ENTERPRISE/SNASW SECURED SHELL 3DES
<b>S73A-12228SB</b>	Cisco 7300 Series IOS ENTERPRISE
<b>S73C-12228SB</b>	Cisco 7300 Series IOS IP PLUS
<b>S73Z-12228SB</b>	Cisco 7300 Series IOS SERVICE PROVIDER
<b>S73ZK91-12228SB</b>	Cisco 7300 Series IOS SERVICE PROVIDER/SSH 3DES

**Notes**

## Notes



## Cisco 7600 Series

The Cisco 7600 Series combines optical WAN/MAN networking and high-volume Ethernet aggregation with a focus on the delivery of high-touch services for the IP and MPLS edge. It combines Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture including hardware-based forwarding of MPLS, IPv4, and IPv6. Cisco 7600 series form factors include the Cisco 7604, 7606, 7609, and 7613. Each router can deliver DS0 to OC-192 WAN and nx10-Mbps Ethernet to nx10-Gigabit Ethernet connectivity into service provider edge, metropolitan-area, and enterprise networks for a variety of triple-play and aggregation solutions.

### Benefits and Advantages

The Cisco 7604 is a small form factor router that offers a wide range of interfaces ranging from DS0 to OC-192, FE, GbE, 10GbE, allowing it to be deployed in a wide range of applications. It supports redundant supervisors and high-availability features—making the Cisco 7604 resilient.

### Security Features

The Cisco 7604 advanced security services offer protection for the device, service, and network:

#### Device Protection

- Control plane protection
- User access
- Spoofed address

#### Service Protection

- VRF Aware IPSec VPN
- Virtualized firewall
- Virtualized intrusion detection

#### Network Protection

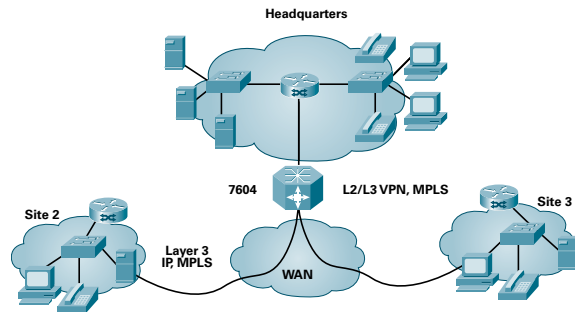
- Clean pipes
- Distributed denial of service protection
- Network Protection Access Control Lists
- Reverse Path Forwarding

## When to Deploy

This flexible router is ideal for addressing high-performance applications such as:

- High-end CPE
- Enterprise WAN Aggregation
- Leased Line Aggregation
- IP/MPLS Provider Edge
- MPLS HA
- Metro Ethernet

## Application Example



## High-Availability Features

The Cisco 7604 supports redundant processors and power supplies. The Cisco 7604 offers the following high-availability software features in 12.2.18SX.E:

- Online Insertion and Removal
- Hot Standby Routing Protocol
- Fast Software Upgrade
- Route Processor Redundancy Plus
- NonStop Forwarding
- Stateful SwitchOver

## Platform Overview

Feature	Cisco 7603-S	Cisco 7604	Cisco 7606-S/7606	Cisco 7609-S/7609	Cisco 7613
<b>Fixed Ports</b>	SFP and 10/100/1000 (rsp720, Sup720)	SFP and 10/100/1000 (rsp720, Sup720)	SFP and 10/100/1000 (rsp720, Sup720)	SFP and 10/100/1000 (rsp720, Sup720)	SFP and 10/100/1000 (rsp720, Sup720)
<b>Expansion Slots</b>	3 (horizontal)	4 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
<b>WAN Interface Range</b>	DS0 to OC-192	DS0 to OC-192	DS0 to OC-192	DS0 to OC-192	DS0 to OC-192
<b>LAN Interface Range</b>	10 Mbps to 10 Gbps	10 Mbps to 10 Gbps	10 Mbps to 10 Gbps	10 Mbps to 10 Gbps	10 Mbps to 10 Gbps
<b>Processor</b>	Supervisors: RSP720-3C, RSP720-3CXL, Sup720-3B, Sup720-3BXL, Sup32	Supervisors: RSP720-3C, RSP720-3CXL, Sup720-3B, Sup720-3BXL, Sup32	Supervisors: RSP720-3C, RSP720-3CXL, Sup720-3B, Sup720-3BXL, Sup32	Supervisors: RSP720-3C, RSP720-3CXL, Sup720-3B, Sup720-3BXL, Sup32	Supervisors: RSP720-3C, RSP720-3CXL, Sup720-3B, Sup720-3BXL, Sup32

## Platform Overview continued

Feature	Cisco 7603-S	Cisco 7604	Cisco 7606-S/7606	Cisco 7609-S/7609	Cisco 7613
<b>Forwarding Rate Centralized</b>	15Mpps	Up to 30 Mpps	Up to 30 Mpps	Up to 30 Mpps	Up to 30 Mpps
<b>Forwarding Rate Distributed</b>	120 Mpps	170 Mpps	170 Mpps	170 Mpps	170 Mpps
<b>Backplane Capacity</b>	240 Gbps	320 Gbps	480 Gbps	720 Gbps	720 Gbps
<b>Flash PCMCIA Memory</b>	Up to 1 GB	Up to 1 GB	Up to 1 GB	Up to 1 GB	Up to 1 GB
<b>System DRAM Memory</b>	4 GB on RSP720-3CXL, 2 GB on RSP720-3CXL 1 GB on Sup720-3BXL, 512MB on Sup720-3B	4 GB on RSP720-3CXL, 2 GB on RSP720-3CXL 1 GB on Sup720-3BXL, 512 MB on Sup720-3B	4 GB on RSP720-3CXL, 2 GB on RSP720-3CXL 1 GB on Sup720-3BXL, 512 MB on Sup720-3B	4 GB on RSP720-3CXL, 2 GB on RSP720-3CXL 1 GB on Sup720-3BXL, 512 MB on Sup720-3B	4 GB on RSP720-3CXL, 2 GB on RSP720-3CXL 1 GB on Sup720-3BXL, 512 MB on Sup720-3B
<b>Internal Power Supply</b>	DC	AC or DC	AC or DC	AC or DC	AC or DC
<b>RPS Support</b>	Yes	Yes	Yes	Yes	Yes
<b>Chassis Height</b>	4 RU	5 RU	7 RU	20 RU	18 RU
<b>Rack Mountable</b>	Yes, up to 11 per rack	Yes, up to 9 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
<b>Dimensions (H x W x D)</b>	7 x 17.37 x 20.3 in.	8.75 x 17.5 x 21.8 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.

## Ordering Information

Product Number	Product Description
<b>CISCO 7613 SYSTEMS</b>	
<b>7613-RSP720C-P</b>	Cisco 7613 Chassis, 13-slot, RSP720-3C,PS
<b>7613-RSP720C-R</b>	Cisco 7613 Chassis, 13-slot, Redundant System,2RSP720-3C, 2PS
<b>7613-RSP720CXL-P</b>	Cisco 7613 Chassis, 13-slot, RSP720-3CXL,PS
<b>7613-RSP720CXL-R</b>	Cisco 7613 Chassis, 13-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>CISCO7613</b>	Cisco 7613 Chassis. 13-slot
<b>CISCO7613/EHA1</b>	Bundle: Cisco Enhanced Home Agent R1 for 7613 (600k Sessions)
<b>CISCO7613=</b>	Spare Cisco 7613 Chassis, equipped with High-speed FAN2
<b>7613-S323B-8G-P</b>	Cisco 7613 Chassis, 13-slot, SUP32-8GE-3B, PS
<b>7613-S323B-8G-R</b>	Cisco 7613 Chassis, 13-slot, Redundant SUP32-8GE-3B and PS
<b>7613-S323B-10G-P</b>	Cisco 7613 Chassis, 13-slot, SUP32-2X10GE-3B, PS

Ordering Information continued

Product Number	Product Description
<b>CISCO 7613 SYSTEMS continued</b>	
<b>7613-S323B-10G-R</b>	Cisco7613 Chassis, 13-slot, Redundant SUP32-2X10GE-3B and PS
<b>7613-SUP720XL-PS</b>	Cisco 7613 13-slot, SUP720-3BXL and PS
<b>7613-2SUP720XL-2PS</b>	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS
<b>7613-SUP7203B-PS</b>	Cisco 7613 Chassis, 13-slot, SUP7203B, Power Supply
<b>7613-2SUP7203B-2PS</b>	Cisco 7613 Chassis, 13-slot, 2 SUP7203B, 2 Power Supply
<b>7613-VPN+-K9</b>	Cisco 7613 IPSec VPN System Bundle
<b>CISCO 7609 SYSTEMS</b>	
<b>7609-RSP720C-P</b>	Cisco 7609 Chassis, 9-slot, RSP720-3C,PS
<b>7609-RSP720C-R</b>	Cisco 7609 Chassis, 9-slot, Redundant System, 2RSP720-3C, 2PS
<b>7609-RSP720CXL-P</b>	Cisco 7609 Chassis, 9-slot, RSP720-3CXL,PS
<b>7609-RSP720CXL-R</b>	Cisco 7609 Chassis, 9-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>7609S-RSP720C-P</b>	Cisco 7609S Chassis, 9-slot, RSP720-3C,PS
<b>7609S-RSP720C-R</b>	Cisco 7609S Chassis, 9-slot, Redundant System, 2RSP720-3C, 2PS
<b>7609S-RSP720CXL-P</b>	Cisco 7609S Chassis, 9-slot, RSP720-3CXL,PS
<b>7609S-RSP720CXL-R</b>	Cisco 7609S Chassis, 9-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>7609S-S32-10G-B-P</b>	Cisco 7609S Chassis, 9-slot, SUP32-2X10GE-3B,PS
<b>7609S-S32-10G-B-R</b>	Cisco 7609S Chassis, 9-slot, Redundant SUP32-2X10GE-3B,PS
<b>7609S-S32-8G-B-P</b>	Cisco 7609S Chassis, 9-slot, SUP32-8GE-3B,PS
<b>7609S-S32-8G-B-R</b>	Cisco 7609S Chassis, 9-slot, Redundant SUP32-8GE-3B,PS
<b>7609S-SUP720B-P</b>	Cisco 7609S Chassis, 9-slot, SUP720-3B,PS
<b>7609S-SUP720B-R</b>	Cisco 7609S Chassis, 9-slot, Redundant System, 2SUP720-3B, 2PS
<b>7609S-SUP720BXL-P</b>	Cisco 7609S Chassis, 9-slot, SUP720-3BXL,PS
<b>7609S-SUP720BXL-R</b>	Cisco 7609S Chassis, 9-slot, Redundant System, 2SUP720-3BXL, 2PS
<b>CISCO7609</b>	Cisco 7609 Chassis
<b>CISCO7609-S</b>	Cisco 7609-S Chassis
<b>CISCO7609-S=</b>	Cisco 7609-S Chassis
<b>CISCO7609/EHA1</b>	Bundle: Cisco Enhanced Home Agent R1 for 7609 (300k Sessions)
<b>CISCO7609=</b>	Cisco 7609 Chassis Spare
<b>7609-S323B-8G-P</b>	Cisco 7609 Chassis, 9-slot, SUP32-8GE-3B, PS
<b>7609-S323B-8G-R</b>	Cisco 7609 Chassis, 9-slot, Redundant SUP32-8GE-3B and PS
<b>7609-S323B-10G-P</b>	Cisco 7609 Chassis, 9-slot, SUP32-2X10GE-3B, PS
<b>7609-S323B-10G-R</b>	Cisco 7609 Chassis, 9-slot, Redundant SUP32-2X10GE-3B and PS
<b>7609-SUP720XL-PS</b>	Cisco 7609 9-slot, SUP720-3BXL and PS
<b>7609-2SUP720XL-2PS</b>	Cisco 7609 9-slot, Redundant System, 2 SUP720-3BXL and 2 PS

Ordering Information continued

Product Number	Product Description
<b>CISCO 7609 SYSTEMS continued</b>	
<b>7609-SUP7203B-PS</b>	Cisco 7609 Chassis, 9-slot, SUP7203B, Power Supply
<b>7609-2SUP7203B-2PS</b>	Cisco 7609 Chassis, 9-slot, 2 SUP7203B, 2 Power Supply
<b>7609-VPN+-K9</b>	Cisco 7609 IPSec VPN System Bundle
<b>CISCO 7606 SYSTEMS</b>	
<b>7606-RSP720C-P</b>	Cisco 7606 Chassis, 6-slot, RSP720-3C,PS
<b>7606-RSP720C-R</b>	Cisco 7606 Chassis, 6-slot, Redundant System, 2RSP720-3C, 2PS
<b>7606-RSP720CXL-P</b>	Cisco 7606 Chassis, 6-slot, RSP720-3CXL,PS
<b>7606-RSP720CXL-R</b>	Cisco 7606 Chassis, 6-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>CISCO7606</b>	Cisco 7606 Chassis
<b>7606-S323B-8G-P</b>	Cisco 7606 Chassis, 6-slot, SUP32-8GE-3B, PS
<b>7606-S323B-8G-R</b>	Cisco 7606 Chassis, 6-slot, Redundant SUP32-8GE-3B and PS
<b>7606-S323B-10G-P</b>	Cisco 7606 Chassis, 6-slot, SUP32-2X10GE-3B, PS
<b>7606-S323B-10G-R</b>	Cisco 7606 Chassis, 6-slot, Redundant SUP32-2X10GE-3B and PS
<b>7606-SUP720XL-PS</b>	Cisco 7606 6-slot, SUP720-3BXL and PS
<b>7606-2SUP720XL-2PS</b>	Cisco 7606 6-slot, Redundant System, 2 SUP720-3BXL and 2 PS
<b>7606-SUP7203B-PS</b>	Cisco 7606 Chassis, 6-slot, SUP7203B, Power Supply
<b>7606-2SUP7203B-2PS</b>	Cisco 7606 Chassis, 6-slot, 2 SUP7203B, 2 Power Supply
<b>CISCO7606=</b>	7606 chassis spare
<b>CISCO7606-CHASS</b>	Cisco 7606 Chassis
<b>7606-VPN+-K9</b>	Cisco 7606 IPSec VPN System Bundle
<b>CISCO 7604 SYSTEMS</b>	
<b>CISCO7604</b>	Cisco 7604 Chassis
<b>7604-RSP720C-P</b>	Cisco 7604 Chassis, 4-slot, RSP720-3C,PS
<b>7604-RSP720C-R</b>	Cisco 7604 Chassis, 4-slot, Redundant System, 2RSP720-3C, 2PS
<b>7604-RSP720CXL-P</b>	Cisco 7604 Chassis, 4-slot, RSP720-3CXL,PS
<b>7604-RSP720CXL-R</b>	Cisco 7604 Chassis, 4-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>CISCO7604=</b>	Cisco 7604 Chassis Spare
<b>7604-S323B-8G-P</b>	Cisco 7604 Chassis, 4-slot, SUP32-8GE-3B, PS
<b>7604-S323B-8G-R</b>	Cisco 7604 Chassis, 4-slot, Redundant SUP32-8GE-3B and PS
<b>7604-S323B-10G-P</b>	Cisco 7604 Chassis, 4-slot, SUP32-2X10GE-3B, PS
<b>7604-S323B-10G-R</b>	Cisco 7604 Chassis, 4-slot, Redundant SUP32-2X10GE-3B and PS
<b>7604-SUP7203B-PS</b>	Cisco 7604 Chassis, 4-slot, SUP720-3B, PS
<b>7604-2SUP7203B-2PS</b>	Cisco 7604 Chassis, 4-slot, 2 SUP720-3B, 2 PS
<b>7604-SUP720XL-PS</b>	Cisco 7604 chassis, 4-slot, SUP720-3BXL, PS

**Benefits & Advantages** continued

Product Number	Product Description
<b>CISCO 7604 SYSTEMS</b> continued	
<b>7604-2SUP720XL-2PS</b>	Cisco 7604 Chassis, 4-slot, 2SUP720-3BXL, 2 PS
<b>7604-VPN+-K9</b>	Cisco 7604 IPsec VPN System Bundle
<b>CISCO 7603 FLEXWAN MODULES</b>	
<b>7603S-S32-10G-B-P</b>	Cisco 7603S Chassis, 3-slot, SUP32-2X10GE-3B, PS
<b>7603S-S32-8G-B-P</b>	Cisco 7603S Chassis, 3-slot, SUP32-8GE-3B, PS
<b>CISCO7603-S</b>	Cisco 7603-S Chassis
<b>CISCO7603-S=</b>	Cisco 7603-S Chassis Spare
<b>CISCO 7613 SYSTEMS</b>	
<b>7613-RSP720C-P</b>	Cisco 7613 Chassis, 13-slot, RSP720-3C, PS
<b>7613-RSP720C-R</b>	Cisco 7613 Chassis, 13-slot, Redundant System, 2RSP720-3C, 2PS
<b>7613-RSP720CXL-P</b>	Cisco 7613 Chassis, 13-slot, RSP720-3CXL, PS
<b>7613-RSP720CXL-R</b>	Cisco 7613 Chassis, 13-slot, Redundant System, 2RSP720-3CXL, 2PS
<b>CISCO7613</b>	Cisco 7613 Chassis
<b>CISCO7613/EHA1</b>	Bundle: Cisco Enhanced Home Agent R1 for 7613 (600k Sessions)
<b>CISCO7613=</b>	Spare CISCO7613 Chassis, equipped with High-speed FAN2
<b>7613-S323B-8G-P</b>	Cisco 7613 Chassis, 13-slot, SUP32-8GE-3B, PS
<b>7613-S323B-8G-R</b>	Cisco 7613 Chassis, 13-slot, Redundant SUP32-8GE-3B and PS
<b>7613-S323B-10G-P</b>	Cisco 7613 Chassis, 13-slot, SUP32-2X10GE-3B, PS
<b>7613-S323B-10G-R</b>	Cisco7613 Chassis, 13-slot, Redundant SUP32-2X10GE-3B and PS
<b>7613-SUP720XL-PS</b>	Cisco 7613 13-slot, SUP720-3BXL and PS
<b>7613-2SUP720XL-2PS</b>	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS
<b>7613-SUP7203B-PS</b>	Cisco 7613 Chassis, 13-slot, SUP7203B, Power Supply
<b>7613-2SUP7203B-2PS</b>	Cisco 7613 Chassis, 13-slot, 2 SUP7203B, 2 Power Supply
<b>7613-VPN+-K9</b>	Cisco 7613 IPsec VPN System Bundle
<b>CISCO 7600 ETHERNET SERVICES MODULES</b>	
<b>7600-ES20-GE3C</b>	7600 ES20 Line Card, 20xGbE SFP with DFC 3C
<b>7600-ES20-GE3C=</b>	7600 ES20 Line Card, 20xGbE SFP with DFC 3C
<b>7600-ES20-GE3CXL</b>	7600 ES20 Line Card, 20xGbE SFP with DFC 3CXL
<b>7600-ES20-GE3CXL=</b>	7600 ES20 Line Card, 20xGbE SFP with DFC 3CXL
<b>7600-ES20-10G3C</b>	7600 ES20 Line Card, 2x10GbE XFP with DFC 3C
<b>7600-ES20-10G3C=</b>	7600 ES20 Line Card, 2x10GbE XFP with DFC 3C
<b>7600-ES20-10G3CXL=</b>	7600 ES20 Line Card, 2x10GbE XFP with DFC 3CXL
<b>7600-ES20-10G3CXL</b>	7600 ES20 Line Card, 2x10GbE XFP with DFC 3CXL

**Series Features Overview**

Product Number	Product Description
<b>CISCO 7600 SHARED PORT ADAPTERS AND SPA INTERFACE</b>	
<b>7600-SIP-200</b>	Cisco 7600 Series SPA Interface Processor-200
<b>SPA-24CHT1-CE-ATM</b>	24-port Channelized T1/E1/J1 ATM and Circuit Emulation SPA
<b>SPA-1CHOC3-CE-ATM=</b>	1-port Channelized OC3/STM-1 ATM and Circuit Emulation SPA
<b>7600-SIP-200=</b>	Cisco 7600 Series SPA Interface Processor-200
<b>SPA-24CHT1-CE-ATM=</b>	24-port Channelized T1/E1/J1 ATM and Circuit Emulation SPA
<b>7600-SIP-400</b>	Cisco 7600 Series SPA Interface Processor-400
<b>7600-SIP-400=</b>	Cisco 7600 Series SPA Interface Processor-400
<b>7600-SIP-600</b>	Cisco 7600 Series SPA Interface Processor-600
<b>7600-SIP-600=</b>	Cisco 7600 Series SPA Interface Processor-600
<b>7600-SSC-400</b>	Cisco 7600 / Catalyst 6500 Services SPA Carrier Card
<b>7600-SSC-400=</b>	Cisco 7600 / Catalyst 6500 Services SPA Carrier Card
<b>SPA-2XOC3-ATM</b>	2-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-2XOC3-ATM=</b>	2-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-2XOC3-POS</b>	2-port OC3/STM1 POS Shared Port Adapters
<b>SPA-2XOC3-POS=</b>	2-port OC3/STM1 POS Shared Port Adapters
<b>SPA-4XOC3-ATM</b>	4-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-4XOC3-ATM=</b>	4-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-1XCHSTM1/OC3</b>	1-port Channelized STM-1/OC-3c to DS0 Shared Port Adapter
<b>SPA-1XCHSTM1/OC3=</b>	1-port Channelized STM-1/OC-3c to DS0 Shared Port Adapter
<b>SPA-1XOC12-POS</b>	1-port OC12/STM4 POS Shared Port Adapters
<b>SPA-1XOC12-POS=</b>	1-port OC12/STM4 POS Shared Port Adapters
<b>SPA-1XOC12-ATM</b>	1-port OC-12c/STM-4 ATM Shared Port Adapter
<b>SPA-1XOC12-ATM=</b>	1-port OC-12c/STM-4 ATM Shared Port Adapter
<b>SPA-1XOC48POS/RPR</b>	1-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-1XOC48POS/RPR=</b>	1-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-2XOC48POS/RPR</b>	2-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-2XOC48POS/RPR=</b>	2-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-2X1GE-V2</b>	Cisco 2-port Gigabit Ethernet Shared Port Adapter
<b>SPA-2X1GE-V2=</b>	Cisco 2-port Gigabit Ethernet Shared Port Adapter
<b>SPA-2XT3/E3</b>	2-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-2XT3/E3=</b>	2-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-4XT3/E3</b>	4-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-4XT3/E3=</b>	4-port Clear Channel T3/E3 Shared Port Adapter

**Benefits & Advantages** *continued*

Product Number	Product Description
<b>CISCO 7600 SHARED PORT ADAPTERS AND SPA INTERFACE</b> <i>continued</i>	
<b>SPA-4X1FE-TX-V2</b>	Cisco 4-port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-4X1FE-TX-V2=</b>	Cisco 4-port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-2XCT3/DS0</b>	2-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-2XCT3/DS0=</b>	2-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-4XCT3/DS0</b>	4-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-4XCT3/DS0=</b>	4-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-4XOC48POS/RPR</b>	4-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-4XOC48POS/RPR=</b>	4-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-1XOC48-ATM</b>	Cisco 1-port OC-48c/STM-16 ATM Shared Port Adapter
<b>SPA-1XOC48-ATM=</b>	Cisco 1-port OC-48c/STM-16 ATM Shared Port Adapter
<b>SPA-1XTENGE-XFP</b>	1-port 10Gigabit Ethernet Shared Port Adapter XFP based
<b>SPA-1XTENGE-XFP=</b>	1-port 10Gigabit Ethernet Shared Port Adapter XFP based
<b>SPA-2X1GE</b>	Cisco 2-port Gigabit Ethernet Shared Port Adapter
<b>SPA-2X1GE=</b>	Cisco 2-port Gigabit Ethernet Shared Port Adapter
<b>SPA-5X1GE</b>	5-port Gigabit Ethernet Shared Port Adapter
<b>SPA-5X1GE=</b>	5-port Gigabit Ethernet Shared Port Adapter
<b>SPA-5X1GE-V2</b>	Cisco 5-port Gigabit Ethernet Shared Port Adapter
<b>SPA-5X1GE-V2=</b>	Cisco 5-port Gigabit Ethernet Shared Port Adapter
<b>SPA-8XCHT1/E1</b>	8-port Channelized T1/E1 to DS0 Shared Port Adapter
<b>SPA-8XCHT1/E1=</b>	8-port Channelized T1/E1 to DS0 Shared Port Adapter
<b>SPA-8X1FE-TX-V2</b>	Cisco 8-port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-8X1FE-TX-V2=</b>	Cisco 8-port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-10X1GE</b>	10-port Gigabit Ethernet Shared Port Adapter
<b>SPA-10X1GE=</b>	10-port Gigabit Ethernet Shared Port Adapter
<b>SPA-IPSEC-2G</b>	Cisco 7600 / Catalyst 6500 IPsec VPN SPA - DES/3DES/AES
<b>SPA-IPSEC-2G=</b>	Cisco 7600 / Catalyst 6500 IPsec VPN SPA - DES/3DES/AES
<b>SPA-BLANK</b>	Blank Cover for regular SPA
<b>SPA-BLANK=</b>	Blank Cover for regular SPA
<b>SPA-OC192POS-LR</b>	1-port OC192/STM64 POS/RPR SMLR Optics
<b>SPA-OC192POS-LR=</b>	1-port OC192/STM64 POS/RPR SMLR Optics
<b>SPA-OC192POS-VSR</b>	1-port OC192/STM64 POS/RPR VSR Optics
<b>SPA-OC192POS-VSR=</b>	1-port OC192/STM64 POS/RPR VSR Optics

**Series Features Overview**

Product Number	Product Description
<b>CISCO 7600 SHARED PORT ADAPTERS AND SPA INTERFACE</b> <i>continued</i>	
<b>SPA-OC192POS-XFP</b>	1-port OC192/STM64 POS/RPR XFP Optics
<b>SPA-OC192POS-XFP=</b>	1-port OC192/STM64 POS/RPR XFP Optics
<b>SFP-OC48-IR1</b>	OC-48c/STM-16c
<b>SFP-OC48-LR2</b>	OC-48c/STM-16c SFP, Long Reach (80km)
<b>SFP-OC48-SR</b>	OC-48c/STM-16c SFP, Short Reach
<b>CISCO 7600 COMMON EQUIPMENT</b>	
<b>RSP720-3C-GE=</b>	Cisco 7600 Route Switch Processor 720 Gbps fabric, PFC3C, GbE
<b>RSP720-3CXL-GE=</b>	Cisco 7600 Route Switch Processor 720 Gbps fabric, PFC3CXL, GE
<b>WS-SUP32-GE-3B</b>	Catalyst 6500 Supervisor 32 with 8 GbE uplinks and PFC3B
<b>WS-SUP32-GE-3B=</b>	Catalyst 6500 Supervisor 32 with 8 GbE uplinks and PFC3B
<b>WS-SUP32-10GE-3B</b>	Cat 6500 Supervisor 32 with 2 ports 10GbE and PFC3B
<b>WS-SUP32-10GE-3B=</b>	Cat 6500 Supervisor 32 with 2 ports 10GbE and PFC3B
<b>WS-SUP720-3B</b>	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3B
<b>WS-SUP720-3B=</b>	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3B
<b>WS-SUP720-3BXL</b>	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3BXL
<b>WS-SUP720-3BXL=</b>	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3BXL
<b>WS-F6700-DFC3BXL</b>	Catalyst 6500 Dist Fwd Card- 3BXL, for WS-X67xx
<b>WS-F6700-DFC3BXL=</b>	Catalyst 6500 Dist Fwd Card- 3BXL, for WS-X67xx
<b>WS-F6700-DFC3B</b>	Catalyst 6500 Dist Fwd Card, 256K Routes for WS-X67xx
<b>WS-F6700-DFC3B=</b>	Catalyst 6500 Dist Fwd Card, 256K+ Routes for WS-X67xx
<b>WS-F6K-DFC3B</b>	Catalyst 6500 Dist Fwd Card-3B for 65xx, 6816 modules
<b>WS-F6K-DFC3B=</b>	Catalyst 6500 Dist Fwd Card-3B for 65xx, 6816 modules
<b>WS-F6K-DFC3BXL</b>	Catalyst 6500 Dist Fwd Card-3BXL for 65xx, 6816 modules
<b>WS-F6K-DFC3BXL=</b>	Catalyst 6500 Dist Fwd Card-3BXL for 65xx, 6816 modules
<b>WS-F6K-PFC3B</b>	Catalyst 6500 Sup720 Policy Feature Card-3B
<b>WS-F6K-PFC3B=</b>	Catalyst 6500 Sup720 Policy Feature Card-3B
<b>WS-F6K-PFC3BXL=</b>	Sup720 PFC-3BXL Plus 2x1Gig Mem
<b>WS-F6700-DFC3C</b>	Catalyst 6500 Dist Fwd Card for WS-X67xx modules
<b>WS-F6700-DFC3CXL</b>	Catalyst 6500 Dist Fwd Card- 3CXL, for WS-X67xx



**Benefits & Advantages** *continued*

Product Number	Product Description
<b>CISCO 7600 OPTICAL SERVICES MODULES (OSMs)</b>	
<b>OSM-1CHOC12/T1-SI</b>	1-port CHOC-12/CHSTM-4 (SM-IR), to DS0 and T1/E1, w/4 GbE
<b>OSM-1CHOC12/T1-SI=</b>	1-port CHOC-12/CHSTM-4 OSM IR, to DS0 and T1/E1, w/4 GbE
<b>OSM-12CT3/T1</b>	12-port Channelized DS-3 to DS-1/DS-0
<b>OSM-12CT3/T1=</b>	12-port Channelized DS-3 to DS-1/DS-0
<b>OSM-1CHOC12/T3-SI</b>	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GbE
<b>OSM-1CHOC12/T3-SI=</b>	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GbE
<b>OSM-2OC48/1DPT-SS</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GbE
<b>OSM-2OC48/1DPT-SS=</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GbE
<b>OSM-2OC48/1DPT-SI</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GbE
<b>OSM-2OC48/1DPT-SI=</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GbE
<b>OSM-2OC48/1DPT-SL</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GbE
<b>OSM-2OC48/1DPT-SL=</b>	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GbE
<b>OSM-1OC48-POS-SS+</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, w/ 4 GbE
<b>OSM-1OC48-POS-SS+=</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, w/ 4 GbE
<b>OSM-1OC48-POS-SI+</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, w/ 4 GbE
<b>OSM-1OC48-POS-SI+=</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, w/ 4 GbE
<b>OSM-1OC48-POS-SL+</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, w/ 4 GbE
<b>OSM-1OC48-POS-SL+=</b>	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, w/ 4 GbE
<b>OSM-2+4GE-WAN+</b>	Enhanced OSM with 4 GbE WAN ports and 2 GbE LAN ports
<b>OSM-2+4GE-WAN+=</b>	Enhanced OSM with 4 GbE WAN ports and 2 GbE LAN ports, Spare
<b>OSM-2+4GE-5PACK+</b>	5 Pack of OSM-2+4GE-WAN+
<b>CISCO 7600 FLEXWAN MODULE*</b>	
<b>PA-POS-1OC3-2PAK=</b>	Packet over SONET OC3 2 PACK Bundle
<b>WS-X6582-2PA</b>	Cisco7600/Catalyst6500 Enhanced FlexWAN, Fabric-enabled
<b>WS-X6582-2PA=</b>	Cisco7600/Catalyst6500 Enhanced FlexWAN, Fabric-enabled
<b>PA-4T+</b>	4-port Serial Port Adapter, Enhanced
<b>PA-4T+=</b>	4-port Serial Port Adapter, Enhanced
<b>PA-8T-V35</b>	8-port Serial, V.35 Port Adapter
<b>PA-8T-V35=</b>	8-port Serial, V.35 Port Adapter
<b>PA-8T-232</b>	8-port Serial, 232 Port Adapter
<b>PA-8T-232=</b>	8-port Serial, 232 Port Adapter
<b>PA-8T-X21</b>	8-port Serial, X.21 Port Adapter
<b>PA-8T-X21=</b>	8-port Serial, X.21 Port Adapter
<b>PA-H</b>	1-port HSSI Port Adapter
<b>PA-H=</b>	1-port HSSI Port Adapter, Spare

**Series Features Overview**

Product Number	Product Description
<b>CISCO 7600 FLEXWAN MODULE* continued</b>	
<b>PA-H=</b>	1-port HSSI Port Adapter, Spare
<b>PA-2H</b>	2-port HSSI Port Adapter
<b>PA-2H=</b>	2-port HSSI Port Adapter, Spare
<b>PA-A3-8E1IMA</b>	8-port ATM Inverse Mux E1 (120 Ohm) Port Adapter
<b>PA-A3-8E1IMA=</b>	8-port ATM Inverse Mux E1 (120 Ohm) Port Adapter, Spare
<b>PA-A3-8T1IMA</b>	8-port ATM Inverse Mux T1 Port Adapter
<b>PA-A3-8T1IMA=</b>	8-port ATM Inverse Mux T1 Port Adapter, Spare
<b>PA-A6-OC3MM</b>	1-port Enh ATM OC3c/STM1 Multimode Port Adapter
<b>PA-A6-OC3MM=</b>	1-port Enh ATM OC3c/STM1 Multimode Port Adapter
<b>PA-A6-OC3SML</b>	1-port Enh ATM OC3c/STM1 Singlemode (LR) Port Adapter
<b>PA-A6-OC3SML=</b>	1-port Enh ATM OC3c/STM1 Singlemode (LR) Port Adapter
<b>PA-A6-T3</b>	1-port Enh ATM DS3 Port Adapter
<b>PA-A6-T3=</b>	1-port Enh ATM DS3 Port Adapter
<b>PA-A6-E3</b>	1-port Enh ATM E3 Port Adapter
<b>PA-A6-E3=</b>	1-port Enh ATM E3 Port Adapter
<b>PA-E3</b>	1-port E3 Serial Port Adapter with E3 DSU
<b>PA-E3=</b>	1-port E3 Serial Port Adapter with E3 DSU
<b>PA-2E3</b>	2-port E3 Serial Port Adapter with E3 DSUs
<b>PA-2E3=</b>	2-port E3 Serial Port Adapter with E3 DSUs
<b>PA-T3+</b>	1-port T3 Serial Port Adapter Enhanced
<b>PA-T3+=</b>	1-port T3 Serial Port Adapter Enhanced
<b>PA-2T3+</b>	2-port T3 Serial Port Adapter Enhanced
<b>PA-2T3+=</b>	2-port T3 Serial Port Adapter Enhanced, Spare
<b>PA-MC-E3</b>	1-port Multi-Channel E3 port adapter
<b>PA-MC-E3=</b>	1-port Multi-Channel E3 port adapter
<b>PA-MC-T3</b>	1-port multichannel T3 port adapter
<b>PA-MC-T3=</b>	1-port multichannel T3 port adapter
<b>PA-MC-2E1/120</b>	2-port multichannel E1 port adapter with G.703 120ohm interf
<b>PA-MC-2E1/120=</b>	2-port multichannel E1 port adapter with G.703 120ohm interf
<b>PA-MC-2T3+</b>	2-port multichannel T3 port adapter
<b>PA-MC-2T3+=</b>	2-port multichannel T3 port adapter
<b>PA-MC-2T1</b>	2-port multichannel T1 port adapter with integrated CSU/DSUs
<b>PA-MC-2T1=</b>	2-port multichannel T1 port adapter with integrated CSU/DSUs
<b>PA-MC-4T1</b>	4-port multichannel T1 port adapter with integrated CSU/DSUs

Benefits & Advantages *continued*

Product Number	Product Description
<b>CISCO 7600 FLEXWAN MODULE* continued</b>	
<b>PA-MC-4T1=</b>	4-port multichannel T1 port adapter with integrated CSU/DSUs
<b>PA-POS-10C3</b>	1-port Packet/SONET OC3c/STM1 Port Adapter
<b>PA-POS-10C3=</b>	1-port Packet/SONET OC3c/STM1 Port Adapter
<b>PA-POS-20C3</b>	2-port Packet/SONET OC3c/STM1 Port Adapter
<b>PA-POS-20C3=</b>	2-port Packet/SONET OC3c/STM1 Port Adapter
<b>PA-MC-STM-1MM</b>	1-port multichannel STM-1multimode port adapter
<b>PA-MC-STM-1MM=</b>	1-port multichannel STM-1multimode port adapter
<b>PA-MC-STM-1SMI</b>	1-port multichannel STM-1 single mode port adapter
<b>PA-MC-STM-1SMI=</b>	1-port multichannel STM-1 single mode port adapter
<b>PA-MC-8TE1+</b>	8-port multichannel T1/E1 8PRI port adapter
<b>PA-MC-8TE1+=</b>	8-port multichannel T1/E1 8PRI port adapter
<b>CISCO 7600/CATALYST 6500 ETHERNET MODULES</b>	
<b>WS-X6548V-GE-TX</b>	Catalyst 6500 48-port fab-enabled 10/100/1000 inline pwr mod
<b>WS-X6548V-GE-TX=</b>	Catalyst 6500 48-port fab-enabled 10/100/1000 inline pwr mod
<b>WS-X6548-GE-TX</b>	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
<b>WS-X6548-GE-TX=</b>	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
<b>WS-X6548-GE-45AF</b>	Cat 6500 PoE 802.3af 10/100/1000 48-port(RJ45)CEF256 card
<b>WS-X6548-GE-45AF=</b>	Cat 6500 PoE 802.3af 10/100/1000 48-port(RJ45)CEF256 card
<b>WS-X6524-100FX-MM</b>	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
<b>WS-X6524-100FX-MM=</b>	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
<b>WS-X6408A-GBIC</b>	Catalyst 6000 8-port GbE, Enhanced QoS (Req. GBICs)
<b>WS-X6408A-GBIC=</b>	Catalyst 6000 8-port GbE, Enhanced QoS (Req. GBICs)
<b>WS-X6196-RJ-21</b>	Catalyst 6500 96-port 10/100 Upgradable - PoE 802.3af
<b>WS-X6196-RJ-21=</b>	Catalyst 6500 96-port 10/100 Upgradable - PoE 802.3af
<b>WS-X6196-21AF</b>	Catalyst 6500 96-port, PoE 802.3af 10/100 - RJ-21
<b>WS-X6196-21AF=</b>	Catalyst 6500 96-port, PoE 802.3af 10/100 - RJ-21
<b>WS-X6148X2-RJ-45</b>	Catalyst 6500 96-port 10/100 (RJ45), Upgradable to PoE 802.3af
<b>WS-X6148X2-RJ-45=</b>	Catalyst 6500 96-port 10/100 (RJ45), Upgradable to PoE 802.3af
<b>WS-X6148X2-45AF</b>	Catalyst 6500 PoE 802.3af 10/100, 96-port (RJ-45) line card
<b>WS-X6148X2-45AF=</b>	Catalyst 6500 PoE 802.3af 10/100, 96-port (RJ-45) line card
<b>WS-X6148V-GE-TX</b>	Catalyst 6500 48-port 10/100/1000 Inline Power Module, RJ-45
<b>WS-X6148V-GE-TX=</b>	Catalyst 6500 48-port 10/100/1000 Inline Power Module, RJ-45
<b>WS-X6148-RJ45V</b>	Catalyst 6500 48-port 10/100 Inline Power, RJ-45
<b>WS-X6148-RJ45V=</b>	Catalyst 6500 48-port 10/100 Inline Power, RJ-45
<b>WS-X6148-RJ-45</b>	Catalyst 6500 48-port 10/100, Upgradable to Voice, RJ-45

## Series Features Overview

Product Number	Product Description
<b>CISCO 7600/CATALYST 6500 ETHERNET MODULES continued</b>	
<b>WS-X6148-RJ-45=</b>	Catalyst 6500 48-port 10/100, Upgradable to Voice, RJ-45
<b>WS-X6148-RJ21V</b>	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
<b>WS-X6148-RJ21V=</b>	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
<b>WS-X6148-RJ-21</b>	Catalyst 6500 48-port 10/100 Upgradable to Voice, RJ-21
<b>WS-X6148-RJ-21=</b>	Catalyst 6500 48-port 10/100 Upgradable to Voice, RJ-21
<b>WS-X6148-GE-TX</b>	Catalyst 6500 48-port 10/100/1000 GbE Mod., RJ-45
<b>WS-X6148-GE-TX=</b>	Catalyst 6500 48-port 10/100/1000 GbE Mod., RJ-45
<b>WS-X6148-GE-45AF</b>	Catalyst 6500 PoE 802.3af 10/100/1000, 48-port(RJ45)line card
<b>WS-X6148-GE-45AF=</b>	Catalyst 6500 PoE 802.3af 10/100/1000, 48-port (RJ45) line card
<b>WS-X6148-FE-SFP</b>	Catalyst 6500 48-port 100Base-X module (require SFP)
<b>WS-X6148-FE-SFP=</b>	Catalyst 6500 48-port 100Base-X module (require SFP)
<b>WS-X6148A-RJ-45</b>	Catalyst 6500 48-port 10/100 w/TDR, Upgradable - PoE 802.3af
<b>WS-X6148A-RJ-45=</b>	Catalyst 6500 48-port 10/100 w/TDR, Upgradable - PoE 802.3af
<b>WS-X6148A-GE-TX</b>	Catalyst 6500 48-port 10/100/1000 w/Jumbo Frame, RJ-45
<b>WS-X6148A-GE-TX=</b>	Catalyst 6500 48-port 10/100/1000 w/Jumbo Frame, RJ-45
<b>WS-X6148A-GE-45AF</b>	Catalyst 6500 48-port PoE 802.3af 10/100/1000, w/Jumbo Frame
<b>WS-X6148A-GE-45AF=</b>	Catalyst 6500 48-port PoE 802.3af 10/100/1000, w/Jumbo Frame
<b>WS-X6148A-45AF</b>	Catalyst 6500 48-port PoE 802.3af 10/100,card w/TDR
<b>WS-X6148A-45AF=</b>	Catalyst 6500 48-port PoE 802.3af 10/100,card w/TDR
<b>WS-X6148-45AF</b>	Catalyst 6500 PoE 802.3af 10/100, 48-port(RJ45) line card
<b>WS-X6148-45AF=</b>	Catalyst 6500 PoE 802.3af 10/100, 48-port(RJ45) line card
<b>WS-X6148-21AF</b>	Catalyst 6500 PoE 802.3af 10/100, 48-port (RJ21) line card
<b>WS-X6148-21AF=</b>	Catalyst 6500 PoE 802.3af 10/100, 48-port (RJ21) line card
<b>WS-F6K-DFC</b>	Dist Fwd Card for 65xx, 6816 Modules used with SUP2
<b>WS-F6K-DFC=</b>	Dist Fwd Card for 65xx, 6816 Modules used with SUP2
<b>WS-X6516A-GBIC</b>	Catalyst 6500 16-port GbE Module, fabric-enabled (Req. GBICs)
<b>WS-X6516A-GBIC=</b>	Catalyst 6500 16-port GbE Module, fabric-enabled (Req. GBICs)
<b>WS-X6816-GBIC</b>	Catalyst 6500 16-port GbE module, 2 fab I/F, (Req GBICs, DFC/DFC3)
<b>WS-X6816-GBIC=</b>	Catalyst 6500 16-port GbE module, 2 fab I/F, (Req GBICs, DFC/DFC3)
<b>WS-X6548-RJ-21</b>	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
<b>WS-X6548-RJ-21=</b>	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
<b>WS-X6548-RJ-45</b>	Catalyst 6500 48-port 10/100, RJ-45, x-bar
<b>WS-X6548-RJ-45=</b>	Catalyst 6500 48-port 10/100, RJ-45, x-bar
<b>WS-X6516-GE-TX</b>	Catalyst 6500 16-port 10/100/1000 GbE Module, Cross-Bar
<b>WS-X6516-GE-TX=</b>	Catalyst 6500 16-port 10/100/1000 GbE Module, Cross-Bar, spare

Benefits & Advantages *continued*

Product Number	Product Description
<b>CISCO 7600/CATALYST 6500 ETHERNET MODULES <i>continued</i></b>	
<b>WS-X6748-GE-TX</b>	Catalyst 6500 48-port 10/100/1000 GbE Module, fabric enabled, RJ-45
<b>WS-X6748-GE-TX=</b>	Catalyst 6500 48-port 10/100/1000 GbE Module, fabric enabled, RJ-45
<b>WS-X6724-SFP</b>	Catalyst 6500 24-port GbE Module, fabric-enabled (Req. SFPs)
<b>WS-X6724-SFP=</b>	Catalyst 6500 24-port GbE Module, fabric-enabled (Req. SFPs)
<b>WS-X6748-SFP</b>	Catalyst 6500 48-port GbE Module, fabric-enabled (Req. SFPs)
<b>WS-X6748-SFP=</b>	Catalyst 6500 48-port CEF720 GbE module (Req. SFPs)
<b>WS-X6704-10GE</b>	Catalyst 6500 4-port 10 Gigabit Ethernet module (req. XENPAKs)
<b>WS-X6704-10GE=</b>	Catalyst 6500 4-port 10 Gigabit Ethernet module (req. XENPAKs)
<b>CISCO 7600 SERVICES MODULES</b>	
<b>SPA-IPSEC-2G</b>	Cisco 6500/7600 IPsec VPN SPA - DES/3DES/AES
<b>SPA-IPSEC-2G=</b>	Cisco 6500/7600 IPsec VPN SPA - DES/3DES/AES
<b>SPA-IPSEC-SSC400-1</b>	Cisco 6500/7600 IPsec VPN SPA Bundle 1 (system only)
<b>SPA-IPSEC-SSC400-2</b>	Cisco 6500/7600 IPsec VPN SPA Bundle 2 (system only)
<b>WS-SVC-ADM-1-K9</b>	Catalyst 6500 Cisco Anomaly Detection Module
<b>WS-SVC-ADM-1-K9=</b>	Catalyst 6500 Cisco Anomaly Detection Module
<b>WS-SVC-AGM-1-K9</b>	Catalyst 6500 Cisco Anomaly Guard Module
<b>WS-SVC-AGM-1-K9=</b>	Catalyst 6500 Cisco Anomaly Guard Module
<b>WS-SVC-CMM</b>	Communication Media Module
<b>WS-SVC-CMM-24FXS</b>	24-port FXS Interface Port Adapter
<b>WS-SVC-CMM-24FXS=</b>	24-port FXS Interface Port Adapter
<b>WS-SVC-CMM-6E1</b>	6-port E1 Interface Port Adapter
<b>WS-SVC-CMM-6E1=</b>	6-port E1 Interface Port Adapter
<b>WS-SVC-CMM-6T1</b>	6-port T1 Interface Port Adapter
<b>WS-SVC-CMM-6T1=</b>	6-port T1 Interface Port Adapter
<b>WS-SVC-CMM-ACT</b>	Adhoc Conferencing and Transcoding PA
<b>WS-SVC-CMM-ACT=</b>	Adhoc Conferencing and Transcoding PA
<b>WS-SVC-CMM-BLANK</b>	CMM module Blank Panel Cover
<b>WS-SVC-CMM-BLANK=</b>	CMM module Blank Panel Cover
<b>WS-SVC-CMM=</b>	Communication Media Module
<b>WS-SVC-IDS2-BUN-K9</b>	600M IDS-2 Mod for Cat
<b>WS-SVC-IDS2BUNK9=</b>	600M IDS-2 Mod Spare
<b>WS-SVC-FWM-1-K9</b>	Firewall blade for 6500 and 7600, VFW License Separate
<b>WS-SVC-FWM-1-K9=</b>	Firewall blade for 6500 and 7600, VFW License Separate
<b>WS-SVC-NAM-1</b>	Catalyst 6500 Network Analysis Module-1
<b>WS-SVC-NAM-1=</b>	Catalyst 6500 Network Analysis Module-1

## Series Features Overview

Product Number	Product Description
<b>CISCO 7600 SERVICES MODULES <i>continued</i></b>	
<b>WS-SVC-NAM-2</b>	Catalyst 6500 Network Analysis Module-2
<b>WS-SVC-NAM-2=</b>	Catalyst 6500 Network Analysis Module
<b>WS-SVC-PSD-1</b>	Persistent Storage Device
<b>WS-SVC-PSD-1=</b>	Persistent Storage Device
<b>WS-X6066-SLB-APC</b>	Catalyst 6000 Content Switching Module
<b>WS-X6066-SLB-APC=</b>	Catalyst 6500/7600 Content Switching Module
<b>WS-X6066-SLB-S-K9</b>	Content Switching Module with SSL daughter card
<b>WS-X6066-SLB-S-K9=</b>	Content Switching Module with SSL daughter card
<b>WS-SVC-SSL-1-K9</b>	SSL Module for Catalyst 6500
<b>WS-SVC-SSL-1-K9=</b>	SSL Module for Catalyst 6500
<b>WS-SVC-SSL-CSM-K9=</b>	Catalyst 6500 SSL and CSM Bundle
<b>WS-SVC-MWAM-1</b>	Multi-Processor WAN Application Module
<b>WS-SVC-MWAM-1=</b>	Multi-Processor WAN Application Module
<b>WS-SVC-CSG-1</b>	Content Services Gateway
<b>WS-SVC-CSG-1=</b>	Content Services Gateway
<b>WS-SVC-WEBVPN-K9</b>	SSL VPN Module for Catalyst 6500
<b>WS-SVC-WEBVPN-K9=</b>	SSL VPN Module for Catalyst 6500
<b>SC-ADM-4.0-K9</b>	Cisco Traffic Anomaly Detector Module MVP-OS R4.0 Software
<b>SC-SBC-NAP-CSG1-1</b>	No App Image For WS-SVC-CSG-1=
<b>CISCO 7600 GBICS, OPTICS AND XENPAKS</b>	
<b>WS-G5484</b>	1000BASE-SX Short Wavelength GBIC (Multimode only)
<b>WS-G5484=</b>	1000BASE-SX Short Wavelength GBIC (Multimode only)
<b>WS-G5486</b>	1000BASE-LX/LH long haul GBIC (singlemode or multimode)
<b>WS-G5486=</b>	1000BASE-LX/LH long haul GBIC (singlemode or multimode)
<b>WS-G5487</b>	1000Base-ZX extended reach GBIC(singlemode)
<b>WS-G5487=</b>	1000Base-ZX extended reach GBIC(singlemode)
<b>CWDM-GBIC-1470=</b>	1000BASE-CWDM 1470 nm GBIC (single mode only)
<b>CWDM-GBIC-1490=</b>	1000BASE-CWDM 1490 nm GBIC (single mode only)
<b>CWDM-GBIC-1510=</b>	1000BASE-CWDM 1510 nm GBIC (single mode only)
<b>CWDM-GBIC-1530=</b>	1000BASE-CWDM 1530 nm GBIC (single mode only)
<b>CWDM-GBIC-1550=</b>	1000BASE-CWDM 1550 nm GBIC (single mode only)
<b>CWDM-GBIC-1570=</b>	1000BASE-CWDM 1570 nm GBIC (single mode only)
<b>CWDM-GBIC-1590=</b>	1000BASE-CWDM 1590 nm GBIC (single mode only)
<b>CWDM-GBIC-1610=</b>	1000BASE-CWDM 1610 nm GBIC (single mode only)
<b>CWDM-MUX8A=</b>	8-channels CWDM MUX/DEMUX Module

Ordering Information continued

Product Number	Product Description
<b>CISCO 7600 GBICS, OPTICS AND XENPAKS continued</b>	
<b>CWDM-OADM1-1470=</b>	Dual single channel OADM Module (1470nm)
<b>CWDM-OADM1-1490=</b>	Dual single channel OADM Module (1490nm)
<b>CWDM-OADM1-1510=</b>	Dual single channel OADM Module (1510nm)
<b>CWDM-OADM1-1530=</b>	Dual single channel OADM Module (1530nm)
<b>CWDM-OADM1-1550=</b>	Dual single channel OADM Module (1550nm)
<b>CWDM-OADM1-1570=</b>	Dual single channel OADM Module (1570nm)
<b>CWDM-OADM1-1590=</b>	Dual single channel OADM Module (1590nm)
<b>CWDM-OADM1-1610=</b>	Dual single channel OADM Module (1610nm)
<b>CWDM-OADM4-1=</b>	4-channels CWDM OADM Module (1470, 1490, 1510, 1530)
<b>CWDM-OADM4-2=</b>	4-channels CWDM OADM Module (1550, 1570, 1590, 16100)
<b>WDM-1300-1550-S=</b>	1300nm/1550nm WDM splitter cable
<b>CWDM-CHASSIS-2=</b>	2 Slot Chassis for CWDM Mux Plug in Modules
<b>XENPAK-10GB-CX4</b>	Cisco 10GBASE-CX4 XENPAK Module
<b>XENPAK-10GB-LR</b>	10GBASE-LR XENPAK Module
<b>XENPAK-10GB-LR=</b>	10GBASE-LR XENPAK module
<b>XENPAK-10GB-LX4</b>	10GBASE-LX4 XENPAK Module
<b>XENPAK-10GB-LX4=</b>	10GBASE-LX4 XENPAK Module
<b>XENPAK-10GB-SR</b>	10GBASE-SR XENPAK Module
<b>XENPAK-10GB-SR=</b>	10GBASE-SR XENPAK Module
<b>XENPAK-10GB-ZR</b>	10GBASE-ZR XENPAK Module
<b>XENPAK-10GB-ZR=</b>	10GBASE-ZR XENPAK Module
<b>GLC-LH-SM</b>	GbE SFP, LC connector LX/LH transceiver
<b>GLC-LH-SM=</b>	GbE SFP, LC connector LX/LH transceiver
<b>GLC-SX-MM</b>	GbE SFP, LC connector SX transceiver
<b>GLC-SX-MM=</b>	GbE SFP, LC connector SX transceiver
<b>GLC-SX-MM24</b>	24 GLC-SX-MM SFP
<b>GLC-ZX-SM</b>	1000BASE-ZX SFP
<b>GLC-ZX-SM=</b>	1000BASE-ZX SFP
<b>GLC-T</b>	1000BASE-T SFP
<b>GLC-T=</b>	1000BASE-T SFP
<b>GLC-T24</b>	24 GLC-T SFP
<b>SFP-GE-L</b>	1000BASE-LX/LH SFP (DOM)
<b>SFP-GE-L=</b>	1000BASE-LX/LH SFP (DOM)
<b>SFP-GE-S</b>	1000BASE-SX SFP (DOM)
<b>SFP-GE-S=</b>	1000BASE-SX SFP (DOM)

Ordering Information continued

Product Number	Product Description
<b>CISCO 7600 GBICS, OPTICS AND XENPAKS continued</b>	
<b>SFP-GE-Z</b>	1000BASE-ZX Gigabit Ethernet SFP (DOM)
<b>SFP-GE-Z=</b>	1000BASE-ZX Gigabit Ethernet SFP (DOM)
<b>SFP-OC3-IR1</b>	OC3/STM1 SFP, Single-mode fiber, Intermediate Reach
<b>SFP-OC3-IR1=</b>	OC3/STM1 SFP, Single-mode fiber, Intermediate Reach
<b>SFP-OC3-LR1</b>	OC3/STM1 SFP, Single-mode fiber, Long Reach (40km)
<b>SFP-OC3-LR1=</b>	OC3/STM1 SFP, Single-mode fiber, Long Reach (40km)
<b>SFP-OC3-LR2</b>	OC3/STM1 SFP, Single-mode fiber, Long Reach (80km)
<b>SFP-OC3-LR2=</b>	OC3/STM1 SFP, Single-mode fiber, Long Reach (80km)
<b>SFP-OC12-IR1</b>	OC-12/ STM-4 SFP, Intermediate Reach (15km)
<b>SFP-OC12-IR1=</b>	OC-12/ STM-4 SFP, Intermediate Reach (15km)
<b>SFP-OC12-LR1</b>	OC-12/ STM-4 SFP, Long Reach (40km)
<b>SFP-OC12-LR1=</b>	OC-12/ STM-4 SFP, Long Reach (40km)
<b>SFP-OC12-LR2</b>	OC-12/ STM-4 SFP, Long Reach (80km)
<b>SFP-OC12-LR2=</b>	OC-12/ STM-4 SFP, Long Reach (80km)
<b>SFP-OC48-IR1</b>	OC-48c/STM-16c
<b>SFP-OC48-IR1=</b>	OC-48c/STM-16c
<b>SFP-OC48-SR</b>	OC-48c/STM-16c SFP, Short Reach
<b>SFP-OC48-SR=</b>	OC-48c/STM-16c SFP, Short Reach
<b>XFP-10GLR-OC192SR</b>	Multirate XFP module for 10GBASE-LR and OC192 SR-1
<b>XFP-10GLR-OC192SR=</b>	Multirate XFP module for 10GBASE-LR and OC192 SR-1
<b>XFP-10GZR-OC192LR</b>	10GBASE-ZR and OC192 LR2 XFP Module
<b>XENPAK-10GB-LW</b>	10GBASE-LW XENPAK Module
<b>XENPAK-10GB-LW=</b>	10GBASE-LW XENPAK Module

## Cisco Catalyst 6500 Series



The Cisco Catalyst® 6500 sets the new standard for IP Communications, MPLS networks and application delivery in enterprise campus and service provider networks. The Catalyst 6500 Series delivers scalable, secure, converged, L2 and L3 services, from the data center and campus to the WAN aggregation and the Internet edge.

Delivering scalable performance and port density with investment protection across several chassis configurations and LAN, WAN, and MAN interfaces, the Catalyst 6500 Series switches feature an unparalleled range of integrated services modules, including multi-gigabit network security, content switching, telephony, and network analysis modules.

The Catalyst 6500 Series delivers a consistent network operating environment through an architecture that uses a common set of modules and Cisco IOS software across all models. This helps to optimize IT infrastructure usage and enhance return on investment. With connectivity for services ranging from DS0 to OC-192, and nx10-MbpsEthernet to high-density 10-Gigabit Ethernet, the Catalyst 6500 Series with IOS software modularity maximizes network uptime with stateful failover capability between redundant routing and forwarding engines.

The Cisco Catalyst 6500 Series demonstrates an ongoing commitment to innovation with numerous industry-leading features. Support for Flexible Packet Matching and Application Intelligence in hardware is the latest example of Catalyst 6500 Series innovation, benefiting WAN service aggregation and Internet edge deployments by securing the enterprise network against attack, as well as monitoring and prioritizing mission-critical applications versus discretionary traffic for maximum business efficiency.

### Benefits and Advantages

#### Maximum Network Uptime

Cisco IOS Software Modularity, together with platform, power supply, supervisor engine, switch fabric, and integrated services redundancy provides one-to-three second stateful failover, and delivers application and services continuity in a converged network. The Cisco Catalyst 6500 Series with Cisco IOS Software Modularity boosts operational efficiency and minimizes downtime by enabling modular Cisco IOS subsystems to run in independent processes. This minimizes unplanned downtime through self-healing processes, simplifies software changes through subsystem In-Service Software Upgrades (ISSU), and enables process-level, automated policy control by integrating Cisco Embedded Event Manager (EEM).

**Benefits & Advantages** continued**Integrated Security**

A comprehensive portfolio of proven and integrated multi-gigabit security services modules are available with the Catalyst 6500 Series. Integrated network security simplifies operations and reduces total cost of ownership. Cisco Catalyst 6500 security service modules include intrusion detection, firewall, scalable IPsec VPN solutions and Secure Sockets Layer (SSL).

**Services Integration and Flexibility**

Catalyst 6500 Series application intelligence with PISA technology helps ensure application performance and security in converged data, voice, video, and wireless Campus and WAN environments. Catalyst 6500 supports a wide range of integrated and advanced services such as security, wireless LAN, and Layer 4-7 content services; provides the widest range of interfaces and densities from 10/100/1000 Ethernet to 10 Gigabit, and DS-0 to OC-192; and performs in deployments from the data center, to the Campus and WAN edge.

**Scalable Performance**

Cisco Catalyst 6500 Series provides up to 400 Mpps performance with a distributed forwarding

architecture that supports a mix of Cisco Express Forwarding implementations and switch-fabric speeds for optimal data center, campus, and WAN edge deployments, as well as service provider networks. Catalyst 6500 Series provides consistent and scalable routing services to maximize application performance to branch offices over the WAN with advanced IOS routing solutions.

**Operational Consistency**

Featuring 3-, 4-, 6-, 9-, and 13-slot chassis configurations, Catalyst 6500 Series shares a common set of modules, Cisco IOS Software, Cisco Catalyst Operating System Software, and network management tools. Catalyst 6500 Series can be deployed across the network from the core network to the WAN and Internet edge, simplifying network operations and reducing spares expense.

**Validated Solutions**

All Cisco Catalyst 6500 Series applications are tested in Safe Harbor, with the recent addition of enterprise WAN applications for an End-to-End tested solution.

**Features Section****Operational Consistency**

- Shares WAN SIP and SPA modules with Cisco 7304 Router, 7600, 10000, 12000 Series and CRS-1 to reduce spares and training costs
- Shares WAN port adapters with Cisco 7500 Series routers for smooth migration and investment protection
- Cisco IOS Software and Cisco Catalyst Operating System Software supported on all supervisor engines, providing smooth migration from Cisco 7500 Series deployments; comprehensive CatOS to IOS migration tool
- Investment Protection with support for three generations of interchangeable, hot-swappable modules in the same chassis

**Network Uptime and Resiliency**

- Cisco Catalyst 6500 Series with Cisco IOS Software Modularity boosts operational efficiency and minimizes downtime
- Provides packet-loss protection and the fastest recovery from network disruption
- Offers optional, redundant, high-performance Cisco Catalyst 6500 Series Supervisor Engine 720, passive backplane, multimodule Cisco EtherChannel technology, IEEE 802.3ad link aggregation, IEEE 802.1s only, and Hot Standby Router Protocol/Virtual Router Redundancy Protocol (HSRP/VRRP) high-availability features

**Features Section** continued**Integrated High-Performance Network Security**

Integrated gigabit-per-second services modules, simplify network management and reduce TCO. These include:

- Firewall Services Module provides access security
- Intrusion Detection System (IDS) Services Module provides intrusion detection and prevention services
- Network Analysis Service Module provides network traffic visibility with full Remote Monitoring (RMON) support and graphical reporting capability
- SSL Service Module provides high-performance, secure e-commerce traffic termination
- IPsec VPN Shared Port Adapter (SPA) provides secure, cost-efficient connectivity, with support for Cisco advanced IPsec VPN solutions such as Dynamic Multipoint VPN and Easy VPN.
- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support.

**Content and Application Services**

- Catalyst 6500 Supervisor Engine 32 PISA (Programmable Intelligent Services Accelerator) monitors, classifies, and controls application traffic in the campus and at the WAN edge. Hardware accelerated Network-Based Application Recognition (NBAR) enhances network management and bandwidth utilization
- Content Switching Module (CSM) delivers high-performance, feature-rich server and firewall load balancing to ensure a safer and more manageable infrastructure with unprecedented control
- Integrated SSL acceleration, combined with CSM, provides a high-performance e-commerce solution
- Integrated firewall and CSM provides a secure, high-performance, data center solution

**Layer 3 Services**

- Multiprotocol Layer 3 routing support with scalable routing table support in hardware
- IPv6 support in hardware with comprehensive services
- Multiprotocol Label Switching (MPLS) in hardware with comprehensive L2 -L3 VPN services
- VPLS and H-VPLS support

**Data, Voice, and Video Services**

- Integrated IP Communications support in all Cisco Catalyst 6500 Series platforms
- 10/100 and 10/100/1000 line cards; field-upgradable with inline power
- IEEE 802.3af Power over Ethernet (PoE) support; Cisco Inline Power support
- Dense T1/E1 and FXS, voice interfaces for PSTN access and phone, fax, and PBX connections
- High-performance IP Multicast video and audio application support
- Integrated management systems

**Interface Flexibility, Scalability, and Density**

- Port density and interface options for data center, campus, and WAN/Internet edge deployments
- Broad range of high-speed WAN, ATM, and SONET interfaces
- Support for up to 576 10/100/1000 gigabit-over-copper ports or 1152 10/100 Ethernet ports
- 96-port 10/100 RJ-45 module, with optional field-upgrade to 802.3af PoE
- Support for up to 192 Gigabit Ethernet ports
- 10 Gigabit Ethernet, Channelized OC-48 dense OC-3 packet over SONET (POS)
- Single-device management for WAN aggregation, campus, and metro connectivity
- Layer 3 routing and forwarding with upgradable supervisor engines

**Metro Ethernet WAN**

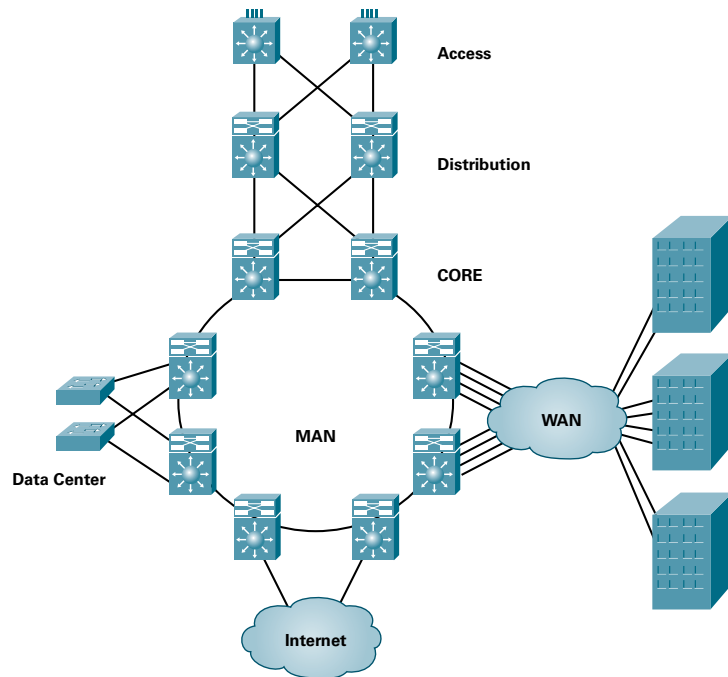
- 802.1Q and 802.1Q tunneling (QinQ) for point-to-point and multipoint Ethernet services
- Ethernet over MPLS with VLAN translation capability
- Layer 2 - Layer 3 quality of service (QoS) with rate limiting and traffic shaping
- High-availability features - enhanced Spanning Tree Protocol, IEEE 802.1s, IEEE 802.1w, and Cisco EtherChannel IEEE 802.3ad link aggregation

## When to Deploy

The Catalyst 6500 Series is ideal for addressing high-performance applications such as:

- Enterprise WAN Service Aggregation
- Leased Line Aggregation
- IP/MPLS Provider Edge or Provider router
- MPLS HA
- Metro Ethernet
- High-end CPE

## Application Example



## Platform Overview

Feature	Cisco 6503-E	Cisco 6504-E	Cisco 6506-E	Cisco 6509-E	Cisco 6513
<b>Fixed Ports</b>	SFP, 10GbE X2 & 10/100/1000	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Expansion Slots</b>	3 (horizontal)	4 (horizontal)	6 (horizontal)	9 (horizontal)	13 (horizontal)
<b>WAN Interface Range</b>	DS0 to OC192	DS0 to OC192	DS0 to OC192	DS0 to OC192	DS0 to OC192

## Platform Overview continued

Feature	Cisco 6503-E	Cisco 6504-E	Cisco 6506-E	Cisco 6509-E	Cisco 6513
<b>Fixed Ports</b>	SFP, 10GbE X2 & 10/100/1000	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Expansion Slots</b>	3 (horizontal)	4 (horizontal)	6 (horizontal)	9 (horizontal)	13 (horizontal)
<b>WAN Interface Range</b>	DS0 to OC192	DS0 to OC192	DS0 to OC192	DS0 to OC192	DS0 to OC192
<b>Processor</b>	Supervisor32 Supervisor32 PISA Supervisor720-3B Supervisor-3BXL	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Forwarding Rate</b>	Up to 30 Mpps	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Backplane capacity</b>	240 Gpbs	320 Gpbs	480 Gpbs	720 Gpbs	720 Gpbs
<b>Flash</b>	Up to 512 MB	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>PCMCIA memory</b>	Sup32 Up to 1G on Sup720				
<b>System DRAM memory</b>	Up to 512 MB on Sup32 Up to 1G on Sup720	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Internal Power Supply</b>	AC or DC	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>RPS support</b>	Yes	Same as 6503-E	Same as 6503-E	Same as 6503-E	Same as 6503-E
<b>Chassis height</b>	4RU	5RU	12RU	15RU	20RU
<b>Dimensions (HxWxD)</b>	7 x 17.37 x 21.75 in.	4.25 x 17.0 x 4.5 in.	19.2 x 17.5 x 18.2 in.	24.5 x 17.5 x 18.2 in.	33.3 x 17.3 x 18.1 in.

## Ordering Information

Product Number	Product Description
<b>CISCO 6513 SYSTEMS</b>	
<b>WS-C6513</b>	Catalyst 6500 13-slot Chassis, 20-RU, No PS, No Fan Tray
<b>WS-C6513-S32-GE</b>	Catalyst 6513 Chassis, WS-SUP32-GE-3B, Fan Tray (req. P/S)
<b>WS-C6513-S32-10GE</b>	Catalyst 6513 Chassis, WS-SUP32-10GE-3B, Fan Tray (req. P/S)
<b>WS-C6513-VPN+-K9</b>	Catalyst 6513 IPSec VPN SPA Security System
<b>WS-C6513-FWM-K9</b>	Catalyst 6513 Firewall Security System
<b>WS-C6513-CSM</b>	CSM, 6513, Sup720 Bundle
<b>WS-C6513-CSMS-K9</b>	CSM-S, 6513, Sup720 Bundle

Ordering Information continued

Product Number	Product Description
<b>CISCO 6509-E SYSTEMS</b>	
<b>WS-C6509-E</b>	Catalyst 6500 Enhanced 9-slot Chassis, 15-RU, No PS, No Fan Tray
<b>WS-C6509E-S32-GE</b>	Catalyst 6509E Chassis, WS-SUP32-GE-3B, Fan Tray (req. P/S)
<b>WS-C6509E-S32-10GE</b>	Catalyst 6509E Chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
<b>WS-C6509-E-PFC2</b>	Catalyst 6509-E Chassis, FAN TRAY, Sup2-PFC2 no PwrSup
<b>WS-C6509-E-VPN+-K9</b>	Catalyst 6509E IPSec VPN SPA Security System
<b>WS-C6509-E-FWM-K9</b>	Catalyst 6509E Firewall Security System
<b>WS-C6509-E-ACE-K9</b>	ACE 8G 6509 Bundle
<b>WS-C6509-E-WISM</b>	Catalyst 6509-E WiSM bundle(SUP720-3B,WiSM, Fan Tray, no P/S)
<b>WS-C6509E-CSM</b>	CSM, 6509, Sup720 Bundle
<b>WS-C6509E-CSMS-K9</b>	CSM-S, 6509, Sup720 Bundle
<b>CISCO 6506-E SYSTEMS</b>	
<b>WS-C6506-E</b>	Catalyst 6500 Enhanced 6-slot Chassis, 12-RU, No PS, No Fan Tray
<b>WS-C6506E-S32-GE</b>	Catalyst 6506E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
<b>WS-C6506E-S32-10GE</b>	Catalyst 6506E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
<b>WS-C6506-E-PFC2</b>	Catalyst 6506E, Sup2-PFC2, Fan Tray, No PwrSup
<b>WS-C6506E-IPS10GK9</b>	6506E+4 x IDSM2+ Sup32 + 2 10GbE XENPAKs and Pwr
<b>WS-C6506E-IPSF-K9</b>	6506E+4 x IDSM2+ Sup32 + 8 Fiber SFP and Pwr
<b>WS-C6506-E-VPN+-K9</b>	Catalyst 6506E IPSec VPN SPA Security System
<b>WS-C6506-E-FWM-K9</b>	Catalyst 6506E Firewall Security System
<b>WS-C6506-E-WLSM</b>	Catalyst 6506 with WLSM Bundle
<b>CISCO 6504-E SYSTEMS</b>	
<b>WS-C6504-E</b>	Catalyst 6500 Enhanced 4-slot Chassis, 5-RU, No PS, No Fan Tray
<b>WS-C6504E-S32-GE</b>	6504-E Chassis + Fan Tray + Sup32-GE
<b>WS-C6504E-S32-10GE</b>	6504-E Chassis + Fan Tray + Sup32-10GE
<b>WS-C6504-E-VPN+-K9</b>	Catalyst 6504E IPSec VPN SPA Security System
<b>WS-C6504-E-ACE-K9</b>	ACE 4G 6504 Bundle
<b>WS-C6504-E-WISM</b>	Catalyst 6504-E WiSM Bundle (SUP720-3B,WiSM, Fan Tray, (2) P/S)
<b>CISCO 6503-E SYSTEMS</b>	
<b>WS-C6503-E</b>	Catalyst 6500 Enhanced 3-slot Chassis, 4-RU, No PS, No Fan Tray
<b>WS-C6503E-S32-GE</b>	Catalyst 6503E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
<b>WS-C6503E-S32-10GE</b>	Catalyst 6503E Chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
<b>WS-C6503-E-FWM-K9</b>	Cisco Catalyst 6503E Firewall Security System
<b>WS-C6503-E-WLSM</b>	Catalyst 6503 with WLSM Bundle

Ordering Information continued

<b>WS-C6503E-CSM</b>	CSM, 6503, Sup720 Bundle
<b>WS-C6503E-CSMS-K9</b>	CSM-S, 6503, Sup720 Bundle
<b>CISCO 6500 FLEXWAN MODULES AND PORT ADAPTER MODULES</b>	
<b>WS-X6582-2PA=</b>	Cisco 7600/Catalyst6500 Enhanced FlexWAN, Fabric-enabled
<b>PA-4T+</b>	4-port Serial Port Adapter, Enhanced
<b>PA-8T-V35</b>	8-port Serial, V.35 Port Adapter
<b>PA-8T-232</b>	8-port Serial, 232 Port Adapter
<b>PA-8T-X21</b>	8-port Serial, X.21 Port Adapter
<b>PA-MC-2T1</b>	2-port Multichannel T1 Port Adapter with Integrated CSU/DSUs
<b>PA-MC-4T1</b>	4-port Multichannel T1 Port Adapter with Integrated CSU/DSUs
<b>PA-MC-8T1</b>	8-port Multichannel T1 8PRI Port Adapter
<b>PA-MC-8TE1+</b>	8-port Multichannel T1/E1 8PRI Port Adapter
<b>PA-MC-8E1/120</b>	8-port Multichannel E1 Port Adapter with G.703 120ohm interf
<b>PA-MC-2E1/120</b>	2-port Multichannel E1 Port Adapter with G.703 120ohm interf
<b>PA-4E1G/75</b>	4-port E1 G.703 Serial Port Adapter (75ohm/Unbalanced)
<b>PA-4E1G/120</b>	4-port E1 G.703 Serial Port Adapter (120ohm/Balanced)
<b>PA-T3</b>	1-port T3 Serial Port Adapter
<b>PA-T3+</b>	1-port T3 Serial Port Adapter Enhanced
<b>PA-E3</b>	1-port E3 Serial Port Adapter with E3 DSU
<b>PA-2T3</b>	2-port T3 Serial Port Adapter
<b>PA-2T3+</b>	2-port T3 Serial Port Adapter Enhanced
<b>PA-2E3</b>	2-port E3 Serial Port Adapter with E3 DSUs
<b>PA-MC-T3</b>	1-port multichannel T3 Port Adapter
<b>PA-MC-2T3+</b>	2-port multichannel T3 Port Adapter
<b>PA-MC-E3</b>	1-port Multi-Channel E3 Port Adapter
<b>PA-MC-STM-1MM</b>	1-port Multichannel STM-1 Multimode Port Adapter
<b>PA-MC-STM-1SMI</b>	1-port Multichannel STM-1 Single-mode Port Adapter
<b>PA-T3</b>	1-port T3 Serial Port Adapter
<b>PA-T3+</b>	1-port T3 Serial Port Adapter Enhanced
<b>PA-E3</b>	1-port E3 Serial Port Adapter with E3 DSU
<b>PA-2T3</b>	2-port T3 Serial Port Adapter
<b>PA-2T3+</b>	2-port T3 Serial Port Adapter Enhanced
<b>PA-2E3</b>	2-port E3 Serial Port Adapter with E3 DSUs
<b>PA-MC-T3</b>	1-port multichannel T3 port adapter
<b>PA-MC-2T3+</b>	2-port multichannel T3 port adapter



## Ordering Information continued

<b>PA-MC-E3</b>	1-port Multichannel E3 Port Adapter
<b>PA-MC-STM-1MM</b>	1-port Multichannel STM-1 Multimode Port Adapter
<b>PA-MC-STM-1SMI</b>	1-port Multichannel STM-1 Single-mode Port Adapter
<b>PA-A3-T3</b>	1-port ATM Enhanced DS3 Port Adapter
<b>PA-A3-E3</b>	1-port ATM Enhanced E3 Port Adapter
<b>PA-A3-OC3MM</b>	1-port ATM Enhanced OC3c/STM1 Multimode Port Adapter
<b>PA-A3-OC3SMI</b>	1-port ATM Enhanced OC3c/STM1 Single-mode (IR) Port Adapter
<b>PA-A3-OC3SML</b>	1-port ATM Enhanced OC3c/STM1 Singlemode (LR) Port Adapter
<b>PA-A3-8T1IMA</b>	8-port ATM Inverse Mux T1 Port Adapter
<b>PA-A3-8E1IMA</b>	8-port ATM Inverse Mux E1 (120 Ohm) Port Adapter
<b>PA-A6-OC3MM</b>	1-port Enh ATM OC3c/STM1 Multimode Port Adapter (8k VCs)
<b>PA-A6-OC3SMI</b>	1-port Enh ATM OC3c/STM1 Single-mode (IR) Port Adapter
<b>PA-A6-T3</b>	1-port Enh ATM DS3 Port Adapter (8kVCs)
<b>PA-A6-E3</b>	1-port Enh ATM E3 Port Adapter (8k VCs)
<b>PA-POS-OC3MM</b>	1-port POS OC3SM STM1 Multimode Port Adapter
<b>PA-POS-OC3SMI</b>	1-port POS OC3SM STM1 Single-mode Intermedia Reach Port Adapter
<b>PA-POS-OC3SML</b>	1-port POS OC3SM STM1 Single-mode Long Reach Port Adapter
<b>PA-POS-2OC3</b>	2-port POS OC3c/STM1 Port Adapter
<b>PA-POS-2OC3MM</b>	2-port POS OC3SM STM1 Multimode Port Adapter
<b>PA-POS-2OC3SMI</b>	2-port POS OC3SM STM1 Single-mode Intermedia Reach Port Adapter
<b>PA-POS-2OC3SML</b>	2-port POS OC3SM STM1 Single-mode Long Reach Port Adapter
<b>PA-H</b>	1-port HSSI Port Adapter
<b>PA-2H</b>	2-port HSSI Port Adapter
<b>PA-FE-TX</b>	1-port Fast Ethernet Port Adapter
<b>PA-FE-FX</b>	1-port Fast Ethernet Port Adapter, fiber
<b>PA-2FE-TX</b>	2-port Fast Ethernet Port Adapter
<b>PA-2FE-FX</b>	2-port Fast Ethernet Port Adapter, fiber

## CISCO 7600 AND CATALYST 6500 SIP MODULES AND SPA MODULES

<b>7600-SIP-200=</b>	Cisco 7600/6500 Series SPA Interface Processor-200
<b>7600-SIP-400=</b>	Cisco 7600/6500 Series SPA Interface Processor-400
<b>7600-SIP-600=</b>	Cisco 7600/6500 Series SPA Interface Processor-600
<b>SPA-2XOC3-ATM=</b>	2-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-2XOC3-POS=</b>	2-port OC3/STM1 POS Shared Port Adapter
<b>SPA-4XOC3-ATM=</b>	4-port OC-3c/STM-1 ATM Shared Port Adapter
<b>SPA-1XCHSTM1/OC3=</b>	1-port Channelized STM-1/OC-3c to DS0 Shared Port Adapter

## Ordering Information continued

<b>SPA-1XOC12-POS=</b>	1-port OC12/STM4 POS Shared Port Adapters
<b>SPA-1XOC12-ATM=</b>	1-port OC-12c/STM-4 ATM Shared Port Adapter
<b>SPA-1XOC48POS/RPR=</b>	1-port OC48/STM16 POS/RPR Shared Port Adapters
<b>SPA-2XT3/E3=</b>	2-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-4XT3/E3=</b>	4-port Clear Channel T3/E3 Shared Port Adapter
<b>SPA-4X1FE-TX-V2=</b>	4-port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-2XCT3/DS0=</b>	2-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-4XCT3/DS0=</b>	4-port Channelized T3 to DS0 Shared Port Adapter
<b>SPA-1XOC48-ATM=</b>	1-port OC-48c/STM-16 ATM Shared Port Adapter
<b>SPA-1XTENGE-XFP=</b>	1-port 10Gigabit Ethernet Shared Port Adapter XFP-based
<b>SPA-2X1GE=</b>	2-port Gigabit Ethernet Shared Port Adapter
<b>SPA-5X1GE=</b>	5-port Gigabit Ethernet Shared Port Adapter
<b>SPA-8XCHT1/E1=</b>	8-port Channelized T1/E1 to DS0 Shared Port Adapter
<b>SPA-8X1FE-TX-V2=</b>	8-Port Fast Ethernet (TX) Shared Port Adapter
<b>SPA-10X1GE=</b>	10-port Gigabit Ethernet Shared Port Adapter
<b>SPA-OC192POS-LR=</b>	1-port OC192/STM64 POS/RPR SMLR Optics
<b>SPA-OC192POS-VSR=</b>	1-port OC192/STM64 POS/RPR VSR Optics
<b>SPA-OC192POS-XFP=</b>	1-port OC192/STM64 POS/RPR XFP Optics
<b>WS-X6704-10GE=</b>	4-port 10 Gigabit Ethernet Module (req. XENPAKs)
<b>WS-X6708-10G-3C=</b>	8-port 10 Gigabit Ethernet module with DFC3C (req. X2)
<b>WS-X6708-10G-3CXL=</b>	8-port 10 Gigabit Ethernet module with DFC3CXL (req. X2)
<b>WS-X6516A-GBIC=</b>	16-port GbE Module, Fabric-enabled (Req. GBICs)
<b>WS-X6724-SFP=</b>	24-port GbE Module, Fabric-enabled (Req. SFPs)
<b>WS-X6748-SFP=</b>	48-port CEF720 GbE Module (Req. SFPs)
<b>WS-X6748-GE-TX=</b>	48-port 10/100/1000 GbE Module, Fabric-enabled, RJ-45
<b>WS-X6148X2-RJ-45=</b>	96-port 10/100 (RJ45), Upgradable to PoE 802.3af
<b>WS-X6148X2-45AF=</b>	96-port PoE 802.3af 10/100 (RJ-45) Line Card
<b>WS-X6816-GBIC=</b>	16-port GbE module, 2 fab I/F, (Req GBICs, DFC/DFC3)
<b>WS-X6516-GE-TX=</b>	16-port 10/100/1000 GbE Module, Cross-Bar, Spare
<b>WS-X6548-RJ-21=</b>	48-port 10/100, RJ-21, Fabric-enabled
<b>WS-X6548-RJ-45=</b>	48-port 10/100, RJ-45, x-bar
<b>WS-X6524-100FX-MM=</b>	24-port 100FX, MT-RJ, Fabric-enabled
<b>WS-SVC-WISM-1-K9=</b>	Wireless Services Module (WISM)
<b>WS-SVC-FWM-1-K9=</b>	Firewall Blade for 6500 and 7600, VFW License Separate
<b>WS-SVC-IDS2BUNK9=</b>	IDS-2 600M Module Spare

**Ordering Information** *continued*

<b>WS-SVC-WEBVPN-K9=</b>	SSL VPN Module for Catalyst 6500
<b>7600-SSC-400=</b>	Cisco 7600/Catalyst 6500 Services SPA Carrier Card
<b>ACE10-6500-K9</b>	Application Control Engine (ACE) Module
<b>WS-SVC-IPSEC-1=</b>	IPSec VPN Security Module for 6500 and 7600 Series
<b>SPA-IPSEC-2G=</b>	Cisco 7600/Catalyst 6500 IPSec VPN SPA - DES/3DES/AES
<b>WS-SVC-ADM-1-K9=</b>	Catalyst 6500 Cisco Anomaly Detection Module
<b>WS-SVC-AGM-1-K9=</b>	Catalyst 6500 Cisco Anomaly Guard Module
<b>WS-SVC-AON-1-K9</b>	Application-oriented Networking (AON) Module
<b>WS-X6066-SLB-S-K9=</b>	Content Switching Module with SSL Daughter Card
<b>WS-X6066-SLB-APC=</b>	Catalyst 6500/7600 Content Switching Module
<b>WS-SVC-SSL-1-K9=</b>	SSL Module for Catalyst 6500
<b>WS-SVC-NAM-1=</b>	Catalyst 6500 Network Analysis Module-1
<b>WS-SVC-NAM-2=</b>	Catalyst 6500 Network Analysis Module
<b>WS-SVC-WLAN-1-K9=</b>	Wireless LAN Services Module, CEF256
<b>WS-SVC-CMM=</b>	Communication Media Module
<b>WS-SVC-CSG-1=</b>	Content Services Gateway
<b>WS-SVC-MWAM-1=</b>	Multi-processor WAN Application Module
<b>WS-SVC-PSD-1=</b>	Persistent Storage Device

**Notes**

# Cisco Security Services Modules



## Traffic Anomaly Detector Services Module

This module helps large organizations protect against distributed denial-of-service (DDoS) or other cyber attacks, enabling users to quickly initiate mitigation services and block the attack before business is adversely affected. It utilizes the latest behavioral analysis and attack recognition technology to proactively detect and identify all types of cyber assaults.

- Monitors and processes attack traffic at full Gigabit line rates, delivering a high-performance solution that detects DDoS attacks without consuming valuable switch or router resources.
- Identifies and blocks all types and sizes of assaults, including those launched by hundreds of thousands of distributed zombie hosts, providing complete protection against the widest range of attacks.
- Scales through clustering in a single chassis to support multi-gigabit performance, providing maximum protection for the largest enterprise and service provider environments or for individual vulnerable zones.
- Automatic learning builds baseline profiles of normal operating conditions, enabling rapid identification of anomalous or unusual activity that indicates an attack.
- Supports real-time monitoring of individual devices and protected zones with web-based graphical manager, as well as historical attack-level reports showing specific attack types seen and associated statistics.



## Anomaly Guard Services Module

This module mitigates DDoS and other cyber attacks. It effectively stops the DDoS attack while allowing legitimate traffic to continue to its destination, thereby maintaining continuous business operations.

- Monitors and processes attack traffic at full Gigabit line rates, delivering a high-performance solution that detects DDoS attacks without consuming valuable switch or router resources.
- Multi-verification process (MVP) architecture utilizes advanced anomaly recognition, source verification and anti-spoofing technologies to identify and block individual attack flows without affecting legitimate transactions.
- Dynamic diversion redirects and cleans only traffic destined for targeted devices, allowing unaffected traffic to flow freely and ensuring business continuity.
- Automatic learning builds baseline profiles of normal operating conditions, enabling rapid identification of anomalous or unusual activity that indicates an attack.
- Identifies and blocks all types and sizes of assaults, including those launched by hundreds of thousands of distributed zombie hosts, providing complete protection against the widest range of attacks.



## Intrusion Detection Services Module (IDSM-2)

This module helps detect, classify, and stop threats including worms, spyware/adware, network viruses, and application abuse. The Cisco IDSM-2 combines inline prevention services with innovative technologies that improve accuracy, allowing you to stop more threats without dropping legitimate network traffic.

- Accurate inline prevention technologies offer intelligent, automated, contextual analysis of your data and help ensure you are getting the most out of your intrusion prevention solution.
- Offers 600 Mbps performance per module, providing the high bandwidth detection capabilities required for larger networks.
- Multivector threat identification protects your network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic in Layers 2–7.
- Unique network collaboration enhances scalability and resiliency through network collaboration, including efficient traffic capture techniques, load-balancing capabilities, and visibility into encrypted traffic.



## IPSec VPN Shared Port Adapter

This module delivers scalable and cost-effective VPN performance with Data Encryption Standard (DES), Triple Data Encryption Standard (3DES), plus next-generation Advanced Encryption Standard (AES) technology, including all key sizes (128-, 192-, and 256-bit keys) for ultimate in IPSec VPN security and interoperability.

- Provides up to 2.5 Gbps of AES and 3DES IPSec throughput with large packets and 1.6 Gbps with Internet mix (IMIX) traffic.
- Up to 10 Cisco IPSec VPN SPAs can be installed in a system, scaling to 25 Gbps of total throughput for wire-speed security transport for native 10 Gigabit Ethernet interfaces.
- Using the Cisco Services SPA Carrier-400, each slot of the Cisco 7600, or Cisco Catalyst 6500 supports up to two IPSec VPN SPAs, increasing total performance per slot.

# Cisco Security Services Modules continued



## Network Analysis Module

This module provides traffic monitoring services for visibility into network and application usage, helping network managers troubleshoot delivery issues, improve the utilization of network resources, and ease the deployment of new network services. The NAM is available in two hardware versions, NAM-1 and NAM-2, to meet diverse network analysis needs in scalable switching environments.

- Includes an embedded, web-accessible Traffic Analyzer interface that presents both configuration menus and real-time and historical reports.
- Provides visibility into what applications are running on the network and how they're performing, tracking response times and identifying whether issues are server- or network-related.
- Offers web-based captures and decodes for anytime, anywhere troubleshooting.
- Analyzes the performance of IP-based services, including VoIP, video, and QoS.



## SSL Services Module

This module offloads processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL), increases the number of secure connections supported by a web site, and reduces the operational complexity of high performance web server farms.

- Ensures high availability when installed in a redundant Cisco Catalyst 6500 configuration, maintaining SSL sessions if hardware failures occur.
- Simplifies security management while encrypting user data to the web servers, providing privacy, confidentiality, and authentication using a wide range of certificates, including Netscape and VeriSign.
- An integrated Content Switching Module or external load-balancing appliance can load balance secure HTTPS content requests to multiple Cisco SSL services modules, maximizing SSL termination performance and providing SSL scalability.
- Provides the best price/performance ratio of any SSL accelerator on the market. Cost of maintenance is included in the maintenance contract of the Cisco Catalyst chassis, providing cost savings on annual service contracts. And by offloading the processing-intensive SSL termination burden from the web servers, the SSL Service Module eliminates the need to purchase additional servers.



## Firewall Services Module




This module delivers the fastest firewall data rates in the industry: 5 Gbps throughput, 100,000 CPS, and one million concurrent connections. Up to four modules can be installed in a single chassis, offering scalability to 20 Gbps per chassis. Based on Cisco PIX<sup>®</sup> Firewall technology, it provides large enterprises and service providers with unmatched security, reliability, and performance.

- Allows any port on Cisco 7600 or Cisco Catalyst 6500 to operate as a firewall port and integrates firewall security inside the network infrastructure.
- Provides unsurpassed performance to meet future requirements, scaling to up to 20 Gbps per chassis without requiring a system overhaul.
- Offers the best price/performance ratio of any firewall, utilizing the familiar, time-tested Cisco PIX Operating System to reduce the cost of training, and integrating firewall services into the chassis to reduce management requirements.
- An intuitive graphical user interface (GUI) simplifies management and configuration, and it's supported by the Cisco management framework and by Cisco AVVID partners for configuration and monitoring.
- Virtualized FWSM delivers multiple firewalls on one physical hardware platform, allowing network administrators to configure, deploy, and manage functions as if they were separate devices, while reducing the cost and complexity of managing network infrastructure.

# Cisco Network Modules



## LAN and Mixed Media Network Modules

### Ethernet Switching Network Modules and Accessories



Product	Description	Supported Platforms and Minimum Cisco IOS Versions*	Comments
<b>NM-16ESW</b> 16-port 10/100 EtherSwitch Network Module 	Provides 16 switch ports and one internal port to the router engine. Features include 802.1p prioritization and 802.1q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-16ESW-1GIG</b> 16-port 10/100 EtherSwitch Network Module with 1 GbE (1000BASE-T) Port 	Provides 16 switch ports, one GbE port and one internal port to the router engine. Features include 802.1p prioritization and 802.1q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-16ESW-PWR</b> 16-port 10/100 EtherSwitch Network Module with Inline Power Support 	Provides 16 switch ports with inline power support and one internal port to the router engine. Features include 802.1p prioritization and 802.1q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	This is a bundle of one NM-16-ESW and one PPWR-DCARD-16ESW. Requires an internal PoE power supply.

\*If platform is not listed in the supported platforms column in the following pages, then that platform is not supported.





Cisco Network Modules			
LAN and Mixed Media Network Modules <i>continued</i>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-16ESW-PWR-1GIG</b> 16-port 10/100 EtherSwitch Network Module with Inline Power and GE 	Provides 16 switch ports with inline power support, one GbE port and one internal port to the router engine. Features include 802.1p prioritization and 802.1q VLAN, and 802.1d Spanning-Tree Protocol. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(1)T 3700 Series-12.2(8)T 2811, 2821, and 2851-12.3(8)T4 2691-12.2(8)T 2600XM Series-12.2(8)T1	This is a bundle of one NM-16-ESW, one GE-DCARD-ESW and one PPWR-DCARD-16ESW. Requires an inline power supply upgrade (internal for Cisco 2800 or 3800 Series).
<b>PPWR-DCARD-16ESW</b> Inline Power Daughter Card for 16-port EtherSwitch Network Module 	Enables inline power capability to the NM-16ESW. Note that a power supply is required. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(1)T 3700 Series-12.2(8)T 2811, 2821, and 2851-12.3(8)T4 2691-12.2(8)T 2600XM Series-12.2(8)T1	Requires a 16-port 10/100 EtherSwitch Network Module. Requires an internal power supply when installed in Cisco 2800 or Cisco 3800 Series Routers.
<b>GE-DCARD-ESW</b> 1000BASE-T Daughter Card for EtherSwitch Modules 	Provides one gigabit port for a file server or intra-chassis stacking of EtherSwitch modules. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series-12.3(1)T 3700 Series-12.2(8)T 2811, 2821, and 2851-12.3(8)T4 2691-12.2(8)T 2600XM Series-12.2(8)T1	Requires a 16- or 36-port 10/100 EtherSwitch module with an available GbE port slot.

Cisco Network Modules			
LAN and Mixed Media Network Modules <i>continued</i>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NME-16ES-1G-P</b> 16-port Cisco EtherSwitch Service Module with 802.3af Support 	The 16-port EtherSwitch service module provides 16 10/100 802.3af-capable ports plus one 10/100/1000 non-powered port. <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(14)T 2811, 2821, 2851-12.3(14)T	Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply. Cisco inline power available on Cisco 2811, 2821, 2851, and 3800 Series Routers. IEEE 802.3af (PoE) support is available on the Cisco 2811, 2821, 2851, and 3800 Series Routers only. The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.
<b>NME-X-23ES-1G-P</b> 24-port Cisco EtherSwitch Service Module with 802.3af Support 	The 24-port EtherSwitch service module provides 23 10/100 802.3af-capable ports plus one 10/100/1000 802.3af capable port. <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(14)T 2821 and 2851-12.3(14)T	Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply. Only supported in NME-X slots (not supported in NM or NME slots). The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.



LAN and Mixed Media Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NME-XD-24ES-1S-P</b> 24-port Cisco EtherSwitch Service Module with 802.3af Support and Cisco StackWise™ Interfaces	The 24-port EtherSwitch service module with StackWise™ connectors provides 24 10/100 802.3af capable ports, one SFP (Small Form-Factor Pluggable) port, and two StackWise™ interfaces. Cisco StackWise™ interfaces can be used to provide a high-speed, redundant connection to Catalyst 3750 switches.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series–12.3(14)T 2851–12.3(14)T	Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.  Only supported in NME-XD slots (not supported in NM, NME, NME-X slots).  Takes up two NME slots in a Cisco 3845 Series Router.  The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.
			
<b>NME-XD-48ES-2S-P</b> 48-port Cisco EtherSwitch Service Module with 802.3af Support	The 48-port EtherSwitch service module provides 48 10/100 802.3af capable ports plus two SFP (Small Form-Factor Pluggable) ports.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series–12.3(14)T 2851–12.3(14)T	Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.  Only supported in NME-XD slots (not supported in NM, NME, NME-X slots).  Takes up two NME slots in a Cisco 3845 Series Router.  The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.
			



## LAN Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1GE</b> One-port Gigabit Ethernet Network Module	Provides one Gigabit Interface Converter (GBIC) slot to carry any standard copper or optical Cisco GBIC.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing	3800 Series–12.3(11)T	No reliance on other network module, WAN Interface Cards, Voice Interface Cards, or Advanced Integration Modules.
			
<b>NM-1FE-FX-V2</b> One-port Fast Ethernet, FX only Network Module	Provides one auto-sensing 10/100BASE-FX connection via a fiber connector.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall	3800 Series–12.3(11)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
			
<b>LAN and WIC Combo Network Modules</b>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1FE2W-V2</b> One-port 10/100 Ethernet, Two WIC Slot Network Module	Provides one full/half duplex, auto-sensing 10/100 Ethernet port and two WIC expansion slots. The 10/100 Ethernet connections are via RJ-45 connectors.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall	3800 Series–12.3(11)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
			
<b>NM-2FE2W-V2</b> Two-port 10/100 Ethernet, Two WIC Slot Network Module	Provides two full/half duplex, auto-sensing 10/100 Ethernet ports and two WIC expansion slots. The 10/100 Ethernet connections are via RJ-45 connectors.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall	3800 Series–12.3(11)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
			

LAN and WIC Combo Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1FE1R2W</b> One-port 10/100 Ethernet, One-port 4/16 Token Ring, Two WIC Slot Network Module	Provides one full/half duplex, autosensing 10/100 Ethernet port, one full/half duplex 4/16 Token Ring port, and two WIC expansion slots. The 10/100 Ethernet connection is via an RJ-45 connector. The Token Ring connection is via an STP or UTP connector.	3800 Series-12.3(11)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
	<b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall		
<b>NM-2W</b> Two-WIC-slot Network Module	Provides two WIC expansion slots supporting all current WICs and VWICs.	3800 Series-12.3(11)T	Requires at least one WIC or VWIC. Supports all current WICs and VWICs.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

## Circuit Emulation Over IP Network Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CEM-4TE1</b> Four-port Channelized, Unchannelized E1/T1 Network Module	Provides four RJ-45 channelized/ unchannelized, framed/ unframed T1/E1 ports for bit-transparent transport services.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)		
<b>NM-CEM-4SER</b> Four-port Channelized, Unchannelized E1/T1 Network Module	Provides four Smart Serial (Cisco 12-in-1) ports for bit-transparent transport services. Each port may be V.35, X.21, RS-422/449, RS-530, RS-530A, or RS-232. Each port may be DCE or DTE supporting data rates from 200 bps to 2048 Kbps.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)		




## Notes

# Cisco Serial Connectivity Network Modules


## Serial T3/E3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1T3/E3</b> One-port Clear Channel T3/E3 Network Module  	Provides serial connectivity to a T3 44.736 Mbps or E3 34.368 Mbps line with integrated line interface unit (LIU) DSU. The T3/E3 port consists of a pair of 75 ohm BNC connectors.	3800 Series-12.3(11)T 2811, 2821, and 285 1-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<p><b>Modular Router Solutions</b> Serial Connectivity</p>			



## High-Speed Serial Network Modules—Up to 52 Mbps

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1HSSI</b> One-port HSSI Network Module  	Provides serial speeds up to 52 Mbps via a 50-pin SCSI Type II connector. This network module requires an external T3/E3 DSU/CSU.	3800 Series-12.3(11)T 2811, 2821, and 285 1-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<p><b>Modular Router Solutions</b> Serial and Legacy Concentration</p>			




## Synchronous Serial Network Modules—Up to 8 Mbps

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4T</b> Four-port Serial Network Module	Provides four synchronous serial interfaces, and supports a total full-duplex throughput of 8 Mbps, which can be realized over one port (at 8 Mbps) or across all four ports (at 2 Mbps on each port). Each port supports full-duplex operation at T1 and E1 speeds. All ports use identical DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode.	3800 Series—12.3(11)T 2811, 2821, and 2851—not supported	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

## Asynchronous Serial Network Modules—Up to 128 Kbps

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4A/S</b> Four-port Asynchronous/Synchronous Serial Network Module	Provides four low-speed serial connections via DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. The low-speed serial connections can be configured for up to either 115.2 Kbps asynchronous or 128 Kbps synchronous serial traffic.	3800 Series—12.3(11)T 2811, 2821, and 2851—12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		
<b>NM-8A/S</b> Eight-port Asynchronous/Synchronous Serial Network Module	Provides eight low-speed serial connections via DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. The low-speed serial connections can be configured for up to either 115.2 Kbps asynchronous or 128 Kbps synchronous serial traffic.	3800 Series—12.3(11)T 2811, 2821, and 2851—12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		



Asynchronous Serial Network Modules—Up to 128 Kbps *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-16A/S</b> 16-port Asynchronous/Synchronous Serial Network Module	The NM-16A/S combines the rich multiprotocol support of the NM-4A/S and NM-8A/S with higher densities to provide compelling price-per-port solutions for networking applications. In addition to the features of the NM-4A/S and NM-8A/S, the NM-16A/S adds EIA-530A support, and support for physical lead manipulation in the IOS configuration. Lead manipulation allows the user to configure the router to ignore input signals, view the state of input signals, and to monitor the transitions of input signals.	3800 Series—12.3(11)T 2811, 2821, and 2851—12.3(8)T4	In order to achieve higher port density, the NM-16A/S uses the Smart Serial connector that is also used on the WIC-2T WAN Interface Card. Thus customers must order Smart Serial cables for use with the NM-16A/S instead of the 5-in-1 cables used on the NM-4A/S and NM-8A/S.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		
<b>NM-16A</b> 16-port Asynchronous Network Module	Provides 16 asynchronous serial interfaces at speeds up to 134 Kbps. The 16 ports are cabled with two custom "octopus" cables, each terminating in eight ports, each with an option of physical endpoints, including RJ-45 and DB-25 connectors.	3800 Series—12.3(11)T 2811, 2821, and 2851—12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Dial-up Remote Access Serial and Legacy Concentration		
<b>NM-32A</b> 32-port Asynchronous Network Module	Provides 32 asynchronous serial interfaces at speeds up to 134 Kbps. The 32 ports are cabled with four custom "octopus" cables, each terminating in eight ports, each with an option of physical endpoints, including RJ-45 and DB-25 connectors.	3800 Series—12.3(11)T 2811, 2821, and 2851—12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Dial-up Remote Access Serial and Legacy Concentration		

## Notes

# Cisco Channelized T1/E1 and ISDN Network Modules

## Channelized T1/E1 and ISDN Primary Rate Interface Network Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1CE1T1-PRI</b> One-port Channelized E1/T1 ISDN PRI Network Module 	Provides a single channelized E1/T1 ISDN PRI balanced (120 ohm) or unbalanced (75 ohm) connection. <hr/> <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-2CE1T1-PRI</b> Two-port Channelized E1/T1 ISDN PRI Network Module 	Provides a double channelized E1/T1 ISDN PRI balanced (120 ohm) or unbalanced (75 ohm) connection. <hr/> <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

## ISDN Basic Rate Interface Network Module



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4B-S/T</b> Four-port ISDN-BRI Network Module 	Provides four ISDN BRI connections via RJ-45 connectors. This network module requires an external NT-1 device for connection to the WAN.  <b>Modular Router Solutions</b> ISDN Concentration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-4B-U</b> Four-port ISDN-BRI with NT-1 Network Module 	Provides four ISDN BRI connections via RJ-45 connectors. This network module has an integrated NT-1 device.  <b>Modular Router Solutions</b> ISDN Concentration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-8B-S/T</b> Eight-port ISDN-BRI Network Module 	Provides eight ISDN BRI connections via RJ-45 connectors. This network module requires an external NT-1 device for connection to the WAN.  <b>Modular Router Solutions</b> ISDN Concentration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-8B-U</b> Eight-port ISDN-BRI with NT-1 Network Module 	Provides eight ISDN BRI connections via RJ-45 connectors. This network module has an integrated NT-1 device.  <b>Modular Router Solutions</b> ISDN Concentration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

## Cisco ATM Network Modules

## ATM OC3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1A-OC3-POM</b> ATM OC3 Module with Single POM (SFP) Slot 	Provides a single ATM OC-3 interface for the Cisco 3800 Series. The network module has a small form pluggable (SFP) slot that allows the user to choose multimode, single-mode intermediate reach, or single-mode long reach optics.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.4(4), 12.4(4)T	Requires a SFP to provide the optical interface: SFP-OC3-MM—OC3/STM1 SFP, multimode fiber SFP-OC3-IR1—OC3/STM1 SFP, single-mode fiber intermediate reach SFP-OC3-LR1—OC3/STM1 SFP, single-mode fiber, long reach (40km)

## ATM T3/E3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1A-T3</b> One-port DS3 ATM Network Module 	Provides a single ATM connection of 45 Mbps for DS3 using 75 ohm BNC connectors. The network module supports ATM Forum-compliant AAL5.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	12.3 Mainline and forward supported in SP Services feature set. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-1A-E3</b> One-port E3 ATM Network Module 	Provides a single ATM connection of 34 Mbps for E3 using 75 ohm BNC connectors. The network module supports ATM Forum-compliant AAL5.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4 2691–12.2(8)T 2600XM Series–12.2(12) Mainline, 12.2(8)T1	12.3 Mainline and forward supported in SP Services feature set. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

# Cisco Satellite Network Modules

## 2-way Satellite WAN Connectivity Network Module

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1VSAT-GILAT</b> Two-way Satellite WAN Connectivity Module	<p>Provides broadband WAN connectivity over Satellite. It acts as the Indoor Unit for the VSAT and is connected to the Outdoor Unit which consists of the VSAT antenna and the LNB (Amplifier) using two coaxial cables.</p> <p>.....</p> <p><b>Modular Router Solutions</b></p> <p>WAN Backup on Terrestrial Link Failure</p> <p>Emergency Response Communication Kit</p> <p>Multicast Video/Content Distribution</p> <p>Primary Connectivity for Remote Sites</p>	3800 Series-12.3(14)T 2811, 2821, 2851-12.3(14)T	Requires the ODU kit and satellite service that is provided by the Service Provider. It transmits and receives over C and Ku Band. Requires Gilat Skyedge Hub to work. Bandwidths supported are up to 1.5 Mbps inbound (from VSAT to Hub) and 10 Mbps outbound (From Hub to VSAT).



# Cisco Dial-up/Remote Access Network Modules



## Digital Modem Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-6DM</b> Six-port Digital Modem Network Module  	Contains six configurable V.90-compliant digital modems for use with the ISDN PRI and BRI Network Modules. This module is field upgradable to a maximum of 30 digital modems.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a channelized or ISDN WAN Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-12DM</b> 12-port Digital Modem Network Module  	Contains 12 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI Network Modules. This module is field upgradable to a maximum of 30 digital modems.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a channelized or ISDN WAN Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-18DM</b> 18-port Digital Modem Network Module  	Contains 18 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI Network Modules. This module is field upgradable to a maximum of 30 digital modems.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a channelized or ISDN WAN Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.

Digital Modem Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-24DM</b> 24-port Digital Modem Network Module  	Contains 24 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI Network Modules. This module is field upgradable to a maximum of 30 digital modems.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a channelized or ISDN WAN Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-30DM</b> 30-port Digital Modem Network Module  	Contains 30 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI Network Modules.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a channelized or ISDN WAN Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>MICA-6MOD</b> Six Digital Modem Upgrade  	This digital modem upgrade increases a Cisco digital modem network modules capacity by six modems, up to a maximum of 30 modems per digital modem network module.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T	Requires a digital modem network module: NM-6DM, NM-12DM, NM-18DM, NM-24DM, or NM-30DM.



## Analog Modem Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-8AM-V2</b> Eight-port Analog Modem Network Module with V.92  	Provides support for basic dial service via RJ-11 connectors. It allows up to eight remote analog modem users to connect via internal V.92 modems at speeds of up to 56 Kbps.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-16AM-V2</b> 16-port Analog Modem Network Module with V.92  	Provides support for basic dial service via RJ-11 connectors. It allows up to 16 remote analog modem users to connect via internal V.92 modems at speeds of up to 56 Kbps.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

## Notes


# Cisco Voice Network Modules


## Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HD-1V</b> One-slot IP Communications Voice/Fax Network Module	Provides a one-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates a Cisco voice interface card, which allows four analog ports or two BRI ports to standard telephony equipment such as PBXs, key systems, phones, and fax machines.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	Requires voice interface card and voice feature set.
			
<b>Modular Router Solutions</b> Voice and Fax Integration			
<b>NM-HD-2V</b> Two-slot IP Communications Voice/Fax Network Module	Provides a two-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates two Cisco voice interface cards, which allows up to eight analog ports or four BRI ports to standard telephony equipment such as PBXs, key systems, phones, and fax machines.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	Requires voice interface card and voice feature set.
			
<b>Modular Router Solutions</b> Voice and Fax Integration			





Analog and ISDN Basic Rate Voice Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HD-2VE</b> Two-slot IP Communications Enhanced Voice/Fax Network Module	Provides a two-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodate the addition of up to four Cisco voice interface cards or voice/WAN interface cards. The interface cards allow up to eight analog ports, four BRI ports, 24 medium complexity, or 48 G.711 digital T1/E1 voice channels. Connects to standard telephony equipment such as PBXs, key systems, phones, and fax machines.	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	Requires voice interface card and voice feature set. The VVIC2-1MFT-G703 and VVIC2-2MFT-G703 are not supported on the NM-HD-2VE.
	<b>Modular Router Solutions</b> Voice and Fax Integration		



<b>NM-HDA-4FXS</b> High-density Analog Voice/Fax Network Module with 4 FXS	This base board is always required for any configuration of NM-HDA. It comes with four built-in FXS ports. Onboard DSP resources can service eight voice calls using high-complexity codecs: G.711 a/u; G.726 at 32k, 24k and 16k; G.728; G.729, A, B, AB; G.723.1 at 5.3k and 6.3k; clear channel codec, fax relay. Also supports 16 voice calls using medium-complexity codecs: G.711 a/u, G.726 at 32k, 24k, and 16k; G.729A and AB; clear channel codec, fax relay. Supports two expansion modules and one DSP module.	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline and forward supported in IP Voice feature set.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

Analog and ISDN Basic Rate Voice Network Modules *continued*





Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EVM-HD-8FXS/DID</b> High-Density Analog and Digital Extension Module for Voice and Fax	With support for up to 24 total voice and fax sessions, the Cisco High-Density Extension Module is ideal for networks with high analog (foreign exchange station [FXS], direct inward dialing [DID], and foreign exchange office [FXO]) and digital (Basic Rate Interface [BRI]) call-capacity requirements. Components: Baseboard with eight ports that can be configured individually for FXS or DID signaling. Add up to two expansion modules in any combination to increase voice and fax session capacity: EM-HDA-8FXS, EM-4BRI-NT/TE, EM-HDA-6FXO, EM-HDA-3FXS/4FXO. Packet voice DSP modules (PVDM2s) are used in combination with the Cisco High-Density Extension Module baseboard and its expansion modules. PVDM2s are purchased separately and installed in the digital signal processor (DSP) module slots located inside the Cisco 2821, Cisco 2851, Cisco 3825, and Cisco 3845 Integrated Services Routers.	Extension Voice Module (EVM) slot only: 2821–12.3(8)T4 2851–12.3(8)T4  Any Network Module Slot: 3825 (1 per router)–12.3(11)T 3845 (1 or 2 per router)–12.3(11)T	Requires a Cisco IOS voice feature set.
	<b>Modular Router Solutions</b> Voice and Fax Integration		




<b>EM-4BRI-NT/TE</b> Four-port Voice and Fax Expansion Module	Adds support for BRI (NT and TE) for use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard. This module allows connection to an ISDN S/T network by replicating either the network side or the terminal side. This module provides four on-premises S/T BRI trunk connections to the ISDN PBX.	3800 Series–12.3(11)T 2851–12.3(8)T4 2821–12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
	<b>Modular Router Solutions</b> Voice and Fax Integration		





Analog and ISDN Basic Rate Voice Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EM-HDA-6FXO</b> Six-port FXO Voice and Fax Expansion Module	Provides off-premises connection to the central office. This module supports FXO power failover. If power to the router fails, this feature helps enable a direct metallic path between an FXO port and a special "red" telephone to provide a direct line to the PSTN. Use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard.	3800 Series-12.3(11)T 285 1-12.3(8)T4 282 1-12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM-HDA-3FXS/4FXO</b> Three-port FXS and Four-port FXO Voice and Fax Expansion Modules	Provides on-premises FXS signaling to connect directly to a standard telephone, fax machine, or similar device and supplies ring, voltage, and dial tone. In addition, the FXO ports provide off-premises connection to the central office. Use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard.	3800 Series-12.3(11)T 285 1-12.3(8)T4 282 1-12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
	<b>Modular Router Solutions</b> Voice and Fax Integration		





## T1/E1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EM-HDA-4FXO</b> Four-port Voice/Fax Expansion Module – FXO	Provides four off-premise analog connections to the central office. Country settings are configurable. Includes support for battery polarity reversal detection and Caller ID.	3800 Series-12.3(11)T 281 1, 282 1, and 285 1-12.3(8)T4	Requires Cisco IP voice feature set and higher. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM2-HDA-4FXO</b> Four-port Voice/Fax Expansion Module – FXO	Provides four off-premise analog connections to the central office. Country settings are configurable. Includes support for battery polarity reversal detection and Caller ID. Compared to the EM-HDA-4FXO, this module delivers longer loop length support and improved performance against poor line conditions when used in GroundStart signaling mode.	3800 Series-12.3(14)T 281 1, 282 1, and 285 1-12.3(14)T	Requires Cisco IP voice feature set and higher. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM-HDA-8FXS</b> Eight-port Voice/Fax Expansion Module – FXS	Provides an additional eight FXS ports for connections directly to analog phones, fax machines, and key.	3800 Series-12.3(11)T 281 1, 282 1, and 285 1-12.3(8)T4	12.3 Mainline and forward supported in IP Voice feature set. Requires a high-density analog voice/fax network module (NM-HDA-4FXS) or a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>DSP-HDA-16</b> 16-channel DSP Module for NM-HDA	Enables an additional eight high-complexity or 16 medium-complexity voice calls on NM-HDA.	3800 Series-12.3(11)T 281 1, 282 1, and 285 1-12.3(8)T4	12.3 Mainline and forward supported in IP Voice feature set. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).
	<b>Modular Router Solutions</b> Voice and Fax Integration		




Cisco Network Modules			
T1/E1 Digital Voice Network Modules <i>continued</i>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV2</b> IP Communications High-density Digital Voice/Fax Network Module  	Features a VIC/VWIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of two T1/E1 digital ports or four analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	Requires PVDM2s for packet voice operation.
<b>NM-HDV2-1T1/E1</b> IP Communications High-density Digital Voice/Fax Network Module  	Include a built-in T1/E1 port and a VIC/WIC slot that can be fitted to either digital or analog/BRI voice/WAN interface cards. Supports maximum of 3 T1/E1 digital ports or 1 T1/E1 port and 4 analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	Requires PVDM2s for packet voice operation.
<b>NM-HDV2-2T1/E1</b> IP Communications High-density Digital Voice/Fax Network Module  	Includes two built-in T1/E1 ports and a VIC/VWIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of 4 T1/E1 digital ports or 2 T1/E1 ports and 4 analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2811, 2821, and 2851–12.3(8)T4	Requires PVDM2s for packet voice operation.

Cisco Network Modules			
T1/E1 Digital Voice Network Modules <i>continued</i>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>PVDM2-8</b> Eight-channel Packet Voice/Fax DSP Module  	Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2800 Series–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Can be inserted into a PVDM slot on the motherboard of Cisco 2800 and 3800 routers.
<b>PVDM2-16</b> 16-channel Packet Voice/Fax DSP Module  	Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2800 Series–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Can be inserted into a PVDM slot on the motherboard of Cisco 2800 and 3800 routers.
<b>PVDM2-32</b> 32-channel Packet Voice/Fax DSP Module  	Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2800 Series–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Can be inserted into a PVDM slot on the motherboard of Cisco 2800 and 3800 routers.
<b>PVDM2-48</b> 48-channel Packet Voice/Fax DSP Module  	Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(11)T 2800 Series–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Can be inserted into a PVDM slot on the motherboard of Cisco 2800 and 3800 routers.


T1/E1 Digital Voice Network Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>PVDM2-64</b> 64-channel Packet Voice/Fax DSP Module	Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series–12.3(1)T 2800 Series–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Can be inserted into a PVDM slot on the motherboard of Cisco 2800 and 3800 routers.
			
<b>PVDM2-12DM</b> 12-port Digital Modem Module	Installable into the motherboard slots of a Cisco 2800 or 3800 Series router, the PVDM digital modems modules provide 12 to 36 modem ports. The modules support a wide array of modem data protocols, including the V.92, V.90, V.44, and V.42 standards.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series–12.4(9)T 2800 Series–12.4(9)T4	Requires an ISDN PRI Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI Future support will include: VIC-2BRI-S/T-TE VIC-2BRI-NT/TE HWIC-1CE1T1-PRI HWIC-2CE1T1-PRI
			
<b>PVDM2-24DM</b> 24-port Digital Modem Module	Installable into the motherboard slots of a Cisco 2800 or 3800 Series router, the PVDM digital modems modules provide 12 to 36 modem ports. The modules support a wide array of modem data protocols, including the V.92, V.90, V.44, and V.42 standards.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series– 12.4(9)T 2800 Series–12.4(9)T4	Requires an ISDN PRI Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI Future support will include: VIC-2BRI-S/T-TE VIC-2BRI-NT/TE HWIC-1CE1T1-PRI HWIC-2CE1T1-PRI
			
<b>PVDM2-36DM</b> 36-port Digital Modem Module	Installable into the motherboard slots of a Cisco 2800 or 3800 Series router, the PVDM digital modems modules provide 12 to 36 modem ports. The modules support a wide array of modem data protocols, including the V.92, V.90, V.44, and V.42 standards.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series–12.4(9)T 2800 Series–12.4(9)T4	Requires an ISDN PRI Network Module: NM-1CE1T1-PRI, NM-2CE1T1-PRI Future support will include: VIC-2BRI-S/T-TE VIC-2BRI-NT/TE HWIC-1CE1T1-PRI HWIC-2CE1T1-PRI
			

## Multiflex Trunk Dedicated Echo Cancellation (MFT ECAN) Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EC-MFT-32</b> 32-Channel Multiflex Trunk Dedicated ECAN Module	The 32-Channel Cisco Multiflex Trunk Dedicated Echo Cancellation Module is a dedicated resource for the Cisco Enhanced ITU-T G.168 ECAN feature, providing robust echo cancellation performance for demanding network environments. The module attaches to Cisco Second-generation Multiflex Trunk Voice/WAN Interface Cards (VVIC2 MFT cards).  <b>Modular Router Solutions</b> Voice and Fax	3800 Series–12.3(14)T; 12.4 Mainline 2800 Series–12.3(14)T; 12.4 Mainline	Attaches to the VVIC2 MFT cards (VVIC2-1MFT-T1/E1, VVIC2-2MFT-T1/E1, VVIC2-1MFT-G703 and VVIC2-2MFT-G703). EC-MFT is not supported on the VVIC2 MFT cards on the Cisco 1841.
			
<b>EC-MFT-64</b> 64-Channel Multiflex Trunk Dedicated ECAN Module	The 64-Channel Cisco Multiflex Trunk Dedicated Echo Cancellation Module is a dedicated resource for the Cisco Enhanced ITU-T G.168 ECAN feature, providing robust echo cancellation performance for demanding network environments. The module attaches to Cisco Second-generation Multiflex Trunk Voice/WAN Interface Cards (VVIC2 MFT cards).  <b>Modular Router Solutions</b> Voice and Fax	3800 Series–12.3(14)T; 12.4 Mainline 2800 Series–12.3(14)T; 12.4 Mainline	Attaches to the VVIC2 MFT cards (VVIC2-1MFT-T1/E1, VVIC2-2MFT-T1/E1, VVIC2-1MFT-G703 and VVIC2-2MFT-G703). EC-MFT is not supported on the VVIC2 MFT cards on the Cisco 1841.
			
Voice Mail Network Modules			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CUE</b> Cisco Unity Express (voice mail) Network Module	Provides 100 hours of voice mail storage, up to 100 mailboxes, automated attendant services, eight concurrent sessions, with CallManager Express or CallManager IP Telephony.  <b>Modular Router Solutions</b> IP Telephony	3800 Series–12.3(11)T 2811, 2821, and 2851– 12.3(8)T4	Requires Cisco IOS IP Voice feature set. Requires Cisco Unity Express License.
			

Voice Mail Network Modules *continued*


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CUE-EC</b> Cisco Unity Express (voice mail) Network Module 	Provides 100 hours of voice mail storage, up to 250 mailboxes, automated attendant services, 16 concurrent sessions, with CallManager Express or CallManager IP Telephony.  <b>Modular Router Solutions</b> IP Telephony	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	Requires Cisco IOS IP Voice feature set. Requires Cisco Unity Express License.



## Cisco Services Network Modules





## Network Analysis And Monitoring

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-NAM</b> Network Analysis Module 	Network Analysis Module provides detailed analysis of applications, hosts, conversations, and network-based services such as quality of service (QoS) and voice over IP (VoIP). The module comes with an embedded, Web-based traffic analyzer, which provides full-scale remote monitoring and troubleshooting capabilities that are accessible through a Web browser.  <b>Modular Router Solutions</b> Network Analysis and Management	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

## Wireless LAN Controller Module




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-AIR-WLC6-K9</b> Wireless LAN Controller Module Supporting up to 6 Cisco Aironet® Lightweight Access Points 	Provides secure WLANs that delivers the most secure enterprise-class wireless system available. Provides centralized security policies, wireless intrusion prevention system (IPS) capabilities, RF management, quality of service (QoS), and Layer 3 fast secure roaming for WLANs.  <b>Modular Router Solutions</b> Wireless LAN	2811, 2821, 2851–12.4(6)T, 3800 Series–12.4(6)T	

Cisco Network Modules			
Wireless LAN Controller Module			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NME-AIR-WLC8-K9</b> Wireless LAN Controller Module supporting up to eight Cisco Aironet Lightweight Access Points 	Provides secure WLANs that delivers the most secure enterprise-class wireless system available. Provides centralized security policies, wireless intrusion prevention system (IPS) capabilities, RF management, quality of service (QoS), and Layer 3 fast secure roaming for WLANs.	12.4(12)T	
<hr/> <b>Modular Router Solutions</b> Wireless LAN			
<b>NME-AIR-WLC12-K9</b> Wireless LAN Controller Module Supporting up to 12 Cisco Aironet Lightweight Access Points 	Provides secure WLANs that delivers the most secure enterprise-class wireless system available. Provides centralized security policies, wireless intrusion prevention system (IPS) capabilities, RF management, quality of service (QoS), and Layer 3 fast secure roaming for WLANs.	12.4(12)T	
<hr/> <b>Modular Router Solutions</b> Wireless LAN			



Cisco Network Modules			
Content Engine Network Modules			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CE-BP-40G-K9</b> Content Engine Network Module, Basic Performance, 40 GB IDE Hard Disk 	Provides intelligent content acceleration and content delivery. The module operates a self-contained and independent Cisco Application and Content Networking System (ACNS) or Cisco Wide Area File Services with 40 GB local storage capacity.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<hr/> <b>Modular Router Solutions</b> Rich Media Delivery Bandwidth Management Content Access Management			
<b>NM-CE-BP-80G-K9</b> Content Engine Network Module, Basic Performance, 80 GB IDE Hard Disk 	Provides intelligent content acceleration and content delivery. The module operates a self-contained and independent Cisco Application and Content Networking System (ACNS) Cisco Wide Area File Services with 80 GB local storage capacity.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<hr/> <b>Modular Router Solutions</b> Rich Media Delivery Bandwidth Management Content Access Management			
<b>EM-CE-40G</b> Expansion Module, 40 GB IDE, Field Upgrade 	Provides a field-replaceable 40 GB IDE storage for the NM-CE Series.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	Requires an NM-CE Network Module.
<hr/> <b>Modular Router Solutions</b> Bandwidth Management			
<b>EM-CE-80G</b> Expansion Module, 80 GB IDE, Field Upgrade 	Provides a field-replaceable 80 GB IDE storage for the NM-CE Series.	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	Requires an NM-CE Network Module.
<hr/> <b>Modular Router Solutions</b> Bandwidth Management			

# Cisco Interface Cards



## Serial WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1T</b> One-port Serial WIC 	Provides a single serial connection at up to T1/E1 rates. The DB-60 connector supports any of five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series–12.3(11)T 2800 Series–12.3(8)T4 1841–12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>WIC-2T</b> Two-port Serial WAN Interface Card 	Provides two serial connections up to 8 Mbps. The smart serial connector supports any of six interface types (RS-232, EIA-449, EIA-530, EIA-530a, V.35, X.21) in either DTE or DCE mode. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series–12.3(11)T 2800 Series–12.3(8)T4 1841–12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>WIC-2A/S</b> Two-port Asynchronous/Synchronous Serial WIC 	Provides two low-speed serial interfaces at speeds up to 128 Kbps. This WIC supports asynchronous and synchronous traffic, and plugs directly into a WIC expansion slot.	3800 Series–12.3(11)T 2800 Series–12.3(8)T4 1841–12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.

## Serial WICs continued




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1DSU-T1-V2</b> One-port T1/Fractional T1 DSU/CSU WIC 	Provides a single serial connection at speeds up to T1 rates. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4 1760-12.2(17), 12.3(2)	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>Modular Router Solutions</b> Serial and Legacy Concentration			
<b>WIC-1DSU-56K4</b> One-port 4-wire 56/64 Kbps DSU/CSU WIC 	Provides a single serial connection at speeds up to 64 Kbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(1)T 2800 Series-2.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>Modular Router Solutions</b> Serial and Legacy Concentration			




## Serial WICs continued




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-4T</b> Four-port Serial High-speed WAN Interface Card 	Provides four high-speed serial ports with connections up to 8 Mbps on each port. The Smart Serial connector supports EIA-232, EIA-449, EIA-530, EIA-530A, V.35, and X.21 in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1800 Series-not supported	<b>Modular Router Solutions</b> WAN Aggregation Legacy Protocol Transport
<b>HWIC-4A/S</b> Four-port Asynchronous Synchronous High-speed WAN Interface Card 	Provides four low-speed asynchronous/synchronous ports with connections up to 256 Kbps in synchronous mode and 230.4 Kbps in asynchronous mode on each port. The Smart Serial connector supports EIA-232, EIA-449, EIA-530, EIA-530A, V.35, and X.21 in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1800 Series-12.3(14)T	<b>Modular Router Solutions</b> WAN Aggregation Legacy Protocol Transport












Cisco Interface Cards			
Serial WICs continued			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-8A/S-232</b> Eight-port Asynchronous/Synchronous High-speed WAN Interface Card 	Provides eight low-speed asynchronous/synchronous ports, EIA-232 only, with connections up to 256 Kbps in synchronous mode and 230.4 Kbps in asynchronous mode on each port. The high-density cable provides four ports of EIA-232 in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1800 Series-12.3(14)T	<b>Modular Router Solutions</b> WAN Aggregation Legacy Protocol Transport
<b>HWIC-8A</b> Eight-port Asynchronous High-speed WAN Interface Card 	Provides eight asynchronous EIA-232 ports, with connections up to 230.4 Kbps on each port. The high density cable provides eight ports of EIA-232. Adapters are used to terminate in DB-25 connectors in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1800 Series-12.3(14)T	<b>Modular Router Solutions</b> Remote console management Dial access server Terminal Server
<b>HWIC-16A</b> 16-port Asynchronous High-speed WAN Interface Card 	Provides 16 asynchronous EIA-232 ports, with connections up to 230.4 Kbps on each port. The high density cable provides eight ports of EIA-232. Adapters are used to terminate in DB-25 connectors in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1800 Series-not supported	<b>Modular Router Solutions</b> Remote console management Dial access server Terminal Server

Cisco Interface Cards			
ISDN BRI WICs			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1B-S/T-V3</b> One-port ISDN WIC 	Provides a single ISDN BRI connection via an RJ-45 connector. It requires an external NT-1 device for connection to the WAN. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>WIC-1B-U-V2</b> One-port ISDN with NT-1 WIC 	Provides a single ISDN BRI connection via an RJ-45 connector. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>DSL WICs and HWICs</b>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1ADSL</b> One-port Asymmetric Digital Subscriber Line WIC 	Provides a single ADSL connection at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
	<b>Modular Router Solutions</b> ADSL over POTS Access		



Cisco Interface Cards			
DSL WICs and HWICs continued			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1ADSL-DG</b> One-port Asymmetric Digital Subscriber Line WIC with Dying Gasp Support  	Provides a single ADSL over basic telephone service connection, with Dying Gasp support, at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>Modular Router Solutions</b> ADSL over POTS Access			
<b>WIC-1ADSL-I-DG</b> One-port ADSL over ISDN WIC with Dying Gasp Support  	Provides a single ADSL over ISDN connection, with Dying Gasp support, at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>Modular Router Solutions</b> ADSL over ISDN Access			
<b>WIC-1SHDSL-V3</b> One-port SHDSL WIC with 2- or 4-wire SHDSL Support  	Provides a single two or four wire G.shdsl connection, with Dying Gasp support, with symmetrical WAN speeds up to 2.3 Mbps over a single copper pair and up to 4.6 Mbps over two copper pairs. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco interface card expansion slot.	3800 Series-12.4(5), 12.4(6)T 2800 Series-12.4(5), 12.4(6)T 1841-12.4(5), 12.4(6)T	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
<b>Modular Router Solutions</b> SHDSL Access			
<b>HWIC-2SHDSL</b>	The next generation HWIC to WIC-1SHDSL-V3, the 2-pair G.SHDSL HWIC provides two ports of 4-wire connectivity options. In addition, it supports Annex F and G for increased data rates.	Cisco 1841, 2800 Series, and 3800 Series Min. IOS version is 12.4(1)XJ; will migrate into 12.4(15)T	

Cisco Interface Cards			
DSL WICs and HWICs continued			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-4SHDSL</b>	The next generation HWIC to WIC-1SHDSL-V3, the 4-pair G.SHDSL HWIC provides two ports of 4-wire or four ports of 2-wire connectivity options. This HWIC allows bonding single or dual-pair G.SHDSL ports up to a single 8-wire interface with increased bandwidth by using Inverse Multiplexing over ATM (IMA) or data interleaving with M-pair mode.	Cisco 1841, 2800 Series, and 3800 Series Min IOS version is 12.4(1)XJ; will migrate into 12.4(15)T	
<b>HWIC-1ADSL</b> HWIC with ADSL over basic telephone service  	Delivers business-class asymmetric DSL (ADSL) over basic telephone service for customers ranging from small- to medium-sized businesses to enterprise branch offices. Supports ADSL, ADSL 2, and ADSL2+.	Cisco 1841, Cisco 2801, Cisco 2811, 2821, 2851, 3825, and 3845 Min IOS version is 12.4(4)T	
<b>Modular Router Solutions</b> Broadband access			
<b>HWIC-1ADSLI</b> HWIC with ADSL over ISDN  	Delivers business-class asymmetric DSL (ADSL) over ISDN services for customers ranging from small- to medium-sized businesses to enterprise branch offices. Supports ADSL, ADSL 2, and ADSL2+.	Cisco 1841, Cisco 2801, Cisco 2811, 2821, 2851, 3825, and 3845 Min IOS version is 12.4(4)T	
<b>Modular Router Solutions</b> Broadband access			
<b>HWIC-ADSL-B/ST</b> HWIC with ADSL over POTS and ISDN BRI Ports  	The cards deliver business-class asymmetric DSL (ADSL) services for customers ranging from small- to medium-sized businesses to enterprise branch offices. Backup is provided via the ISDN BRI port.	Cisco 1841, Cisco 2801, Cisco 2811, 2821, 2851, 3825, and 3845 Min IOS version is 12.4(6)T	

Cisco Interface Cards			
Cable (DOCSIS-based) HWICs			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p><b>HWIC-ADSLI-B/ST</b> HWIC with ADSL over ISDN and ISDN BRI Ports</p>	The cards deliver business-class asymmetric DSL (ADSL) services for customers ranging from small- to medium-sized businesses to enterprise branch offices. Backup is provided via the ISDN BRI port.	Cisco 1841, Cisco 2801, Cisco 2811, 2821, 2851, 3825, and 3845 Min IOS version is 12.4(6)T	
 <p><b>HWIC-CABLE-D-2</b> One-port DOCSIS-based Cable HWIC</p>	The Cable HWIC expands the WAN flexibility of the Integrated Services Routers and delivers business-class DOCSIS-based cable services through cable service provider networks for customers ranging from small- to medium-sized businesses to enterprise branch offices.	Cisco 1841, 2801, 2811, 2821, 2851, 3825, 3845 Min IOS version is 12.4(6)XE	
 <p><b>HWIC-CABLE-E/J-2</b> One-port Euro/J-DOCSIS-based Cable HWIC</p>	The Cable HWIC expands the WAN flexibility of the Integrated Services Routers and delivers business-class Euro-DOCSIS-based and J-DOCSIS-based cable services through cable service provider networks for customers ranging from small- to medium-sized businesses to enterprise branch offices.	Cisco 1841, 2801, 2811, 2821, 2851, 3825, 3845 Min IOS version is 12.4(6)XE	
Analog Modem WICs			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p><b>WIC-1AM-V2</b> One-port Analog Modem WIC</p>	Provides a single integrated analog modem via an RJ-11 connector. Supports for speeds up to 56 Kbps (V.90).  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.
 <p><b>WIC-2AM-V2</b> Two-port Analog Modem</p>	Provides two integrated analog modems via two RJ-11 connectors. Support for speeds up to 56 Kbps (V.90).  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Supported in chassis WIC slot or one of the following mixed-media network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.

Cisco Interface Cards			
Ethernet and High-speed Switching WICs			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p><b>HWIC-4ESW</b> Four-port 10/100 Switch HWIC</p>	Provides four autosensing 10/100BASE-T Fast Ethernet switched ports with speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco WIC expansion slot.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(1)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	Single-wide form factor (requires one HWIC slot). A maximum of two ESW modules (NM or HWIC) are supported per router.
 <p><b>HWIC-4ESW-POE</b> Four-port 10/100 Switch HWIC with Power over Ethernet Support</p>	Provides four autosensing 10/100BASE-T Fast Ethernet switched ports with support for Power over Ethernet and speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco HWIC expansion slot.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(1)T 2800 Series-12.3(8)T4	Single-wide form factor (requires one HWIC slot). A maximum of two ESW modules (NM or HWIC) are supported per router. Requires the router to have an AC-IP power supply to deliver inline power / PoE.
 <p><b>ILPM-4=</b> Inline Power Module for HWIC-4-ESW</p>	Four-port daughter card for upgrading existing HWIC-4-ESW to be capable of supporting inline power.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(1)T 2800 Series-12.3(8)T4	Requires a HWIC-4ESW module. Router power supply upgrade (AC-IP) needed to provide power to switch.
 <p><b>HWIC-D-9ESW</b> Nine-port 10/100 Switch Double-wide HWIC</p>	Provides nine autosensing 10/100BASE-T Fast Ethernet switched ports with speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts into a Cisco double-wide HWIC expansion slot.  <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(1)T 2800 Series-12.3(8)T4	Double-wide form factor (requires two interface card slots). A maximum of two ESW modules (NM or HWIC) are supported per router. Not supported on Cisco 1841.



Ethernet and High-speed Switching WICs *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-D-9ESW-POE</b> Nine-port 10/100 Switch Double-wide HWIC with Eight Ports of Power over Ethernet Support	Provides nine autosensing 10/100BASE-T Fast Ethernet switched ports with support for Power over Ethernet and speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco double-wide HWIC expansion slot.   <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	Double-wide form factor (requires two interface card slots). A maximum of two ESW modules (NM or HWIC) are supported per router. Not supported on Cisco 1841. Requires the router to have an AC-IP power supply to deliver inline Power over Ethernet.
<b>ILPM-8=</b> Eight-port Inline Power Module for HWIC-D-9ESW	Eight-port daughter card for upgrading existing HWIC-D-9ESW to be capable of supporting inline power.   <b>Modular Router Solutions</b> Integrated Switching	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	Requires a HWIC-D-9ESW module. Router power supply upgrade (AC-IP) needed to provide inline power to switch.



Ethernet and High-speed Switching WICs *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-1FE</b>  	One-port Layer 3 Fast Ethernet High-Speed WAN Interface Cards for Cisco 1841, 2800, and 3800 Series Integrated Services Routers.  <b>Modular Router Solutions</b> The new HWIC-1FE provides additional Layer 3 routed ports with features equivalent to those on the motherboard of the Integrated Services Routers. These Fast Ethernet interfaces can be used for physical LAN segregation, creation of a demilitarized zone (DMZ), or as a WAN interface. Broadband customers can use them to connect to an alternate provider that delivers service on an Ethernet port.  The Layer 3 Cisco 1- port Fast Ethernet High-Speed WAN interface cards (HWICs) supported on the Cisco 1841, Cisco 2800, and Cisco 3800 Series Integrated Services Routers offer small- to large-sized businesses and enterprise branch-office customers the option to add Layer 3 routed ports with many advanced features, including quality-of-service (QoS) and rate-limiting capabilities.	12.4(11)XJ	Will move to next T train in April 2007

Ethernet and High-speed Switching WICs *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p><b>HWIC-2FE</b></p>	<p>Two-port Layer 3 Fast Ethernet High-speed WAN Interface Cards for Cisco 3800 Series Integrated Services Routers.</p> <p><b>Modular Router Solutions</b></p> <p>The new HWIC provides additional Layer 3 routed ports with features equivalent to those on the motherboard of the Integrated Services Routers. These Fast Ethernet interfaces can be used for physical LAN segregation, creation of a demilitarized zone (DMZ), or as a WAN interface. Broadband customers can use them to connect to an alternate provider that delivers service on an Ethernet port.</p> <p>The Layer 3 Cisco 2- port Fast Ethernet High-Speed WAN interface cards (HWICs) supported on the Cisco 3800 Series Integrated Services Routers offer small-to-large-sized businesses and enterprise branch-office customers the option to add Layer 3 routed ports with many advanced features, including quality-of-service (QoS) and rate-limiting capabilities</p>	12.4(1)XJ	Will move to next T train in April 2007
 <p><b>HWIC-1GE-SFP</b> One-slot GbE SFP</p>	<p>Provides one small form factor pluggable (SFP) slot to carry any standard copper or optical Cisco SFP.</p> <p><b>Modular Router Solutions</b></p> <p>Inter-VLAN Routing LAN-to-LAN Routing</p>	3800 Series-12.3(11)T 2811, 2821, and 2851-12.3(8)T4	The HWIC-1GE-SFP provides a single slot for a SFP and has no physical interface on board. It requires a SFP that must be purchased separately.

## HWIC - Wireless LAN Interface Cards and Accessories

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p><b>HWIC-AP-G and HWIC-AP-AG</b></p>	<p>The Cisco HWIC-AP-G 802.11b/g and HWIC-AP-AG 802.11a/b/g are wireless LAN interface cards in the HWIC (High-Speed WAN Interface Card) form factor providing integrated access point functionality in the Cisco 1800 (modular), Cisco 2800, and Cisco 3800 Integrated Services Routers.</p> <p>The Cisco HWIC-AP-G supports IEEE 802.11b/g and has a single radio that operates in the 2.4 GHz band supporting up to 54 Mbps speeds. The Cisco HWIC-AP-AG supports IEEE 802.11a/b/g and has two radios for simultaneous operation in the 2.4 GHz and 5 GHz bands supporting up to 108 Mbps speeds.</p> <p>The Cisco HWIC access points come with a pair of RP-TNC antenna connectors for both 2.4 GHz single-radio or simultaneous 2.4 and 5 GHz radio operation, providing range and coverage versatility.</p> <p><b>Modular Router Solutions</b> Wireless LAN</p>	3800 Series-12.4(2)T 2800 Series-12.4(2)T 1800 (modular) Series-12.4(2)T	Enterprise branch office and small- to medium-sized business customers can run concurrent services of Layer 3 routing, security, Layer 2 switching and now IEEE 802.11 wireless LAN functionality in a single platform. This combination offers ease of configuration, deployment, and management while delivering the performance, security, and versatility that Cisco Integrated Service Routers provide.
 <p><b>Wireless LAN Antennas</b> (AIR-ANTxxxx)</p>	<p>Cisco 2.4 and 5 GHz access point antennas, including single mode and dual mode antennas with RP-TNC connectors.</p> <p><b>Modular Router Solutions</b> Wireless LAN</p>	3800 Series with HWIC-AP 2800 Series with HWIC-AP 1800 (modular) Series with HWIC-AP 1800W (fixed) Series 870W (fixed) Series Aironet Series access points	External antennas and cables are ideal for antenna installation outside equipment rooms to optimize wireless LAN coverage and performance.

The HWIC-AP-G and HWIC-AP-AG modules are shipped with a pair of dipole antennas unless optional antennas are selected.

**HWIC - Wireless LAN Interface Cards and Accessories** continued

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>Wireless LAN Antenna Cables</b> (AIR-CABxxxx)	Cisco low-loss cables (e.g., 20 ft. (6m), 50 ft. (15m)) and ultra-low-loss cables (e.g., 100 ft. (30m), 150 ft. (46m)) .  <b>Modular Router Solutions</b> 3800 Integrated Services Routers 2800 Integrated Services Routers 1800 (Modular) Integrated Services Routers	3800 Series with HWIC-AP 2800 Series with HWIC-AP 1800 (modular) Series with HWIC-AP 1800W (fixed) Series 870W (fixed) Series Aironet Series access points	External antennas and cables are ideal for antenna installation outside equipment rooms to optimize wireless LAN coverage and performance.



## Cisco Voice Interface/WICs

**T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards**



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VWIC2-1MFT-T1/E1</b> One-port Second-generation T1/E1 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC2 provides a single-port WIC for T1 or E1 (including structured G.703 with G.704 framing) with an integrated DSU/CSU. For a packet voice solution, the VWIC2 provides a single-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module can partially provide a VWIC T1/E1 drop and insert multiplexer (requires 2 ports).  The module includes a slot for a dedicated ECAN (EC-MFT) module.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax	3800 Series-12.3(14)T; 12.4 Mainline 2800 Series-12.3(14)T; 12.4 Mainline	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).  Voice is only supported on the VIC slots on the Cisco 1751 and 1760.





T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VVIC2-2MFT-T1/E1</b> Two-port Second-generation T1/E1 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC2 provides a two-port WIC for T1 or E1 (including structured G.703 with G.704 framing) with an integrated DSU/CSU. For a packet voice solution, the VVIC2 provides a two-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module provides a two-port VVIC T1/E1 drop and insert multiplexer. The module includes a slot for a dedicated ECAN (EC-MFT) module.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax	3800 Series-12.3(14)T; 12.4 Mainline 2800 Series-12.3(14)T; 12.4 Mainline	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			
<b>VVIC-1MFT-T1</b> One-port RJ-48 Multiflex Trunk-T1 Voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a single-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a single-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4 1760-12.2(15)T	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			



T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VVIC-2MFT-T1</b> Two-port RJ-48 Multiflex Trunk-T1 Voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a two-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a two-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			
<b>VVIC-2MFT-T1-DI</b> Two-port RJ-48 Multiflex Trunk-T1 Voice/WIC with Drop and Insert	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a dual-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a dual-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a dual-port VVIC T1/FT1 with drop and insert multiplexer.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			

T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VWIC-1MFT-E1</b> One-port RJ-48 multiflex trunk-E1 voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC provides a single-port WIC for E1/FE1 with an integrated DSU. For a packet voice solution, the VWIC provides a single-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			
<b>VWIC-2MFT-E1</b> Two-port RJ-48 multiflex trunk-E1 voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC provides a two-port WIC for E1/FE1 with an integrated DSU. For a packet voice solution, the VWIC provides a two-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			

T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VWIC-2MFT-E1-DI</b> Two-port RJ-48 multiflex trunk-E1 voice/WIC with drop and insert	This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC provides a two-port WC for E1/FE1 with an integrated DSU. For a packet voice solution, the VWIC provides a dual-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a two-port VWIC E1/FE1 drop and insert multiplexer.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			
<b>VWIC2-1MFT-G703</b> One-port G.703 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC2 provides a single-port WIC for T1, fractional T1, E1 (including structured G.703 with G.704 framing), fractional E1 or unstructured E1 (G.703) with an integrated DSU/CSU. For a packet voice solution, the VWIC2 provides a single-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module can partially provide a VWIC T1/E1 drop and insert multiplexer (requires two ports). The module includes a slot for a dedicated ECAN (EC-MFT) module.  ..... <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax	3800 Series-12.3(14)T; 12.4 Mainline 2800 Series-12.3(14)T; 12.4 Mainline	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			



T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VWIC2-2MFT-G703</b> Two-port Second-generation G.703 Multiflex Trunk Voice/WAN Interface Card	<p>This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC2 provides a single-port WIC for T1, fractional T1, E1 (including structured G.703 with G.704 framing), fractional E1 or unstructured E1 (G.703) with an integrated DSU/CSU.</p> <p>For a packet voice solution, the VWIC2 provides a two-port voice interface card (VIC) with integrated DSU/CSU.</p> <p>For multiplexed voice and data applications, this module provides a two-port VWIC T1/E1 drop and insert multiplexer.</p> <p>The module includes a slot for a dedicated ECAN (EC-MFT) module.</p> <p>.....</p> <p><b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax</p>	3800 Series-12.3(14)T; 12.4 Mainline 2800 Series-12.3(14)T; 12.4 Mainline	<p>When used for a packet voice solution, requires a packet voice DSP module (PVDM2).</p> <p>The VWIC2-2MFT-G703 is not supported on the NM-HD-2VE.</p>
			
<b>VWIC-1MFT-G703</b> One-port RJ-48 Multiflex Trunk-E1 Framed/Unframed Voice/WIC	<p>This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC provides a one-port WIC for E1/FE1 or unframed G.703 with an integrated DSU. For a packet voice solution, the VWIC provides a one-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.</p> <p>.....</p> <p><b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration</p>	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			



T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VWIC-2MFT-G703</b> Two-port RJ-48 Multiflex Trunk-E1 Framed/Unframed Voice/WIC with Drop and Insert	<p>This module supports voice, data, and integrated voice/data applications. For data applications, the VWIC provides a two-port WIC for E1/FE1 or unframed G.703 with an integrated DSU. For a packet voice solution, the VWIC provides a two-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a two-port VWIC E1/FE1 drop and insert multiplexer.</p> <p>.....</p> <p><b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration</p>	3800 Series-12.3(11)T 2800 Series-12.3(8)T4 1841-12.3(8)T4	When used for a packet voice solution, requires a packet voice DSP module (PVDM2).
			




## Notes

# Cisco Voice Interface Cards



## Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum IOS Versions	Comments
<b>VIC-2DID</b> Two-port Direct Inward Dial Voice/Fax Interface Card	The two-port DID voice interface card, VIC-2DID, is a two-port inward dialing voice interface card. DID is a service offered by telephone companies that enables callers to dial directly to an extension on a Private Branch Exchange (PBX) or packet voice system. VIC-2DID card will service two analog DID trunks using analog voice or fax. It has dual working modes: DID and FXS. Two working modes are mutually exclusive.	3800 Series-12.3(1)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module. 12.3 Mainline and forward supported in IP Voice feature set.
	..... <b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC2-2FXS</b> Two-port FXS Voice/Fax Interface Card	The two-port FXS voice/fax interface card for Cisco voice/fax network modules is used to connect directly to phones and fax machines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and video conferencing.	3800 Series-12.3(1)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module. 12.3 Mainline and forward supported in IP Voice feature set.
	..... <b>Modular Router Solutions</b> Voice and Fax Integration		

Analog Voice Interface Cards *continued*



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC2-2FXO</b> Two-port FXO Voice/Fax Interface Card (universal card for all countries). Also Supports CAMA (Centralized Automated Message Accounting) on Any Port. 	FXO ports are used to connect to PBX or key systems, or to provide off-premise connections to PSTN or PTT. Supports battery reversal detection and caller ID. These Cisco VICs can be software-configured to work in all countries. Also used to connect to analog CAMA trunk to provide dedicated E-911 service (North America only).  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module.  12.3 Mainline and forward supported in IP Voice feature set.
<b>VIC2-4FXO</b> Four-port FXO Voice/Fax Interface Card (universal card for all countries). Also Supports CAMA (Centralized Automated Message Accounting) on Any Port. 	FXO ports are used to connect to PBX or key systems, or to provide off-premise connections to PSTN or PTT. Supports battery reversal detection and caller ID. These Cisco VICs can be software-configured to work in all countries. Also used to connect to analog CAMA trunk to provide dedicated E-911 service (North America only).  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module.  12.3 Mainline and forward supported in IP Voice feature set.
<b>VIC2-2E/M</b> Two-port E&M Voice/Fax Interface Card. Also Supports CAMA (Centralized Automated Message Accounting) on Any Port. 	The two-port E&M voice interface card for Cisco voice/fax network modules is used to connect to PBX or key system trunk lines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module.  12.3 Mainline and forward supported in IP Voice feature set.

Analog Voice Interface Cards *continued*




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-4FXS/DID</b> Four-port FXS Voice/Fax Interface Card 	FXS port is used to connect directly to phones, fax machines, and key systems. Generates battery polarity reversal and caller ID.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module.  12.3 Mainline and forward supported in IP Voice feature set.
<b>ISDN BRI Voice Interface Cards</b>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC2-2BRI-NT/TE</b> Two-port BRI Voice/Fax Interface Card 	This two-port ISDN terminal-side or network-side Basic Rate Interface (BRI) voice interface card connects directly to PSTNs and PBX/PABXs and supports both on-premise and off-premise connections. Supports a total of four voice channels in a single interface card via two RJ-45 physical ports, and enables toll-bypass and voice-over-packet features.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series-12.3(11)T 2800 Series-12.3(8)T4	When used in a Cisco 2800 or 3800 router, requires a DSP module.  12.3 Mainline and forward supported in IP Voice feature set.

# Cisco Advanced Integration Modules and Security Modules



## Compression Advanced Integration Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p><b>AIM-COMPR4</b> Cisco Data Compression Advanced Interface Module</p> 	<p>The data compression AIM plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers.</p> <p>.....</p> <p><b>Modular Router Solutions</b> Bandwidth Management</p>	3800 Series-12.3(11)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<p><b>AIM-COMPR2-V2</b> Cisco Data Compression Advanced Interface Module</p> 	<p>The data compression AIM plugs directly into one of the internal advanced integration module slots for supported Cisco routers.</p> <p>.....</p> <p><b>Modular Router Solutions</b> Bandwidth Management</p>	2811, 2821, and 2851-12.3(8)T4	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.




## Security Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-VPN/HPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM —High-performance	Provides enhanced hardware-accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPPCP LZS compression.	3845 Series–12.3(1)T	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules.  Requires Cisco IOS Security feature set.
	<b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management		
<b>AIM-VPN/EPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM —Enhanced-performance	Provides enhanced hardware-accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPPCP LZS compression.	3825 Series–12.3(1)T 2800 Series–12.3(8)T4	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules.  Requires Cisco Advanced Security feature set.
	<b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management		
<b>AIM-VPN/BPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM —Base-performance	Provides enhanced hardware-accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPPCP LZS compression.	1841–12.3(8)T4	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules.  Requires Cisco IOS Security feature set.
	<b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management		





## Security Modules continued

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CIDS-K9</b> Intrusion Prevention System Network Module	The IDS Network Module works in concert with the Cisco IDS Management Console, CiscoWorks VPN/Security Management Solution, and Cisco IDS Device Manager to efficiently protect your data and information infrastructure. With the increased complexity of security threats, achieving efficient network intrusion security solutions is critical to maintaining a high level of protection. Vigilant protection helps ensure business continuity and minimizes the effect of costly intrusions.	3800 Series–12.3(1)T 2811, 2821, 2851–12.3(8)T4	Requires a Cisco IOS Advanced Security, Advanced IP Services, or Advanced Enterprise Services feature set.
	<b>Modular Router Solutions</b> Security		
<b>Voice Mail Advanced Integration Modules</b>			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-CUE</b> Cisco Unity Express (voice mail) Advanced Integration Module	Provides eight hours of voice mail storage, up to 50 mailboxes, automated attendant services, four concurrent sessions, with CallManager Express or CallManager IP Telephony.	3800 Series–12.3(1)T 2800 Series–12.3(8)T4	Requires IP Voice feature set.  Requires Cisco Unity Express License.
	<b>Modular Router Solutions</b> IP Communications		

## ATM Advanced Integration Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-ATM</b> High-performance ATM Segmentation and Reassembly (SAR) Advanced Integration Module 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	Requires at least one voice/VWIC (VWIC). 12.3 Mainline and forward supported in SP Services feature set.
<b>AIM-ATM-1E1</b> High-performance E1 ATM bundle. Includes 1 VWIC-1MFT-E1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes one of the one-port E1 VWICs. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	12.3 Mainline and forward supported in SP Services feature set. This is a bundle of one AIM-ATM and one VWIC-1MFT-E1.
<b>AIM-ATM-1T1</b> High-performance T1 ATM bundle. Includes 1 VWIC-1MFT-T1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes one of the one-port T1 VWICs. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	12.3 Mainline and forward supported in SP Services feature set. This is a bundle of one AIM-ATM and one VWIC-1MFT-E1.

ATM Advanced Integration Modules *continued*

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-ATM-1T1/E1</b> High-performance T1/E1 ATM bundle. Includes 1 VWIC2-1MFT-T1/E1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications including one of the one-port T1/E1 VWIC2s. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(14)T, 2811, 2821, and 2851–12.3(14)T	Supported in SP Services feature set. This is a bundle of one AIM-ATM and one VWIC2-1MFT-T1/E1
<b>AIM-ATM-4E1</b> High-performance E1 ATM bundle. Includes 2 VWIC-2MFT-E1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes two of the two-port E1 VWICs. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	12.3 Mainline and forward supported in SP Services feature set. This is a bundle of one AIM-ATM and two VWIC-2MFT-E1s.
<b>AIM-ATM-4T1</b> High-performance T1 ATM bundle. Includes 2 VWIC-2MFT-T1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes two of the two-port T1 VWICs. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(11)T, 2811, 2821, and 2851–12.3(8)T4	12.3 Mainline and forward supported in SP Services feature set. This is a bundle of one AIM-ATM and two VWIC-2MFT-T1s.
<b>AIM-ATM-4T1/E1</b> High-performance T1/E1 ATM bundle. Includes 2 VWIC2-2MFT-T1/E1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications including two of the two-port T1/E1 VWIC2s. <hr/> <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series–12.3(14)T, 2811, 2821, and 2851–12.3(14)T	Supported in SP Services feature set. This is a bundle of one AIM-ATM and two VWIC2-2MFT-T1/E1

## Cisco Universal Serial Bus (USB) Cards

### Universal Serial Bus (USB) Ports

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>MEMUSB-64FT</b> 64 MB USB Flash Memory  	Provides 64 MB USB Flash Memory. ..... <b>Modular Router Solutions</b> USB Integration	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1841-12.3(14)T 1811, 1812-12.3(14)T 871-12.3(14)T 7200-NPE-2-12.4(4)XD, 12.4(1)T 7201-12.4(4)XD7	64 MB USB Flash Memory
<b>MEMUSB-128FT</b> 128 MB USB Flash Memory  	Provides 128 MB USB Flash Memory. ..... <b>Modular Router Solutions</b> USB Integration	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1841-12.3(14)T 1811, 1812-12.3(14)T 871-12.3(14)T 7200-NPE-2-12.4(4)XD, 12.4(1)T 7201-12.4(4)XD7	128 MB USB Flash Memory
<b>MEMUSB-256FT</b> 256 MB USB Flash Memory  	Provides 256 MB USB Flash Memory. ..... <b>Modular Router Solutions</b> USB Integration	3800 Series-12.3(14)T 2800 Series-12.3(14)T 1841-12.3(14)T 1811, 1812-12.3(14)T 871-12.3(14)T 7200-NPE-2-12.4(4)XD, 12.4(1)T 7201-12.4(4)XD7	256 MB USB Flash Memory

## Notes

# Cisco Network Module Compatibility Quick Look

3825	2811
3845	2821
	2851

## Ethernet Switching Network Modules and Accessories

<b>NM-16ESW</b> 16-port 10/100 EtherSwitch Network Modules	-	-
<b>NM-16ESW-1GIG</b> 16-port 10/100 EtherSwitch Network Module with 1 GbE (1000Base-T) port	-	-
<b>NM-16ESW-PWR</b> 16-port 10/100 EtherSwitch Network Module with inline power and GE	-	-
<b>NM-16ESW-PWR-1GIG</b> 16-port 10/100 EtherSwitch Network Modules with inline power and GE	-	-
<b>PPWR-DCARD-16ESW</b> Inline power daughter card for 16-port EtherSwitch Network Module	-	-
<b>GE-DCARD-ESW</b> 1000Base-T daughter card for EtherSwitch modules	-	-
<b>PWR675-AC-RPS-N1</b> Redundant Power Supply	3825 only	-
<b>NME-16ES-1GP</b> 16-port 10/100 EtherSwitch service Network Module with ILP + 1 SFP	-	-
<b>NME-X-23ES-1GP</b> 23-port 10/100 EtherSwitch Network Module with ILP + 1 10/100/1000 port with ILP	-	2821/ 2851 only
<b>NME-XD-24ES-1SP</b> 24-port 10/100 EtherSwitch service Network Module with ILP + 1 SFP + StackWise™	-	2851 only
<b>NME-XD-48ES-2SP</b> 48-port 10/100 EtherSwitch service Network Module with ILP + 2 SFP	-	2851 only

## LAN Network Modules

<b>NM-1GE</b> 1-port Gigabit Ethernet Network Module	-
<b>NM-1FE-FX-V2</b> 1-port Fast Ethernet Network Module (FX Only)	-

## LAN and WIC Combo Network Modules

<b>NM-1FE2W-V2</b> 1 10/100 Ethernet, 2 WAN card slot Network Module	-
<b>NM-2FE2W-V2</b> 2-port 10/100 Ethernet, 2 WIC slot Network Module	-



Cisco Network Modules		
Cisco Network Module Compatibility Quick Look <i>continued</i>		
	3825 3845	2811 2821 2851
<b>LAN and WIC Combo Network Modules <i>continued</i></b>		
<b>NM-1FE1R2W</b> 1 10/100 Ethernet, 1 4/16 Token Ring 2 WAN card slot Network Module	•	
<b>NM-2W</b> 2 WAN card slot Network Module (no LAN)	•	
<b>Serial Connectivity Network Modules</b>		
<b>NM-CEM-4TE1</b> 4-port Circuit Emulation over IP E1/T1 Network Module	•	•
<b>NM-CEM-4SER</b> 4-port Circuit Emulation over IP serial Network Module	•	•
<b>NM-1T3/E3</b> 1-port clear channel T3/E3 Network Module	•	•
<b>NM-1HSSI</b> 1-port HSSI Network Module	•	•
<b>NM-4T</b> 4-port serial Network Module	•	
<b>NM-4A/S</b> 4-port async/sync serial Network Module	•	•
<b>NM-8A/S</b> 8-port async/sync serial Network Module	•	•
<b>NM-16A/S</b> 16-port async/sync serial Network Module	•	•
<b>NM-16A</b> 16-port asynchronous module	•	•
<b>NM-32A</b> 32-port asynchronous module	•	•
<b>Channelized T1/E1 and ISDN Network Modules</b>		
<b>NM-1CE1T1-PRI</b> 1-port channelized T1/E1/ISDN-PRI Network Module	•	•
<b>NM-2CE1T1-PRI</b> 2-port channelized T1/E1/ISDN-PRI Network Module	•	•
<b>NM-4B-S/T</b> 4-port ISDN-BRI Network Module	•	•
<b>NM-4B-U</b> 4-port ISDN-BRI with NT-1 Network Module	•	•
<b>NM-8B-S/T</b> 8-port ISDN-BRI Network Module	•	•
<b>NM-8B-U</b> 8-port ISDN-BRI with NT-1 Network Module	•	•
<b>ATM Network Modules</b>		
<b>NM-1A-OC3-POM</b> ATM OC3 module with single POM (SFP) slot	•	
<b>NM-1A-T3</b> 1-port DS3 ATM Network Module	•	•
<b>NM-1A-E3</b> 1-port E3 ATM Network Module	•	•

Cisco Network Modules		
Cisco Network Module Compatibility Quick Look <i>continued</i>		
	3825 3845	2811 2821 2851
<b>Satellite WAN Connectivity Module</b>		
<b>NM-1VSAT-GILAT</b> 2-way Satellite WAN Connectivity Module	•	•
<b>Digital Dial-up and Remote Access Network Modules and Accessories</b>		
<b>NM-6DM</b> 6-port digital modem Network Module	•	
<b>NM-12DM</b> 12-port digital modem Network Module	•	
<b>NM-18DM</b> 18-port digital modem Network Module	•	
<b>NM-24DM</b> 24-port digital modem Network Module	•	
<b>NM-30DM</b> 30-port digital modem Network Module	•	
<b>MICA-6MOD</b> 6-port digital modem Network Module, spare	•	
<b>Analog Dial-up and Remote Access Network Modules</b>		
<b>NM-8AM-V2</b> 8-port analog modem Network Module	•	•
<b>NM-16AM-V2</b> 16-port analog modem Network Module	•	•
<b>Analog and ISDN Basic Rate Voice Network Modules and Accessories</b>		
<b>NM-HD-1V</b> 1-slot IP communications voice/fax Network Module	•	•
<b>NM-HD-2V</b> 2-slot IP communications voice/fax Network Module	•	•
<b>NM-HD-2VE</b> 2-slot IP communications enhanced voice/fax Network Module	•	•
<b>NM-HDA-4FXS</b> High-density analog voice/fax Network Module with 4 FXS	•	•
<b>EVM-HD-8FXS/DID</b> Extension voice module with 8 FXS	•	2821/ 2851 only
<b>EM-4BRI-NT/TE</b> 4-port voice and fax expansion module	•	2821/ 2851 only
<b>EM-HDA-6FXO</b> 6-port FXO voice and fax expansion module	•	2821/ 2851 only
<b>EM-HDA-3FXS/4FXO</b> 3-port FXS and 4-port FXO voice and fax expansion module	•	2821/ 2851 only
<b>EM-HDA-4FXO</b> 4-port voice/fax expansion module–FXO	•	•
<b>EM2-HDA-4FXO</b> Enhanced 4-port voice/fax expansion module FXO	•	•
<b>EM-HDA-8FXS</b> 8-port voice/fax expansion module–FXS	•	•
<b>DSP-HDA-16</b> 16-channel DSP module for NM-HDA	•	•

Cisco Network Modules		
Cisco Network Module Compatibility Quick Look <i>continued</i>		
	3825 3845	2811 2821 2851
<b>High-density Digital Voice Network Modules and Accessories</b>		
<b>NM-HDV2</b> IPC high-density digital voice Network Module	•	•
<b>NM-HDV2-1T1/1E1</b> IPC high-density digital voice Network Module with 1 built-in T1/E1	•	•
<b>NM-HDV2-2T1/1E</b> IPC high-density digital voice Network Module with 2 built-in T1/E1	•	•
<b>Voice Digital Signal Processors (DSPs )</b>		
<b>PVDM2-8</b> 8-channel packet voice DSP module	•	•
<b>PVDM2-16</b> 16-channel packet voice DSP module	•	•
<b>PVDM2-32</b> 32-channel packet voice DSP module	•	•
<b>PVDM2-48</b> 48-channel packet voice DSP module	•	•
<b>PVDM2-64</b> 64-channel packet voice DSP module	•	•
<b>Modem Digital Signal Processors (DSPs )</b>		
<b>PVDM2-12DM</b> 12-port digital modem module	•	•
<b>PVDM2-24DM</b> 24-port digital modem module	•	•
<b>PVDM2-36DM</b> 36-port digital modem module	•	•
<b>Services Network Modules</b>		
<b>NM-CIDS-K9</b> Intrusion Detection System Network Module	•	•
<b>NM-CUE</b> Cisco Unity Express Network Module for Voice Mail and AA 8 ports	•	•
<b>NM-CUE-EC</b> Cisco Unity Express Enhanced Capacity Network Module for Voice Mail and AA 16 ports	•	•
<b>NM-CE-BP-40G-K9</b> Content engine network module, basic performance, 40 GB IDE hard disk	•	•
<b>NM-CE-BP-80G-K9</b> Content engine network module, basic performance, 80 GB IDE hard disk	•	•
<b>EM-CE-40G</b> Expansion module, 40 GB IDE, field upgrade	•	•

Cisco Network Modules		
Cisco Network Module Compatibility Quick Look <i>continued</i>		
	3825 3845	2811 2821 2851
<b>Services Network Modules <i>continued</i></b>		
<b>EM-CE-80G</b> Expansion module, 80 GB IDE, field upgrade	•	•
<b>NM-NAM</b> Network Analysis Module	•	•
<b>NM-AIR-WLC6-K9</b> Wireless LAN Controller Module supporting up to 6 Cisco Aironet lightweight access points	•	•
<b>NM-WAE-302-K9</b> Need information here		
<b>NM-WAE-502-K9</b> Need information here		
<b>NME-WAE-302-K9</b> Wide Area Application Services (WAAS) Network Module WAAS transport only	•	•
<b>NME-WAE-502-K9</b> Wide Area Application Services (WAAS) Network Module WAAS transport or enterprise	•	•

Notes

## Cisco Interface Card Compatibility Quick Look

3825	2851	1841
3845	2821	
	2811	
	2801	

### Serial WICs

<b>WIC-1T</b> 1-port serial WIC	•	•	•
<b>WIC-2T</b> 2-port serial WIC	•	•	•
<b>WIC-1DSU-T1-V2</b> 1-port T1/fractional T1 DSU/CSU WIC	•	•	•
<b>WIC-1DSU-56K4</b> 1-port 4-wire 56/64 Kbps WIC	•	•	•
<b>WIC-2A/S</b> 2-port asynchronous/synchronous serial WIC	•	•	•
<b>HWIC-4T</b> 4-port serial high-speed WAN interface card	•	•	
<b>HWIC-16A</b> 16-port asynchronous high-speed WAN interface card	•	•	
<b>HWIC-4A/S</b> 4-port asynchronous/synchronous high-speed WAN interface card	•	•	•
<b>HWIC-8A/S-232</b> 8-port asynchronous/synchronous high-speed WAN interface card	•	•	•
<b>HWIC-8A</b> 8-port asynchronous high-speed WAN interface card	•	•	•

### ISDN BRI WICs

<b>WIC-1B-S/T-V3</b> 1-port ISDN WIC (dial and leased line)	•	•	•
<b>WIC-1B-U-V2</b> 1-port ISDN with NT-1 WIC (dial and leased line)	•	•	•

Cisco Interface Cards			
Cisco Interface Card Compatibility Quick Look <i>continued</i>			
	3825 3845	2851 2821 2811 2801	1841
<b>DSL WICs and HWICs</b>			
<b>WIC-1ADSL</b> 1-port ADSL WIC	.	.	.
<b>WIC-1ADSL-DG</b> 1-port ADSL WIC with Dying Gasp	.	.	.
<b>WIC-1ADSL-I-DG</b> 1-port ADSLoSDN WIC with Dying Gasp	.	.	.
<b>WIC-1SHDSL-V3</b> 1-port G.SHDSL WIC (2 or 4 wire only)	.	.	.
<b>HWIC-1ADSL</b> HWIC with ADSL over POTS	.	.	.
<b>HWIC-1ADSLI</b> HWIC with ADSL over ISDN	.	.	.
<b>HWIC-ADSL-B/ST</b> HWIC with ADSL over POTS and ISDN BRI ports	.	.	.
<b>HWIC-ADSLI -B/ST</b> HWIC with ADSL over POTS and ISDN BRI ports	.	.	.
<b>Cable (DOCSIS-based) HWICs</b>			
<b>HWIC-CABLE-D-2</b> 1-Port DOCSIS-based Cable HWIC	.	.	.
<b>HWIC-CABLE-E/J-2</b> 1-Port Euro/J-DOCSIS-based Cable HWIC	.	.	.
<b>Analog Modem WICs</b>			
<b>WIC-1AM-V2</b> 1-port analog modem WIC	.	.	.
<b>WIC-2AM-V2</b> 2-port analog modem WIC	.	.	.
<b>Ethernet and High-Speed Switching WICs</b>			
<b>HWIC-4ESW</b> 4-port Fast Ethernet switch HWIC	.	.	.
<b>HWIC-4ESW-POE</b> 4-port Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	.	.	.
<b>IPLM-4=</b> 4-port inline power module, spare	.	.	.
<b>HWIC-D-9ESW</b> 9-port double-wide, Fast Ethernet switch HWIC	.	.	.
<b>HWIC-D-9ESW-POE</b> 9-port double-wide, Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	.	.	.
<b>IPLM-8=</b> 8-port Inline power module, spare	.	.	.

Cisco Interface Cards			
Cisco Interface Card Compatibility Quick Look <i>continued</i>			
	3825 3845	2851 2821 2811 2801	1841
<b>Ethernet and High-Speed Switching WICs <i>continued</i></b>			
<b>HWIC-1FE</b> 1-port Layer 3 Fast Ethernet	.	.	.
<b>HWIC-2FE</b> 1-port Layer 3 Fast Ethernet	.	.	.
<b>HWIC-1GE-SFP</b> 1-port Gigabit Ethernet	.	2811, 2821, 2851 only	.
<b>T1, E1, T1/E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards</b>			
<b>VWIC-1MFT-T1</b> 1-port RJ-48 multiflex trunk – T1	.	.	.
<b>VWIC2-1MFT-T1/E1</b> 1-port second-gen multiflex trunk voice/WAN Interface Card - G.703	.	.	.
<b>VWIC-2MFT-T1</b> 2-port RJ-48 multiflex trunk – T1	.	.	.
<b>VWIC2-2MFT-T1/E1</b> 2-port second-gen multiflex trunk voice/WAN Interface Card - T1/E1	.	.	.
<b>VWIC-2MFT-T1-DI</b> 2-port RJ-48 multiflex trunk – T1 with drop and insert	.	.	.
<b>VWIC-1MFT-E1</b> 1-port RJ-48 multiflex trunk – T1	.	.	.
<b>VWIC-2MFT-E1</b> 2-port RJ-48 multiflex trunk – T1	.	.	.
<b>VWIC-2MFT-E1-DI</b> 2-port RJ-48 multiflex trunk – E1 with drop and insert	.	.	.
<b>VWIC-1MFT-G703</b> 1-port RJ-48 multiflex trunk – G.703	.	.	.
<b>VWIC2-1MFT-G703</b> 1-port second-gen multiflex trunk voice/WAN Interface Card - G.703	.	.	.
<b>VWIC-2MFT-G703</b> 2-port RJ-48 multiflex trunk – G.703	.	.	.
<b>VWIC2-2MFT-G703</b> 2-port second-gen multiflex trunk voice/WAN Interface Card - G.703	.	.	.
<b>Multiflex Trunk Dedicated Echo Cancellation Modules (requires appropriate Multiflex Trunk Voice/WAN Interface Card)</b>			
<b>EC-MFT-32*</b> 32 channel multiflex trunk dedicated echo cancellation module	.	.	.
<b>EC-MFT-64*</b> 64 channel multiflex trunk dedicated echo cancellation module	.	.	.

Cisco Interface Card Compatibility Quick Look continued

3825	2851	1841
3845	2821	
	2811	
	2801	

## Analog Voice Interface Cards

<b>VIC-2DID</b> 2-port DID (direct inward dial) voice/fax interface card	•	•
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<b>VIC2-2FXS</b> 2-port voice interface card – FXS	•	•
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<b>VIC2-2FXO</b> 2-port voice interface card – FXO (universal for all countries, also supports CAMA)	•	•
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<b>VIC2-4FXO</b> 4-port voice interface card – FXO (universal for all countries)	•	•
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<b>VIC2-2E/M</b> 2-port voice interface card – E and M	•	•
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<b>VIC-4FXS/DID</b> 4-port FXS/DID (direct inward dial) voice/fax interface card	•	•
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## ISDN BRI Voice Interface Cards

<b>VIC2-2BRI-NT/TE</b> 2-port voice interface card – BRI (NT and TE)	•	•
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## Notes

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# Cisco Advanced Integration Module Compatibility Quick Look

3825	2851	1841
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## Compression Advanced Integration Modules

**AIM-COMPR4**  
Compression advanced integration module for Cisco 3660

•

**AIM-COMPR2-V2**  
Compression advanced integration module for Cisco 2600

2811,  
2821,  
2851  
only

## VPN and Encryption Advanced Integration Modules

**AIM-VPN/HP11-PLUS: DES/3DES/AES**  
VPN encryption and compression AIM  
– high performance

3845  
only

**AIM-VPN/EPI1-PLUS: DES/3DES/AES**  
VPN encryption and compression AIM  
– enhanced performance

3825  
only

•

**AIM-VPN/BPI1-PLUS: DES/3DES/AES**  
VPN encryption and compression AIM  
– basic performance

•

**AIM-VPN/SSL-1**  
DES/3DES/AES/SSL VPN Encryption/Compression

•

**AIM-VPN/SSL-2**  
DES/3DES/AES/SSL VPN Encryption/Compression

•

**AIM-VPN/SSL-3**  
DES/3DES/AES/SSL VPN Encryption/Compression

•

## Voice-mail Advanced Integration Modules

**AIM-CUE**  
High-performance

6 ports

6 ports

Cisco Advanced Integration Module Compatibility Quick Look *continued*

3825	2851	1841
3845	2821	
	2811	
	2801	

## ATM Advanced Integration Modules

<b>AIM-ATM</b> High-performance ATM segmentation and reassembly (SAR) advanced integration module	•	2811, 2821, 2851 only
<b>AIM-ATM-1E1</b> High-performance E1 ATM bundle, one AIM-ATM and one VVIC-1MFT-E1	•	2811, 2821, 2851 only
<b>AIM-ATM-1T1</b> High-performance T1 ATM bundle, one AIM-ATM and one VVIC-1MFT-T1	•	2811, 2821, 2851 only
<b>AIM-ATM-1T1/E1</b> High performance T1/E1 ATM bundle, one VVIC2-1MFT-T1/E1 and one AIM-ATM	•	2811, 2821, 2851 only
<b>AIM-ATM-4E1</b> High-performance E1 ATM bundle, two VVIC-2MFT-E1 and one AIM-ATM	•	2811, 2821, 2851 only
<b>AIM-ATM-4T1</b> High-performance T1 ATM bundle, two VVIC-2MFT-T1 and one AIM-ATM	•	2811, 2821, 2851 only
<b>AIM-ATM-4T1/E1</b> High performance T1/E1 ATM bundle, two VVIC2-2MFT-T1/E1 and one AIM-ATM	•	2811, 2821, 2851 only

Cisco Port Adapter  
Compatibility Quick Look

7200 VXR	7201	7301	7304 Carrier Card (VIP4/VIP6)	7500 Enhanced FlexWAN	7600 Enhanced FlexWAN	6500 Enhanced FlexWAN
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## ATM Port Adapters

<b>PA-A3-8T1/MA</b> 8-port ATM inverse Mux T1 port adapter	•	•	•	•	•	•
<b>PA-A3-8E1/MA</b> 8-port ATM inverse Mux E1 (120 ohm) port adapter	•	•	•	•	•	•
<b>PA-A3-OC3MM/SMI</b> 1-port ATM-enhanced OC-3c/STM1 multimode or single-mode port adapter	•	•	•	•	•	•
<b>PA-A6-OC3SMI</b> 1-port ATM-enhanced OC3c/STM1 Singlemode (IR) port adapter	•	•	•	•	•	•
<b>PA-A6-OC3SML</b> 1-port ATM-enhanced OC3c/STM1 Singlemode (LR) port adapter	•	•	•	•	•	•
<b>PA-A6-E3</b> 1-port ATM-enhanced E3 port adapter (8k VCs)	•	•	•	•	•	•
<b>PA-A6-T3</b> 1-port ATM-enhanced DS3 port adapter (8kVCs)	•	•	•	•	•	•

Cisco Port Adapter Compatibility Quick Look continued

	7200 VXR	7201	7301	7304 Carrier Card	7500 (VIP4/VIP6)	7600 Enhanced FlexWAN	6500 Enhanced FlexWAN
<b>Ethernet Port Adapters</b>							
<b>PA-2FE-TX/FX</b> 2-port Fast Ethernet 100Base-TX/FX port adapter	.	.	.	.	.	.	.
<b>PA-4E</b> 4-port Ethernet 10Base-T port adapter	.	.	.	.	.	.	.
<b>PA-8E</b> 8-port Ethernet 10Base-T port adapter	.	.	.	.	.	.	.
<b>PA-GE</b> Gigabit Ethernet port adapter	.	.	.	.	.	.	.
<b>Serial and High-Speed Serial Port Adapters</b>							
<b>PA-H</b> 1-port HSSI port adapter	.	.	.	.	.	.	.
<b>PA-2H</b> 2-port HSSI port adapter	.	.	.	.	.	.	.
<b>PA-E3</b> 1-port E3 serial port adapter with E3 DSU	.	.	.	.	.	.	.
<b>PA-2E3</b> 2-port E3 serial port adapter with E3 DSUs	.	.	.	.	.	.	.
<b>PA-T3+</b> 1-port T3 serial port adapter, enhanced	.	.	.	.	.	.	.
<b>PA-2T3+</b> 2-port T3 serial port adapter, enhanced	.	.	.	.	.	.	.
<b>PA-4B-U</b> 4-port BRI port adapter, U interface	.	.	.	.	.	.	.
<b>PA-8B-S/T</b> 8-port BRI port adapter, S/T interface	.	.	.	.	.	.	.
<b>Serial Port Adapters</b>							
<b>PA-4E1G</b> 4-port E1 G.703 serial port adapter (75 and 120 ohm/balanced)	.	.	.	.	.	.	.
<b>PA-4T+</b> 4-port serial port adapter, enhanced	.	.	.	.	.	.	.
<b>PA-8T-232</b> 8-port serial, EIA-232 port adapter	.	.	.	.	.	.	.
<b>PA-8T-V35</b> 8-port serial, V.35 port adapter	.	.	.	.	.	.	.
<b>PA-8T-X21</b> 8-port serial, X.21 port adapter	.	.	.	.	.	.	.

Cisco Port Adapter Compatibility Quick Look continued

	7200 VXR	7201	7301	7304 Carrier Card	7500 (VIP4/VIP6)	7600 Enhanced FlexWAN	6500 Enhanced FlexWAN
<b>Multichannel Serial Port Adapters</b>							
<b>PA-MC-4T(1)</b> 4-port multichannel T1 port adapter with integrated CSU/DSUs	.	.	.	.	.	.	.
<b>PA-MC-8TE1+</b> 8-port multichannel T1/E1 8PRI port adapter	.	.	.	.	.	.	.
<b>PA-MC-2E1/120</b> 2-port multichannel E1 port adapter with G.703 120 ohm interface	.	.	.	.	.	.	.
<b>PA-MC-E3</b> 1-port multichannel E3 port adapter	.	.	.	.	.	.	.
<b>PA-MC-T3</b> 1-port multichannel T3 port adapter	.	.	.	.	.	.	.
<b>PA-MC-2T3+</b> 2-port multichannel T3 port adapter	.	.	.	.	.	.	.
<b>PA-MC-STM-1MM/SMI</b> 1-port multichannel STM-1 multimode and single-mode port adapter	.	.	.	.	.	.	.
<b>PA-MC-T3-EC</b> 1-port Multichannel T3 Enhanced Capability	.	.	.	.	.	.	.
<b>PA-MC-2T3-EC</b> 2-port Multichannel T3 Enhanced Capability	.	.	.	.	.	.	.
<b>Voice</b>							
<b>PA-MCX-2TE1</b> 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	.	.	.	.	.	.	.
<b>PA-MCX-4TE(1)</b> 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	.	.	.	.	.	.	.
<b>PA-MCX-8TE(1)</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	.	.	.	.	.	.	.
<b>PA-VXC-2TE1+</b> 2-port T1/E1 high-capacity enhanced-voice PA	.	.	.	.	.	.	.
<b>PA-VXB</b> 1-port T1/E1 digital voice port adapter with 24- or 30-port channel option	.	.	.	.	.	.	.
<b>PA-VXA-1TE1</b> 1-port T1/E1 digital voice port adapter with 24- or 30-port channel option	.	.	.	.	.	.	.



## Cisco Port Adapter Compatibility Quick Look continued

	7200 VXR	7201	7301	7304 Carrier Card	7500 (VIP4/VIP6)	7600 Enhanced FlexWAN	6500 Enhanced FlexWAN
<b>SONET PAs</b>							
<b>PA-POS-OC3-SMI</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	.		.	.	.	.	.
<b>PA-POS-OC3-SML</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	.		.	.	.	.	.
<b>PA-POS-OC3-MM</b> 1-port packet/SONET OC-3c/ STM1 multimode port adapter	.		.	.	.	.	.
<b>PA-POS-1OC3</b> 1-port packet/SONET OC3 port adapter	.	.	.	.	.	.	.
<b>PA-POS-2OC3</b> 2-port packet/SONET OC3 port adapter	.	.	.	.	.	.	.
<b>VPN Service Adapters</b>							
<b>SA-VAM2+</b> AES wide key crypto card	.	.	.				
		7201 w/IOS 12.4T					
<b>C7200-VSA</b> Cisco 7200 VPN Services Adapter				NPE-G2 only			
<b>Other Port Adapters and SAs</b>							
<b>PA-4C-E</b> 1-port-enhanced ESCON channel port adapter	.						
<b>PA-4R-DTR</b> 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX	.						

## Cisco Shared Port Adapter Compatibility Quick Look

	7304- MSC-100	7600- SIP-200	6500- SIP-200	7600- SIP-400	6500- SIP-400	7600- SIP-600	6500- SIP-600
<b>Shared Port Adapters</b>							
<b>SPA-8XCHT1/E1</b> 8-port Channelized T1E1 SPA		.	.				
<b>SPA-2XT3/E3</b> 2-port T3/E3 Serial SPA	.	.	.				
<b>SPA-4XT3/E3</b> 4-port T3/E3 Serial SPA	.	.	.				
<b>SPA-2XCT3/DS0</b> 2-port Channelized T3 to DS0 SPA		.	.				
<b>SPA-4XCT3/DS0</b> 4-port Channelized T3 to DS0 SPA		.	.				
<b>SPA-1XCHSTM1/OC3</b> 1-port Channelized STM1 to OC3 SPA		.	.				
<b>SPA-2XOC3-ATM</b> 2-port OC3/STM1 ATM SPA		.	.	.	.		
<b>SPA-4XOC3-ATM</b> 4-port OC3/STM1 ATM SPA		.	.	.	.		
<b>SPA-1XOC12-ATM</b> 1-port OC12/STM4 ATM SPA				.	.		
<b>SPA-1XOC48-ATM</b> 1-port OC48/STM16 ATM SPA				.	.		
<b>SPA-2XOC3-POS</b> 2-port OC3/STM1 POS SPA	.	.	.	.	.		
<b>SPA-4XOC3-POS</b> 4-port OC3/STM1 POS SPA	.	.	.	.	.		
<b>SPA-1XOC12-POS</b> 1-port OC12/STM4 POS SPA	.			.	.		
<b>SPA-1XOC48-POS/RPR</b> 1-port OC48/STM16 POS/RPR SPA				.	.	.	
<b>SPA-2XOC48-POS/RPR</b> 2-port OC48/STM16 POS/RPR SPA				.	.	.	.
<b>SPA-4XOC48-POS/RPR</b> 4-port OC48/STM16 POS/RPR SPA				.	.	.	.
<b>SPA-OC192POS-VSR</b> 1-port OC192/STM64 POS/RPR SPA VSR optics				.	.	.	.
<b>SPA-OC192POS-LR</b> 1-port OC192/STM64 POS/RPR SMLR optics				.	.	.	.
<b>SPA-1XOC192POS-XFP</b> 1-port OC192/STM64 POS/RPR XFP optics				.	.	.	.
<b>SPA-2X1GbE</b> 2-port 1GbE SPA			.	.			
<b>SPA-5X1GbE</b> 5-port 1GbE SPA				.	.	.	.

Cisco Series Port Adapter Compatibility Quick Look							
	7304- MSC-100	7600- SIP-200	6500- SIP-200	7600- SIP-400	6500- SIP-400	7600- SIP-600	6500- SIP-600
<b>Shared Port Adapters continued</b>							
<b>SPA-10X1GbE</b> 10-port 1GbE SPA						.	.
<b>SPA-1XTENGE-XFP</b> 1-port 10GbE SPA XFP based						.	.
<b>SPA-4X1FE-TX-V2</b> 4-port 10BASE-T/100BASE-TX Fast Ethernet SPA		.	.				
<b>SPA-8X1FE-TX-V2</b> 8-port 10BASE-T/100BASE-TX Fast Ethernet SPA		.	.				
<b>SPA-2X1GE-V2</b> 2-port 1GbE SPA				.			
<b>SPA-5X1GE-V2</b> 5-port 1GbE SPA				.		.	

Cisco USB Flash Memory Compatibility Quick Look					
	800	1800	2800	3800	7200
<b>USB Flash Memory</b>					
<b>MEMUSB-64FT</b> 64 MB USB Flash Memory	871 only	1811, 1812, 1841 only	.	.	NPE-G2 only
<b>MEMUSB-128FT</b> 128 MB USB Flash Memory	871 only	1811, 1812, 1841 only	.	.	NPE-G2 only
<b>MEMUSB-256FT</b> 256 MB USB Flash Memory	871 only	1811, 1812, 1841 only	.	.	NPE-G2 only

Notes

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