Cisco 2600 Series
Modular Multiservice Routers

Cisco Systems extends Enterprise/Provider-class versatility, integration, and power to branch offices with the Cisco 2600 Series modular access router family.

The widely deployed Cisco 2600 Series provides a cost-effective solution to meet today's and tomorrow's branch office needs for:

- Multiservice voice/data integration
- Virtual Private Network (VPN) access with Firewall options
- Analog and digital dial access services
- Routing with Bandwidth Management
- Inter-VLAN routing

Branch office networking requirements are dramatically evolving, driven by web and e-commerce applications to enhance productivity and converging the voice and data infrastructure to reduce costs. In order to continue the multiservice, content networking, VPN and bandwidth build-out, the Cisco 2600 series delivers up to ten times the performance and capabilities of traditional small/medium branch office platforms.

While the pace of change in network technology continues to increase, global deregulation of telecommunications has allowed more service providers to compete for data, voice, and video network services. Only companies who have designed their network infrastructures with these factors in mind will be able to benefit from the lower prices caused by increased competition and protect themselves from "technology lockout" in the future.

The Cisco 2600 series is a key member of the Cisco data/voice/video integration portfolio, delivering the industry's broadest range of end-to-end IP- and Frame Relay-based packet telephony solutions.

The Cisco 2600 series delivers "Enterprise/Provider class" solutions for the demanding needs of multiservice Enterprises and their managed services CPE Providers. The Cisco 2600 series' modular architecture provides the versatility needed to adapt to changes in network technology as new services and applications become available. By sharing modular interfaces with the Cisco 1600, 1700, and 3600 series, the Cisco 2600 offers unrivaled investment protection.

Cisco 2600 Series

Driven by a powerful RISC processor along with high-performance DSPs and auxiliary processors on various interfaces, the Cisco 2600 Series supports the advanced Quality of Service (QoS), security, and network integration features required in today's evolving enterprise networks.

The Cisco 2600 Series is available in three performance levels and six base configurations:

- Cisco 2650 and Cisco 2651— up to 37K packets per second (pps), one and two autosensing 10/100 Mbps Ethernet ports
- Cisco 2620 and Cisco 2621— up to 25K pps, one and two autosensing 10/100 Mbps Ethernet ports
- Cisco 2610 through Cisco 2613—up to 15K pps
  - Cisco 2613—One Token Ring port
  - Cisco 2612—One Ethernet port, one Token Ring port
  - Cisco 2611—Two Ethernet ports
  - Cisco 26**10**—One Ethernet port

Each model also has two WAN Interface Card (WIC) slots, a Network Module slot and an internal Advanced Integration Module (AIM) slot. These slots share more than 50 different modules across four Cisco product lines. The WAN Interface Cards (WICs) available for the Cisco 1600, 1700, 2600, and 3600 routers support a variety of serial, ISDN Basic Rate Interface (BRI), and integrated channel service unit/data service unit (CSU/DSU) options for primary and backup WAN connectivity. Network modules available for the Cisco 2600 and 3600 Series support a broad range of applications, including multiservice voice/data integration, analog and ISDN dial access, ATM access, and serial device concentration. The internal Data Compression Advanced Integration Module (AIM) for the Cisco 2600 Series off-loads the task of performing high-speed data compression, allowing compressed data throughput of up to 8 Mbps, and enabling new services while preserving external interface slots for other applications.

Key Benefits

As part of Cisco's comprehensive end-to-end networking solution, the Cisco 2600 Series allows businesses to extend a cost-effective, seamless network infrastructure to the branch office with the following benefits:

- Investment protection—Because the Cisco 2600 Series supports field-upgradable modular components, customers can easily change network interfaces without a "forklift upgrade" of the entire branch office network solution. The AIM slot of the Cisco 2600 platform further protects investments by offering the expandability to support advanced services such as hardware-assisted data compression and, in the future hardware-assisted data encryption.
- Lower cost of ownership—By integrating the functions of CSU/DSUs, ISDN Network Termination (NT1) devices, firewalls, modems, compression or encryption devices, and other equipment found in branch office wiring closets in a single, compact unit, the Cisco 2600 Series provides a space-saving solution that can be managed remotely using network management applications such as CiscoWorks and CiscoView.
- Multiservice voice/data integration—The Cisco 2600 Series allows network managers to reduce long-distance interoffice calling costs and enables next-generation applications such as integrated messaging and Web-based call centers. Using the Voice/Fax modules, the Cisco 2600 may be deployed in both Voice over IP (VoIP) and Voice over Frame Relay (VoFR) networks. When used with the new packet voice trunk module, a single Cisco 2600 Series can support 60 simultaneous voice calls as well as routing and other services.
- Enterprise / Provider class solution—Meets the requirements of multiservice enterprises and their managed service CPE providers with high reliability features, multiple WAN connections, and the ability to migrate from data- only to TDM voice and data to packetized voice and data infrastructure.

Key Features and Benefits

The Cisco 2600 Series brings a cost-effective combination of versatility, integration, and power to branch offices with the key features listed in Table 1.

Table 1 Key Features and Benefits of the Cisco 2600 Series

Features	Benefits
Versatility and Investment Protection	
Modular Architecture	• Network interfaces are field-upgradable to accommodate future technologies while providing a solution to meet today's needs • Additional interfaces can be added on a "pay as you grow" basis to accommodate network expansion • LAN and WAN interface configuration is easily customized for individual needs
WAN Interface Cards and Network Modules Shared with Cisco 1600, 1700, and 3600 Series Routers	• Reduced cost of maintaining inventory of Cisco 1600, 1700, 2600, and 3600 Series modular components • Lower training costs for support personnel
Multiflex Voice/WAN interface card support	• Can be used for WAN (data-only) connectivity then re-deployed to support channelized voice and data or packet voice applications
Advanced Integration Module Slot	• Expandability for integration of advanced services such as hardware-assisted data compression and encryption • Maximizes performance by off-loading processor intensive applications to a coprocessor
DC Power Supply Option	• Allows deployment in DC power environments such as telecommunications carrier central offices
Enterprise/ Provider -Class Performance	
High-Performance RISC Architecture	• Support for advanced QoS features such as the Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), and IP Precedence to reduce recurring WAN costs • Enables security features such as data encryption, tunneling, and user authentication and authorization for VPN access • ICSA-certified Cisco IOS Firewall feature sets provide support for advanced security features such as Context-Based Access Control (CBAC), Java blocking, denial of service protection, intrusion detection, and audit trails • Support for cost-effective, software-based data compression and data encryption • Integration of legacy networks via data link switching plus (DLSW+) and Advanced Peer-to-Peer Networking (APPN) • High-speed routing performance of up to 37,000 packets per second for maximum scalability to support more concurrent functions (Cisco 2650 and Cisco 2651)
Full Cisco IOS® Support	• Part of Cisco's standards-based end-to-end network solutions including "General Deployment" versions.
Simplified Management	
Integrated CSU/DSU, add/drop multiplexers, Analog Modems and NT1 Options	• Enables remote management of all Customer Premise Equipment (CPE) elements for higher network availability and lower operational costs
Support for CiscoWorks and CiscoView	• Allows simplified management of all integrated and stackable components
Support for Cisco Voice Manager (CVM)	• Reduces the cost of deploying and managing integrated voice/data solutions
Support for Cisco Configmaker	• Simplifies configuration using a graphical user interface for many application
Enhanced Setup Feature	• Context-sensitive questions guide the user through the router configuration process, allowing faster deployment
Support for Cisco Auto Install	• Configures remote routers automatically across a WAN connection to save cost of sending technical staff to the remote site
Part of Cisco's Enterprise Stackable Solutions	• Can be stacked with LAN switches such as the Catalyst® 1900 or 2820XL for simplified management

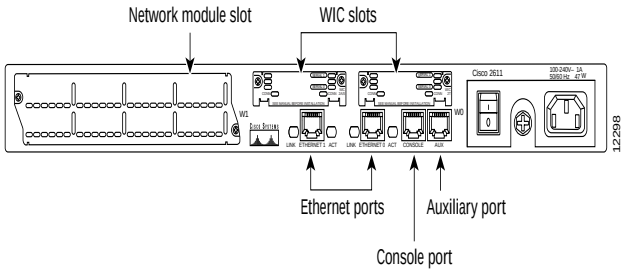
Table 1 Key Features and Benefits of the Cisco 2600 Series (Continued)

Features	Benefits
VLAN Support	• Enables inter-VLAN routing via Cisco's Inter-Switch Link (ISL) protocol (Cisco 2620 and 2621), reducing the cost of adds, moves and changes
Reliability	
Redundant Power Supply Option	• RPS can be shared with other network components such as the Cisco Catalyst 1900 Series to protect the network from downtime due to power failures
Dial-on-Demand Routing	• Allows automatic backup of WAN connection in case of a primary link failure
Dual Bank Flash Memory	• Backup copy of the Cisco IOS software can be stored in Flash memory
Ergonomic Design	
LED Status Indicators	• Provide at-a-glance indications for power, RPS status, network activity, and interface status
All Network Interfaces Located on Back of Unit	• Simplifies installation and cable management for maximum uptime
Easy-to-Open Chassis Design	• Allows fast and easy access for installation of memory or AIM
Multispeed Fan	• Enables quiet operation in office environments

Hardware/Software Options

Cisco 2600 Series routers offer a choice of Ethernet, Token Ring, and autosensing 10/100 Ethernet LAN interfaces. In addition, each model features two WAN Interface Card (WIC) slots, one Network Module slot, and an Advanced Integration Module (AIM) slot. (see Figure 2).

Figure 1 Cisco 2600 Rear Panel (Cisco 2611 shown, AIM slot not visible)



Network Module Options

Network modules enable the Cisco 2600 Series to be customized to meet needs of virtually any branch office. These modules support a broad range of applications, including multiservice voice/data integration, analog and ISDN dial access, ATM access, and serial device concentration. The Cisco 2600 Series share network modules with the higher performance Cisco 3600 Series and currently supports the more than 30 network modules listed in Table 2.

Table 2 Network Modules for Cisco 2600 Series

Module	Description	Module	Description
Serial and ATM Network Modules (requires IOS release 11.3 (3)T or later)			
NM-4T1-ATM[1, 2]	4-port T1 ATM with IMA network module	NM-8T1-ATM[1, 2]	8-port T1 ATM with IMA network module
NM-4E1-ATM[1, 2]	4-port E1 ATM with IMA network module	NM-8E1-ATM[1, 2]	8-port E1 ATM with IMA network module
NM-1A-T3[1, 4]	1-Port DS3 ATM Network Module	NM-1A-E3[1, 4]	1-Port E3 ATM Network Module
NM-16A	16-port high density async network module	NM-32A	32-port high density async network module
NM-4A/S	Four-port low speed (128 Kbps max) async/ sync serial network module	NM-8A/S	Eight-port low speed (128 Kbps max) async/ sync serial network module
LAN / LAN to LAN Network Modules (requires IOS release 11.3 (4) T or later)			
NM-1E	One-port Ethernet network module	NM-4E	Four-port Ethernet network module
NM-1ATM-25[1]	One-port ATM 25Mbps network module	NM-2W	Two-WAN interface card slot network module, (WAN interface cards offered separately)
Dial, ISDN and Channelized Serial Network Modules (requires IOS release 11.3 (4) T or later)			
NM-1CT1	One-port channelized T1/ISDN PRI network module	NM-1CT1-CSU	One-port channelized T1/ISDN PRI with CSU network module
NM-2CT1	Two-port channelized T1/ISDN PRI network module	NM-2CT1-CSU	Two-port channelized T1/ISDN PRI with CSU network module
NM-1CE1B	One-port channelized E1/ISDN PRI balanced network module	NM-1CE1U	One-port channelized E1/ISDN PRI unbalanced network module
NM-2CE1B	Two-port channelized E1/ISDN PRI balanced network module	NM-2CE1U	Two-port channelized E1/ISDN PRI unbalanced network module
NM-4B-S/T	Four-port ISDN BRI network module (S/T interface)	NM-4B-U	Four-port ISDN BRI with NT-1 network module (U interface)
NM-8B-S/T	Eight-port ISDN BRI network module (S/T interface)	NM-8B-U	Eight-port ISDN BRI with NT-1 network module (U interface)
NM-8AM	Eight analog modem network module	NM-16AM	Sixteen analog modem network module
Voice/Fax Network Modules (requires IOS release 11.3 (2) or later)			
NM-HDV-1T1-12[1, 2]	12-channel T1 high density voice/fax network module	NM-HDV-1E1-12[1, 3]	12-channel E1 high density voice/fax network module
NM-HDV-1T1-24[1, 2]	24-channel T1 high density voice/fax network module	NM-HDV-1E1-30[1, 3]	30-channel E1 high density voice/fax network module
NM-HDV-1T1-24E[1, 2]	24-channel T1 enhanced high density voice/ fax network module	NM-HDV-1E1-30E[1, 3]	30-channel enhanced E1 high density voice/ fax network module
NM-HDV-2T1-48[1, 2]	48-channel T1 high density voice/fax network module	NM-HDV-2E1-60[1, 3]	60-channel E1 high density voice/fax network module
NM-HDV=[1, 2]	High-density voice module, spare (no T1 or DSPs)	NM-1V[1]	One-slot voice/fax network module
NM-2V[1]	Two-slot voice/fax network module		

1. The voice/fax and ATM network modules require a Cisco IOS Plus feature set.
2. Requires Cisco IOS Version 12.05XK or later.
3. Requires Cisco IOS Version 12.07XK or later.
4. Requires Cisco IOS Version 12.1.2T or later.

Table 3 Voice Interface Cards for use with the Voice/Fax Network Modules

Module	Description
VIC-2BRI-S/T-TE[1]	Two-port BRI S/T terminal equipment voice/fax interface card for voice/fax network module
VIC-2FXS	Two-port FXS voice/fax interface card for voice/fax network module
VIC-2FXO-M1[2]	Two-port FXO voice/fax interface card for voice/fax network module with Caller ID and supervisory disconnect (North American version and other countries)
VIC-2FXO	Two-port FXO voice/fax interface card for voice/fax network module (North American version and other countries)
VIC-2FXO-M2[2]	Two-port FXO voice/fax interface card with Caller ID and supervisory disconnect (Europe version)
VIC-2FXO-EU	Two-port FXO voice/fax interface card (Europe version)
VIC-2FXO-M3	Two-port FXO voice/fax interface card for Australia
VIC-2E/M	Two-port E&M voice/fax interface card for voice/fax network module

1. Supported with Cisco IOS 12.0(3)T or later
2. Supported with Cisco IOS 12.1(2)XH or later

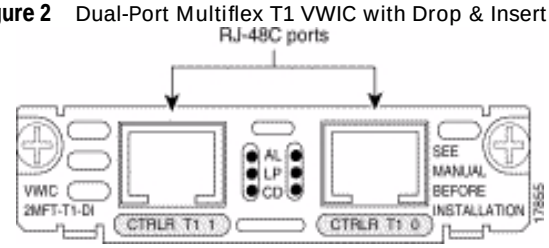
Also see the new Multiflex Voice/WAN Interface Cards (VWICs) in Table 4.

Multiflex Voice/WAN Interface Card and WAN Interface Card Options

The Cisco 2600 Series WAN interface card slots supports 15 interface cards available for the Cisco 1600, 1700 and 3600 Series, including the new single and dual port Multiflex Voice/WAN Interface Cards (VWIC) and dual port serial WAN interface cards (WICs) to maximize interface density and slot efficiency.

The new Multiflex (MFT) VWICs combine WAN Interface Card (WIC) and Voice Interface Card (VIC) functionality to provide unparalleled flexibility, power and investment protection from their many uses. Offered in single and dual port versions, these cards support fractional and full rate T1 and E1 speeds with integrated T1 CSU/DSUs or E1 DSUs. VWICs can be used in data-only, channelized (drop and insert) voice/data integration applications as well as packet voice/data connections to a PBX or the PSTN (packet voice requires the use of the high density voice trunk network module). Unlike Old World multibox voice and data components, when used in a Cisco 2600 or 3600, the T1/E1 Multiflex Voice/WAN interface cards provide a highly manageable compact voice and data platform providing a graceful migration from data only, to channelized voice and data, to packet voice and data.

Figure 2 Dual-Port Multiflex T1 VWIC with Drop & Insert



The dual-port serial WAN interface cards feature Cisco's new, compact, high-density Smart Serial connector to support a wide variety of electrical interfaces when used with the appropriate transition cables. Ports on each card can be configured individually to support a variety of synchronous or asynchronous protocols.

Figure 3 Dual-Port High-Speed Serial WIC (up to 8 Mbps/card)

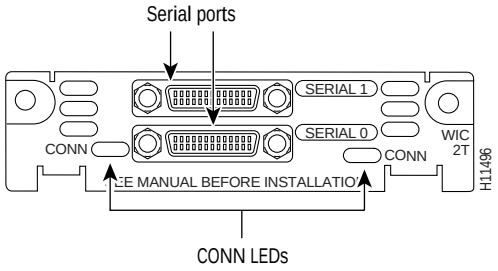
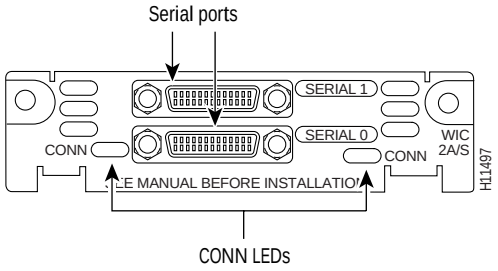


Figure 4 Dual-Port Async/Sync Serial WIC (up to 128 Kbps/port)



With two WAN Interface Card slots per chassis, the Cisco 2600 Series supports the WAN Interface Cards in Table 4.

Table 4 Multiflex Voice/WAN and WAN Interface Cards for Cisco 2600 Series

Module	Description
VWIC-1MFT-T1[1]	One port T1/Fractional T1 Multiflex Trunk with CSU/DSU
VWIC-2MFT-T1[1]	Dual port T1/Fractional T1 Multiflex Trunk with CSU/DSU
VWIC-2MFT-T1-DI[1]	Dual port T1/Fractional T1 Multiflex Trunk with CSU/DSU and Drop & Insert
VWIC-1MFT-E1[1]	One port E1/Fractional E1 Multiflex Trunk with DSU
VWIC-2MFT-E1[1]	Dual port E1/Fractional E1 Multiflex Trunk with DSU
VWIC-2MFT-E1-DI[1]	Dual port E1/Fractional E1 Multiflex Trunk with DSU and Drop & Insert
VWIC-1MFT-G703[2]	One port G.703 Multiflex Trunk
VWIC-2MFT-G703[2]	Dual port G703 Multiflex Trunk
WIC-1DSU-T1	T1/Fractional T1 CSU/DSU (requires Cisco IOS Version 11.3 [4] T or later)
WIC-1DSU-56K4	One-port four-wire 56/64 Kbps CSU/DSU
WIC-1T	One-port high speed serial
WIC-2T	Dual-port high speed serial
WIC-2A/S	Dual-port async/sync serial
WIC-1B-S/T	One-port ISDN BRI
WIC-1B-U	One-port ISDN BRI with NT1

1. Supported on the Cisco 26xx and Cisco 36xx Series with Cisco IOS 12.0(5)XK or later.
2. Supported on the Cisco 26xx and Cisco 36xx Series with Cisco IOS 12.1(1)T or later.

Advanced Integration Module Options

The Data Compression AIM takes advantage of the Cisco 2600's internal Advanced Integration Module slot, ensuring that external slots remain available for components such as integrated CSU/DSUs, analog modems, or voice/fax gateways. The Data Compression AIM for the Cisco 2600 Series delivers a cost-effective option for reducing recurring WAN costs and maximizing the benefit of the advanced bandwidth management features of the Cisco IOS software.

The Data Encryption AIM offers optional hardware-based encryption services by offloading the encryption processing from the Cisco 2600 series Central Processing Unit (CPU), providing 10-times the performance over software-only encryption.

Table 5 Advanced Integration Modules for the Cisco 2600 Series

Module	Description
AIM-COMPR2	Data Compression AIM for the Cisco 2600 Series
AIM-VPN/BP	Data Encryption AIM for the Cisco 2600 series (requires IOS software release 12.1(3)XI or later)

Cisco IOS Software

Modeled after the Cisco 2500 and Cisco 3600, the Cisco 2600 Series supports a full range of Cisco IOS features. With twenty different feature sets, a wide variety of intranet, multiprotocol, Quality of Service (QoS), and legacy IBM applications in use today are supported. The Cisco 2600 Series offers four base protocol feature sets and a combination of premium feature options including the Plus, encryption and firewall feature sets.

The base feature sets are:
- IP
- IP/IPX/AppleTalk/DEC
- Enterprise
- Enterprise SNA Switch (formerly APPN)

The Base feature sets support popular protocols and standards such as NAT, OSPF, Border Gateway Protocol (BGP), Remote Access Dial-In User Service (RADIUS), IP Multicast, RMON, and WAN optimization features (such as Bandwidth on Demand; Custom, Priority and Weighted Fair Queueing, Dial Back-up and RSVP).

The following Premium feature sets are offered in combination with the above base feature sets:
- Plus
- Plus with IPSec Encryption (56-bit and 168-bit with 3DES)
- Firewall
- Plus Firewall
- Plus with Encryption and Firewall

The Plus feature sets contain an additional number of value-added features such as legacy mainframe protocols, DLSw, L2TP, L2F, Voice/Data integration, Asynchronous Transfer Mode (ATM), VLANs, Netflow, etc. Additional feature sets include IPSec, and 3DES encryption as well as ICSA certified Firewall capabilities with intrusion detection.

The Remote Access Services feature set includes various management, multicast, security (excluding encryption), protocol translation, remote node and terminal services and some LAN and WAN service and optimization protocols but excludes some of the above base feature set standards.

The Cisco 2600 also supports the Cisco IOS IP/H.323 Gatekeeper feature set providing the H.323 industry standard gatekeeper functionality needed for scalable multiservice networks. As a H.323 gatekeeper, the Cisco 2600 is dedicated to supporting video conferencing call-setup, proxy, directory maintenance among other responsibilities; it does not support multi-protocol routing.

A more detailed list of features and memory requirements for specific feature sets by version can be found in the Cisco IOS release notes for the Cisco 2600.

Management

The Cisco 2600 Series is manageable by CiscoWorks2000, CiscoView, Cisco Voice Manager, Cisco QoS Policy Manager version 1.1, and ConfigMaker network management tools. When the Cisco 2600 Series is deployed with LAN switching products such as the Cisco Catalyst 1900, 2820, or 2900XL Series, CiscoView allows the entire branch office solution to be viewed as a single object, simplifying the process of managing remote network equipment. The Cisco 2600 Series also features enhanced setup, which enables administrators to configure the system by answering a series of simple, context-sensitive questions without worrying about the correct command-line syntax. The Cisco AutoInstall feature allows automatic configuration across a WAN connection, saving the time and expense of sending a technician to a remote site.

Applications

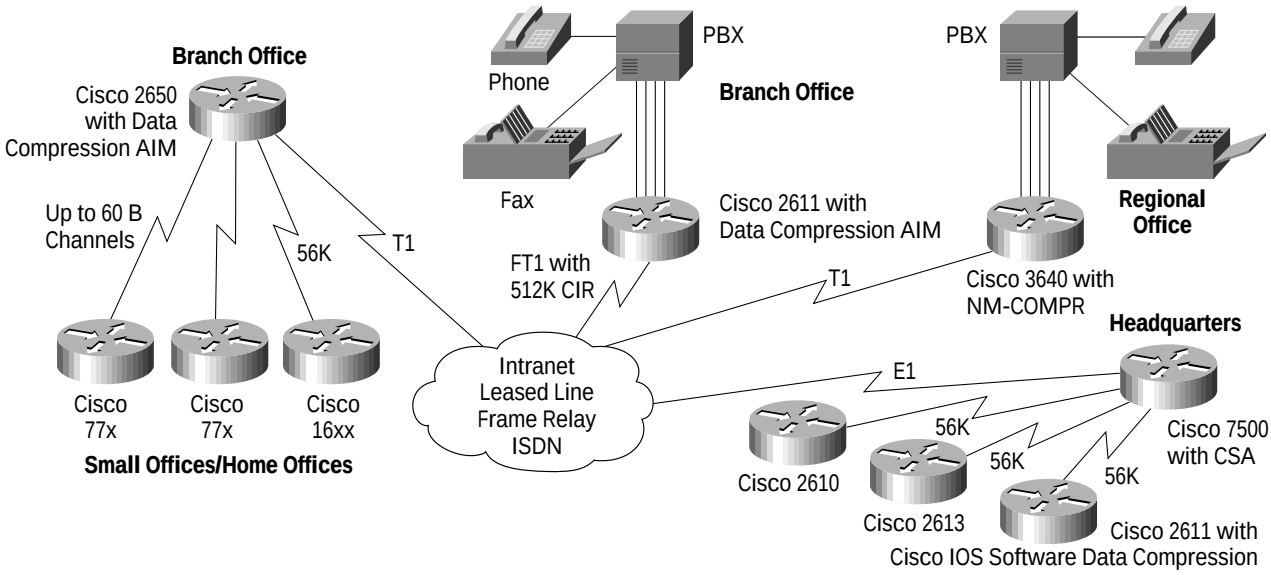
As part of an end-to-end Cisco network solution, the Cisco 2600 Series extends the versatility, integration, and power to corporate branch offices. By deploying the Cisco 2600 Series router, companies can consolidate the functions of multiple separate devices into a single, compact package that can be managed remotely. Because the Cisco 2600 Series is modular, interface configurations are easily customized to accommodate a wide variety of network applications, such as branch office data access, multiservice voice/data integration, dial access services, VPN access and firewall protection, inter-VLAN routing and serial device concentration.

Routing and Bandwidth Management

Today's enterprise networks have become increasingly complex. As companies grow, the diversity of protocols, LAN media, WAN services, and networking equipment required to provide mission-critical network services increase dramatically. Requirements for new network applications and services are growing much faster than the size of the IT organization required to support them. With extensive support for multiprotocol data routing, voice/data integration, and dial access services, the Cisco 2600 Series provides a flexible, integrated solution that simplifies the process of deploying and managing the branch office network solutions.

Rather than adding bandwidth or raising CIRs to support new network services such as voice, bandwidth management techniques can control or reduce costs and improve network performance. The Cisco IOS offers a variety of traffic shaping, prioritization, filtering, congestion management features such as Committed Access Rate (CAR), Custom, Priority and Weighted Fair Queuing (WFQ), Resource Reservation Protocol (RSVP), Weighted Random Early Detection (WRED), and Policy Based Routing. These capabilities will also decrease latency and improve application availability, critical for supporting legacy SNA protocols and voice/video connections. The Data Compression AIM off-loads the Cisco 2600's CPU, maximizing performance levels for other bandwidth management, routing and switching duties.

Figure 5 Routing and Bandwidth Management



Multiservice Voice/Data/Fax Integration

The Cisco 2600 Series provides a cost-effective way to extend multiservice networks to branch offices. Using the sophisticated QoS features of Cisco IOS software, the Cisco 2600 Series allows voice traffic to be digitized, encapsulated in data packets, and prioritized over other data traffic for a highly efficient, end-to-end network infrastructure.Voice/data/fax integration using Frame Relay and IP protocols enables administrators to reduce long distance toll charges between offices and support voice-enabled desktop applications such as integrated messaging and packet video. Frame Relay circuit bandwidth can be optimized for both VoFR and VoIP by using FRF.12, Frame Relay fragmentation to optimize MTU sizes.

The voice/fax network modules for the Cisco 2600 and 3600 Series support analog and digital connections to PBXs, key systems, telephone sets, and fax machines. With the new T1 and E1 packet voice trunk modules a single Cisco 2600 can support up to 60 simultaneous voice or fax calls. As part of a scalable end to end packet telephony solution with Cisco 1750, Cisco 3600, Cisco AS5300, Cisco 7200 or the MC3810 (voice over Frame Relay), the Cisco 2600 provides a seamless multiservice solution, interoperable with network infrastructures based on Cisco's high-performance backbone routers and switches.

Analog and Digital Dial Access Services

With support for up to 37 high-speed asynchronous ports or up to 64 ISDN B channels, the Cisco 2600 provides a cost-effective, single-box solution for dial concentration for enterprise or service provider networks, allowing users in remote offices to save toll charges by calling a local access number for access to both the corporate LAN and the Internet.

In this example, the Cisco 2600 Series provides analog dial-up capability for remote users with internal modems, while the ISDN network modules accommodate up to 60 ISDN B channel connections from remote ISDN terminal adapters or SOHO routers such as the Cisco 700 and 800 Series. The Cisco 2600 Series supports multiple protocols including PPP, SLIP, ARA, and XRemote on any port, along with providing dedicated connections to the Internet and the corporate intranet.

Figure 6 Multiservice Data/Voice/Fax Integration

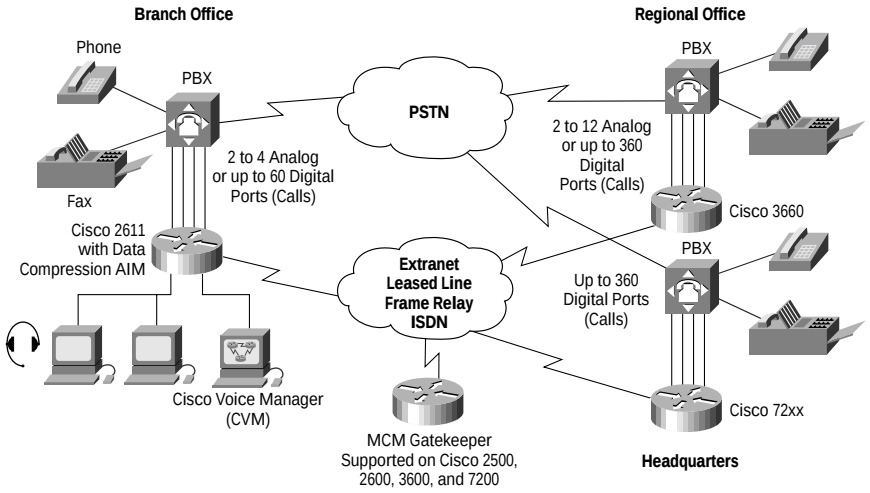
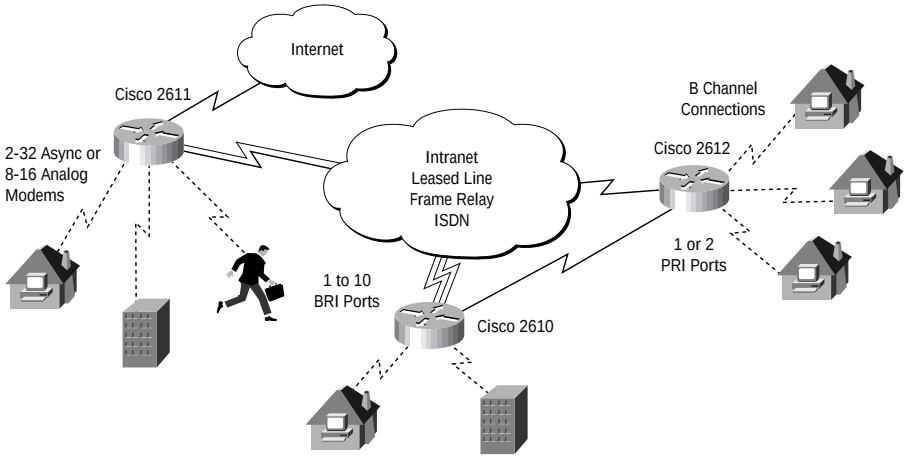


Figure 7 Dial Access Services



Virtual Private Network (VPN) Access and Firewall Protection

Many companies have begun to use Virtual Private networks (VPNs) to reduce WAN costs by deploying secure tunneled connections via the Internet. VPNs can be rapidly set up and torn down to provide extranet links to customers, business partners and remote employees. With extra performance required to support advanced Cisco IOS security features such as IPSec encryption, the Cisco 2600 Series can support multiple encrypted tunnels and provide the advanced security features at the Cisco IOS Firewall feature set. In this example the Cisco 2610 router in the branch office provides secure privileged access to business partners while also supporting another connection to the Cisco 2621 in the main office.

The dual-LAN architecture of the Cisco 2621 allows the customer to create an external subnet or "DMZ" for a public Web server outside the firewall while providing security for the internal network. Cisco IOS features such as intrusion detection, tunneling, data encryption, and termination of Remote Access WANs via IPSec, Layer 2 Forwarding (L2F) and Layer 2 Tunneling Protocols (L2TP) make the Cisco 2600 an ideal platform for building virtual private networks or outsourced dial solutions.

Inter-VLAN Routing

Virtual LANs (VLANs) enable switches and routers to create logical topologies over the physical network infrastructure, allowing any collection of LAN segments within a network to be combined into an autonomous user group, appearing as a single LAN. The Cisco 2620 and Cisco 2621 support Cisco's Inter-Switch Link (ISL) and 802.1Q protocol available in Cisco IOS "Plus" feature sets, enabling an end to end VLAN solution when used in conjunction with the Cisco 2600, 3600, 4000 and 7X00 Series routers and Cisco's Catalyst 1900, 2820, 2900XL, and 5X00 Series switches.

VLANs offer several benefits to network managers: reducing the cost of adds, moves, and changes, improving network management and bandwidth usage, and providing flexibility, performance, and security.

Figure 9 depicts a typical VLAN, in which traffic is switched between LAN interfaces that belong to the same VLAN. Here, the criteria for VLAN membership is departmental function; however, users could also be combined in VLAN topologies based upon a common protocol or subnet address. Regardless of physical location or interface type, network managers can define workgroups based on logical function rather than physical location through simple port configuration in software. Using VLAN enabled switches and routers obviate the need for expensive, time-consuming recabling to extend network connectivity in LAN environments.

Figure 8 Virtual Private Network

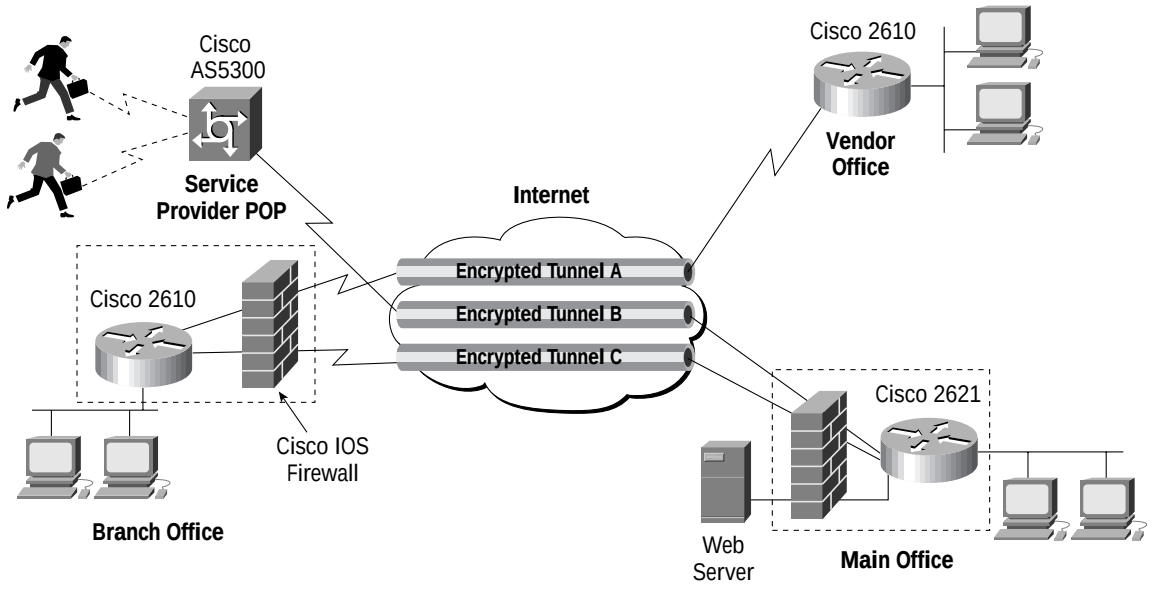
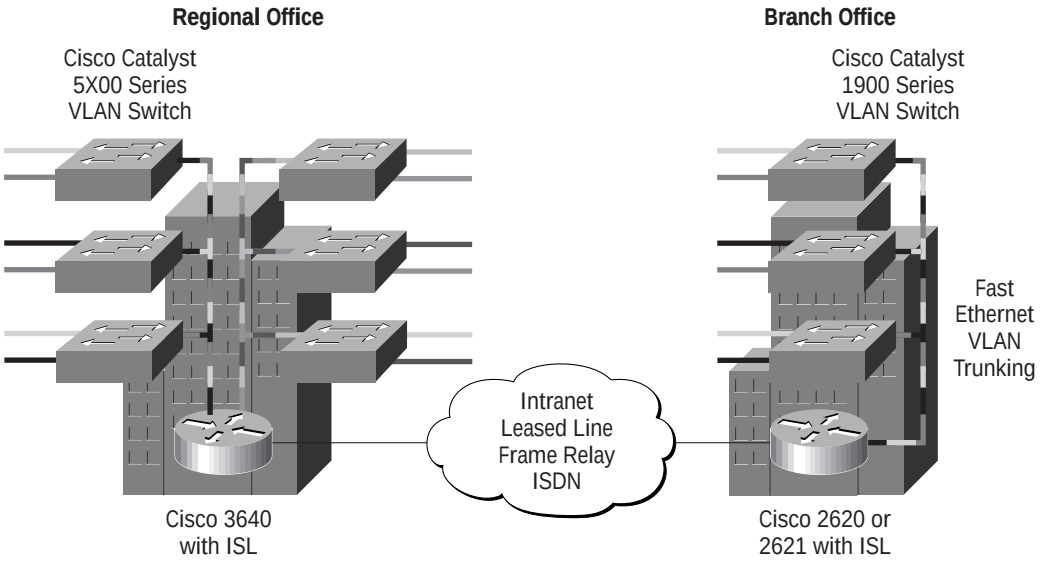


Figure 9 Inter-VLAN Routing

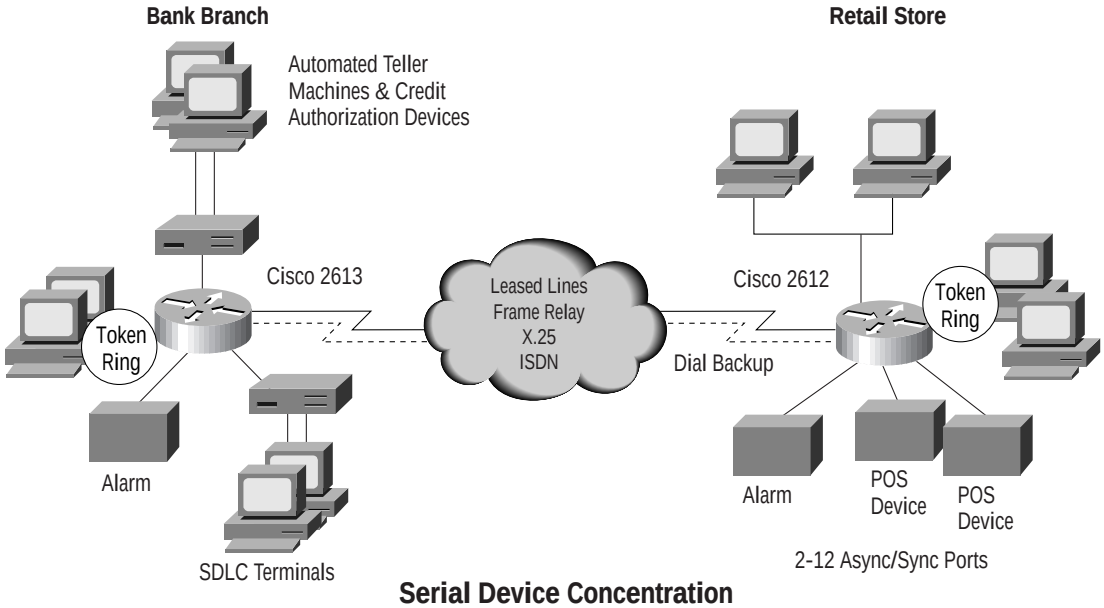


Serial Device Concentration

The Cisco 2600 provides a cost-effective, flexible solution for concentrating serial devices in remote locations. Async/sync ports provide connections to serial devices such as SDLC concentration devices, alarm systems, ATMs, debit/credit terminals and cash registers. With full Cisco IOS protocol support including SDLC, BSC, BTSUN, STUN, X.25, Frame Relay, and polled async, the Cisco 2600 consolidates traffic from a wide variety of serial devices over a single connection, eliminating costly dial-up BSC links. Remote management is improved since only one network management tool is needed. Network reliability for mission critical devices is enhanced via dynamic routing capabilities.

In Figure 10, a Cisco 2613 deployed in a bank branch office connects the existing Token Ring LAN and up to 8 serial devices to the corporate network. The Cisco 2612 in a retail store provides an integrated solution for connecting Ethernet and Token Ring LANs in addition to multiple point-of-sale devices. Whether the application requires the two port async/sync WIC or the high density async/sync network modules, each port can be individually configured for synchronous or asynchronous operation. Stacking the Cisco 2600 Series with Cisco LAN switches such as the Catalyst 1900, 2820, and 2900XL Series enables network administrators to manage remote branch office environments efficiently using CiscoWorks and CiscoView network management solutions.

Figure 10 Serial Device Concentration



Serial Device Concentration

ATM Access

With support for Inverse Multiplexing over ATM (IMA) technology, the Cisco 2600 Series provides the widely accepted advantages of ATM at sub T3/E3 rates, including flexibility, management, expandability, interoperability, and guaranteed Quality of Service (QoS). The Cisco 2600 Series enables network designers and managers to quickly deploy and scale bandwidth to meet their specific needs using multiple T1 or E1 connections instead of a more expensive T3/OC-3 fiber to establish connectivity between LANs and remote offices. By integrating multiport IMA technology in a highly manageable single box multiservice CPE solution, the Cisco 2600 allows service providers to utilize their current network infrastructure to seamlessly deliver new services and applications.

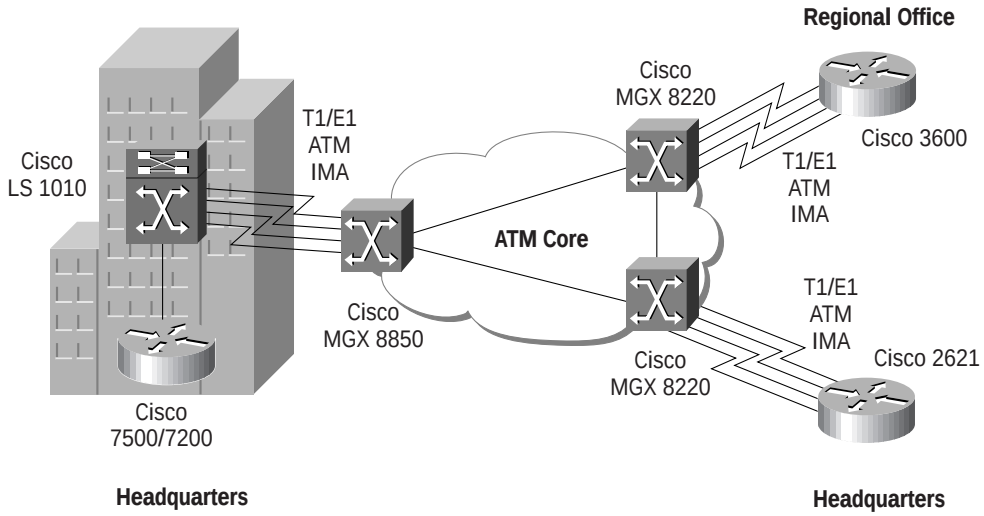
As part of an end to end Cisco ATM solution, the Cisco 2600 in Figure 12 exemplifies a typical inverse multiplexing over ATM application using the four port T1/E1 IMA network module providing a scalable ATM connection to regional and corporate networks. Interoperability between Cisco 7200, 7500, 3600, 2600, LS1010, IGX and MGX platforms is ensured by using ATM IMA forum version 1.0. Unlike software multi-link approaches, Cisco's high performance hardware-based IMA technology also provides a more manageable higher bandwidth WAN connection.

The Cisco 2600 Series provides unparalleled flexibility and port density options. The following table highlights a few of the Cisco 2600 configuration possibilities:

Table 6 Maximum Cisco 2600 Port Densities

Application	Max. # Supported
Simultaneous Voice Calls (digital/analog)	60/4
T1/E1 Connections (including ATM)	8
Integrated Modems	16
ISDN PRI (B channels)	64
ISDN BRI	10
Asynchronous Serial	37
Synchronous Serial	12

Figure 11 ATM Access



Cisco Service and Support

Leading-edge technology deserves leading-edge support. Service and support for the Cisco 2600 Series is available on a one-time or annual contract basis. Support options range from help desk assistance to proactive, onsite consultation. All support contracts include:

- Major Cisco IOS software updates in protocol, security, bandwidth, and feature improvements
- Full access rights to Cisco Connection Online for technical assistance, electronic commerce, and product information
- 24-hour-a-day access to the industry's largest dedicated technical support staff
- A support contract maximizes the value of your technology investment throughout its lifecycle, ensuring optimum performance and availability. Augment your internal staff's capabilities by leveraging Cisco's expertise.

Contact your local sales office for further information.

Orderability and Availability

The Cisco 2600 Series is available with three power options: AC, DC, and RPS. Contact your local Cisco sales office or Cisco reseller for pricing information.

Selecting the Right Cisco Branch Office Solution

Cisco provides customers with many branch office routing options. Understanding the roles of the Cisco 1600, 1700, 2500, 2600, 3600, and MC3810 families in and end-to-end Cisco network solution assures customers maximum versatility, investment protection, and application support.

Table 7 Cisco Branch Office Solutions

	Cisco 1600 Series	Cisco 1700 Series	Cisco MC3810	Cisco 2500 Series	Cisco 2600 Series	Cisco 3600 Series
Application	Internet / Intranet - data only	VPN, data, voice/ fax over IP (Cisco 1750)	Data/voice/video over Frame Relay or ATM	Data only	VPN, data, dial, and voice/fax over IP or Frame Relay, ATM access	VPN, data, dial, and voice/fax over IP or Frame Relay, ATM Access
Environment	Small business offices	Small & Medium business offices	Multiservice Branch Offices	Traditional branch Offices	Branch offices with dynamic or multiservice requirements	Large branch or regional offices with dynamic or multiservice requirements
Flexibility	Modular WAN options	Multiple Modular WAN options	Mission Specific, fixed configuration	Mission Specific, fixed configuration	Versatile and high density modular LAN and WAN solutions	Maximum versatility and density modular LAN and WAN solutions
Form Factor	Desktop, external AC power supply, convection cooling	Desktop, external AC power supply, convection cooling	Enterprise/ Managed Services CPE-class, rack-mountable, internal fan and power supply, RPS and DC options	Enterprise class, rack-mountable, internal fan and power supply, RPS and DC options	Enterprise/ Managed Services CPE-class, rack-mountable, internal fan and power supply, RPS and DC options	Enterprise/ Managed Services CPE-class, rack-mountable, internal fan and power supply, RPS and DC options

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