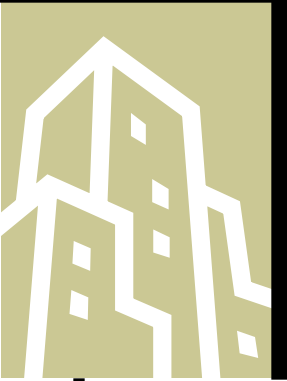


# Cisco 1751 Modular Access Router



The Cisco 1751 Modular Access Router is ideally suited to help you evolve your organization into an e-Business. It supports e-Business features such as VPNs; secure Internet, intranet, and extranet access with optional firewall technology; broadband DSL and cable connectivity; and multiservice voice/video/data/fax integration. The Cisco 1751 Modular Access Router offers:

- Flexibility to adapt to changing requirements
- Modularity that allows you to individually configure the system to meet specific business needs
- Investment protection with features and performance to support new WAN services such as broadband DSL and cable access, multiservice voice/data integration, and VPNs
- Integration of multiple network functions, including an optional firewall VPN, and data service unit/channel service unit (DSU/CSU) to simplify deployment and management

The Cisco 1751 delivers these capabilities with the power of Cisco IOS Software in a modular integrated access solution. The Cisco 1751 provides a cost-effective solution to support e-Business applications through a comprehensive feature set including support for:

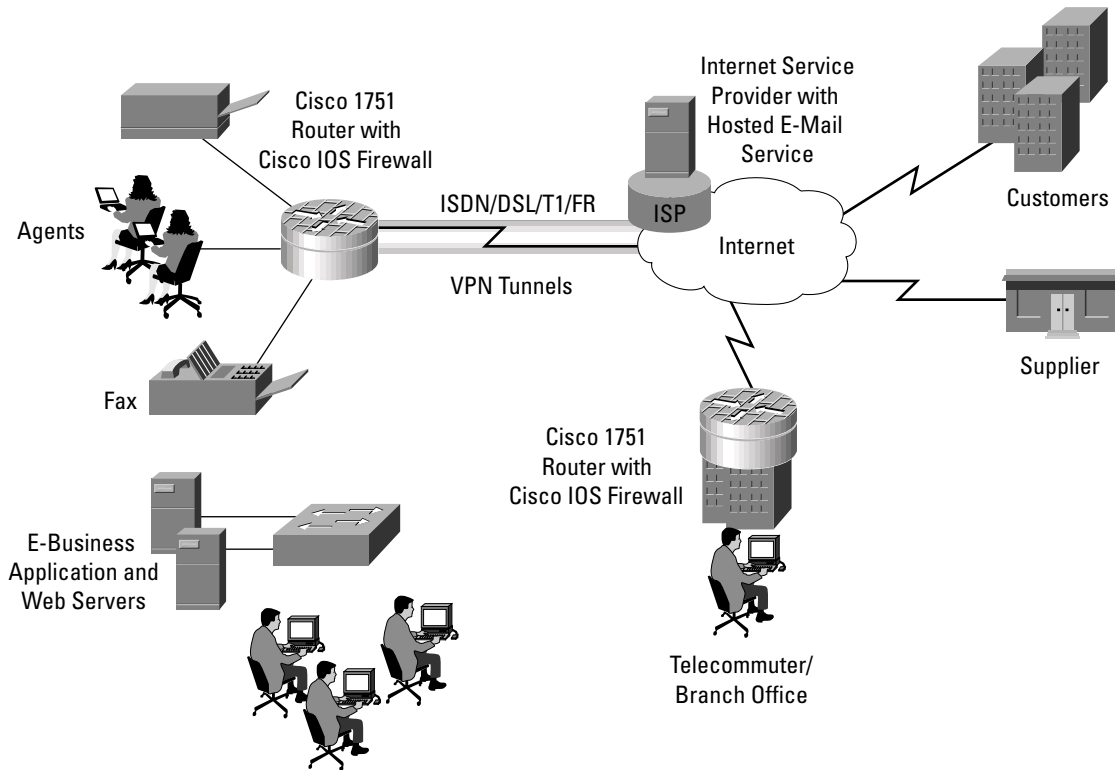
- Multiservice voice/fax/data integration
- Secure Internet, intranet, and extranet access with VPN and firewall
- Integrated broadband DSL connectivity
- VLAN support (IEEE 802.1Q)

**Figure 1** The Cisco 1751 router delivers a versatile e-Business WAN access solution.



The Cisco 1751, a member of the Cisco 1700 Family, features a modular architecture that enables cost-effective upgrades and additions of WAN and voice interfaces. Integrated network services and functions, such as optional firewall, DSU/CSU, and VPN features, reduce the complexity of deploying and managing e-Business solutions. The Cisco 1751 offers investment protection when your business needs it, with a RISC architecture and features to support new technologies and applications such as voice/video/data/fax integration and VPNs. See Figure 2.

**Figure 2** Cisco 1751 routers provide all necessary capabilities to connect to the Internet and communicate with vendors, customers, and other employees and offices.



The Cisco 1751 is available in two models that enable you to easily tailor an access solution to suit your e-Business requirements today and in the future. See Table 1.

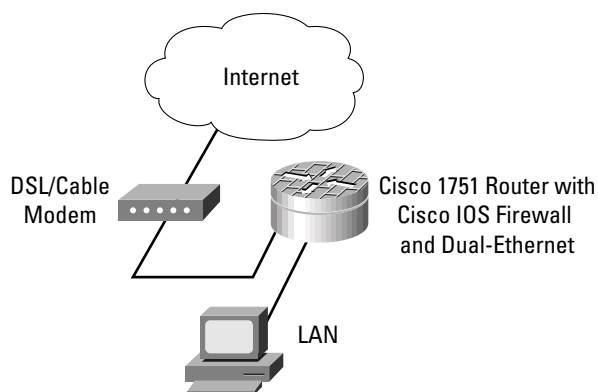
**Table 1** The Cisco 1751 Modular Access Router

|                                 |   |
|---------------------------------|---|
| Cisco 1751 Base Model           | Includes everything an office needs for data networking now (16 MB Flash, 32 MB DRAM, and Cisco IOS IP software feature set), with a simple upgrade path to full voice functionality. WAN interface cards are available separately.                                     |
| Cisco 1751-V Multiservice Model | Includes all the features needed for immediate integration of data and voice services with support for up to two voice channels (32 MB Flash and 64 MB DRAM, one DSP, and Cisco IOS IP Plus Voice feature set). Voice and WAN interface cards are available separately. |



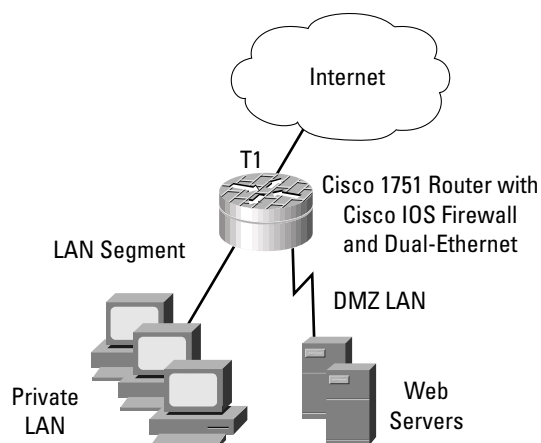
All Cisco 1751 models offer three modular slots for voice and data interface cards, an autosensing 10/100BaseT Fast Ethernet LAN port supporting standards-based IEEE 802.1Q VLAN, a console port, and an auxiliary port. The Cisco 1751 supports the same WAN interface cards as the Cisco 1600, 1700, 2600, and 3600 routers, and the same voice interface cards and voice-over-IP (VoIP) technology as the Cisco 1700, 2600, and 3600 routers. This simplifies support requirements. The WAN interface cards support a wide range of services, including synchronous and asynchronous serial, Integrated Services Digital Network Basic Rate Interface (ISDN BRI), ADSL, and serial with DSU/CSU options for primary and backup WAN connectivity. The voice interface cards support Foreign Exchange Office (FXO), Foreign Exchange Station (FXS), Network and User Side Voice BRI (ISDN BRI NT/TE), and Ear & Mouth (E&M). Additionally, an Ethernet interface card provides the Cisco 1751 with dual-Ethernet capability to support the external broadband modem devices. See Figure 3.

**Figure 3** Cisco 1751 Incorporating Ethernet WAN Interface Card (WIC) Deployed with Broadband Modem



In addition, dual-Ethernet capability on the Cisco 1751 enables the creation of perimeter/DMZ (demilitarized zone) LANs to enhance security by physically separating private and public data. See Figure 4.

**Figure 4** Cisco 1751 Incorporating Ethernet WIC to Deploy Perimeter/DMZ LAN



Combined, these interfaces support a comprehensive set of applications, including multiservice voice/video/data/fax integration, Frame Relay, ISDN BRI, SMDS, X.25, broadband DSL and cable services, and VPNs.

### Key Benefits

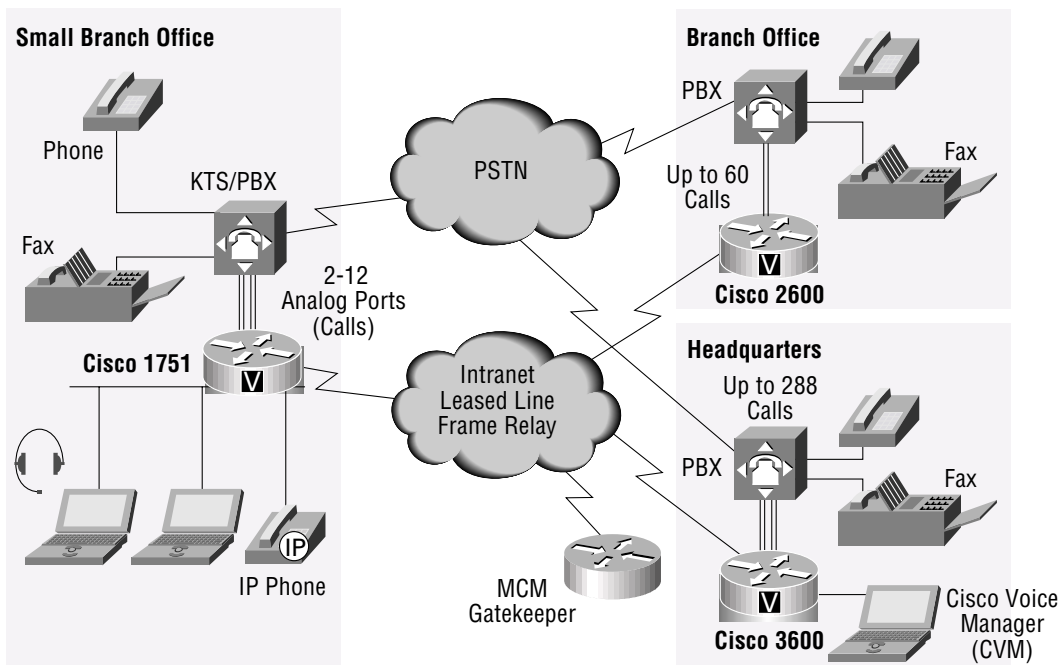
The Cisco 1700 Series supports the value of end-to-end Cisco network solutions with the following benefits:

- **Flexibility**—The modular Cisco 1751 adapts easily to fit the needs of growing businesses. Interchangeable WAN interface cards enable easy additions or changes in WAN technologies without requiring a forklift upgrade of the entire platform. Modular data and voice slots enable users to tailor data and voice services as needed. With the ability to use the same field-upgradable WAN and voice interface cards across multiple Cisco access router platforms, the Cisco 1751 reduces requirements for spare parts inventory and support training.

- Multiservice Access**—For businesses that want to become e-Businesses and incorporate applications that integrate multiservice voice/video/data/fax capabilities now or in the future, the Cisco 1751 offers a flexible, cost-effective answer. The Cisco 1751 enables network managers to save on long-distance interoffice billing costs. It also interoperates with next-generation

voice-enabled applications such as integrated messaging and Web-based call centers. The Cisco 1751 works with the existing telephone infrastructure—phones, fax machines, key telephone systems (KTS) units, and PBX (including digital PBXs)—minimizing capital costs. See Figure 5.

**Figure 5** Voice/video/data/fax integration. The Cisco 1751 integrates data and voice capabilities, significantly lowering toll charges for small- and medium-sized businesses and enterprise small branch offices.





• *Lower Cost of Ownership*—The Cisco 1751 router provides a complete solution for integrated voice and data access in a single product, eliminating the need to install and maintain a large number of separate devices. You can combine optional functions—including a voice gateway, dynamic firewall, VPN tunnel server, DSU/CSU, ISDN network termination-1 (NT1) device, and more—to reduce deployment and management costs. This solution can be managed remotely using network management applications such as CiscoWorks2000 and CiscoView or any SNMP-based management tool.

• *Investment Protection*—The Cisco 1751 RISC architecture, Cisco IOS Software, and modular slots provide solid investment protection. The Cisco 1751 incorporates services such as multiservice voice/video/data/fax integration, VPNs, and broadband DSL and cable communications to enable today's successful e-Business. An internal expansion slot on the motherboard offers the ability to support hardware-assisted IPsec data encryption at T1/E1 speeds.

For a complete list of Cisco 1751 features and benefits, see Table 2.

**Table 2** Key Features and Benefits

| Features   | Benefits   |
|--|--|
| <b>Flexibility</b>   |  |
| Full Cisco IOS Software support, including multiprotocol routing (IP, IPX, Apple Talk, IBM/SNA) and bridging   | <ul style="list-style-type: none"><li>• Provides the industry's most robust, scalable, and feature-rich internetworking software support using the de facto standard networking software for the Internet and private WANs</li><li>• Part of the Cisco end-to-end network solution</li></ul> |
| <b>Integrated Voice and Data Networking</b>  |  |
| Cisco 1751 router chassis accepts both WAN and voice interface cards   | <ul style="list-style-type: none"><li>• Reduces long-distance toll charges by allowing the data network to carry interoffice voice and fax traffic</li><li>• Works with existing handsets, key units, and PBXs, eliminating the need for a costly phone-equipment upgrade</li></ul>          |
| <b>Modular Architecture</b>  |  |
| Accepts an array of WAN and voice interface cards  | <ul style="list-style-type: none"><li>• Adds flexibility and investment protection</li></ul>   |
| WAN interface cards are shared with Cisco 1600, 1700, 2600, and 3600 routers   | <ul style="list-style-type: none"><li>• Reduce cost of maintaining inventory</li><li>• Lower training costs for support personnel</li><li>• Protect investments through re-use on various platforms</li></ul>  |
| Autosensing 10/100 Fast Ethernet   | <ul style="list-style-type: none"><li>• Simplifies migration to Fast Ethernet performance in the office</li></ul>  |
| Expansion Slot on Motherboard  | <ul style="list-style-type: none"><li>• Allows expandability to support hardware-assisted encryption at T1/E1 speeds</li><li>• Allows support for future technologies</li></ul>  |
| <b>Dual DSP Slots</b>  |  |
|  | <ul style="list-style-type: none"><li>• Allow expandability to support additional voice channels</li></ul>   |
| <b>Security</b>  |  |
| The Cisco IOS Firewall Feature Set includes context-based access control for dynamic firewall filtering, denial-of-service detection and prevention, Java blocking, real-time alerts, Intrusion Detection System (IDS), and encryption | <ul style="list-style-type: none"><li>• Allows internal users to access the Internet with secure, per-application-based, dynamic access control, while preventing unauthorized Internet users from accessing the internal LAN</li></ul>  |
| IPsec DES and 3DES   | <ul style="list-style-type: none"><li>• Enable creation of VPNs by providing industry-standard data privacy, integrity, and authenticity as data traverses the Internet or a shared public network</li><li>• Supports up to 168-bit encryption</li></ul>                                     |
| Hardware-Based Encryption Using Optional VPN Module  | <ul style="list-style-type: none"><li>• Supports wire-speed encryption up to T1/E1 speeds</li></ul>  |

**Table 2** Key Features and Benefits (Continued)

| <b>Features</b>   | <b>Benefits</b>  |
|---|--|
| <b>Device Authentication and Key Management</b>   |  |
| IKE, X.509v3 digital certification, and support for certificate enrollment protocol (CEP) with certification authorities (CAs) such as Verisign and Entrust | <ul style="list-style-type: none"> <li>• Ensure proper identity and authenticity of devices and data</li> <li>• Enable scalability to very large IPSec networks through automated key management</li> </ul>  |
| <b>User Authentication</b>  |  |
| PAP/CHAP, RADIUS, TACACS+   | <ul style="list-style-type: none"> <li>• Support all leading user identity verification schemes</li> </ul>   |
| <b>VPN Tunneling</b>  |  |
| IPSec, GRE, L2TP, L2F   | <ul style="list-style-type: none"> <li>• Offer choice of standards-based tunneling methods to create VPNs for IP and non-IP traffic</li> <li>• Allow standards-based IPSec or L2TP client to interoperate with Cisco IOS tunneling technologies</li> <li>• Fully interoperable with public certificate authorities and IPSec standards-based products</li> <li>• Part of the scalable Cisco end-to-end VPN solution portfolio</li> </ul> |
| <b>Management</b>   |  |
| IEEE 802.1Q VLAN Support  | <ul style="list-style-type: none"> <li>• VLANs enable efficient traffic separation, provide better bandwidth utilization, and alleviate scaling issues by logically segmenting the physical LAN infrastructure into different subnets.</li> </ul>  |
| Manageable via SNMP (CiscoView, CiscoWorks2000), Telnet, and console port   | <ul style="list-style-type: none"> <li>• Allow central monitoring, configuration, and diagnostics for all functions integrated in the Cisco 1751 router, reducing management time and costs</li> </ul>   |
| <b>Ease of Use and Installation</b>   |  |
| Cisco ConfigMaker, SETUP configuration utility, AutoInstall, color-coded ports/cables, and LED status indicators  | <ul style="list-style-type: none"> <li>• Simplifies and reduces deployment time and costs with graphical LAN/VPN policy configurator; command-line, context-sensitive configuration questions; and straightforward cabling</li> <li>• LEDs allows quick diagnostics and troubleshooting</li> </ul>   |
| <b>Network Address Translation (NAT) and Easy IP</b>  | <ul style="list-style-type: none"> <li>• Simplifies deployment and reduces Internet access costs</li> </ul>  |
| <b>QoS</b>  |  |
| CAR, Policy Routing, WFQ, PQ/CBWFQ, GTS, RSVP, DSCP   | <ul style="list-style-type: none"> <li>• Allocates WAN bandwidth to priority applications for improved performance</li> </ul>  |
| <b>Reliability and Scalability</b>  |  |
| Cisco IOS Software, dial-on-demand routing, dual-bank Flash memory, scalable routing protocols such as OSPF, EIGRP, and HSRP                                | <ul style="list-style-type: none"> <li>• Improves network reliability and enables scalability to large networks</li> </ul>   |
| <b>Broadband Connectivity Options</b>   |  |
| ADSL and cable connectivity deliver business-class broadband access   | <ul style="list-style-type: none"> <li>• Leverage broadband access technologies like cable and DSL to increase WAN connectivity speeds and reduce WAN access costs</li> <li>• The Cisco 1751 supports ADSL connectivity with ADSL WIC</li> <li>• Cable connectivity with the Cisco 1751 and optional integrated Cisco uBR910 Series Cable DSU deliver business-class broadband access</li> </ul>   |
| <b>Device Integration</b>   |  |
| Integrated router, voice gateway, firewall, encryption, VPN tunnel server, DSU/CSU, and NT1 in a single device  | <ul style="list-style-type: none"> <li>• Reduce costs and simplifies management</li> </ul>   |



## Cisco IOS Technology

### Internet and Intranet Access

Cisco IOS Software provides an extensive set of features that make the Cisco 1751 router ideal for flexible, high-performance communications across both intranets and the Internet:

- Multiprotocol routing (IP, IPX, and AppleTalk), IBM/SNA, and transparent bridging over ISDN, asynchronous serial, and synchronous serial such as leased lines, Frame Relay, SMDS, Switched 56, X.25, and X.25 over ISDN D
- WAN optimization—including dial-on-demand routing (DDR), bandwidth-on-demand (BOD) and OSPF-on-demand circuit, Snapshot routing, compression, filtering, and spoofing to reduce WAN costs

### Security

Cisco IOS Software supports an extensive set of basic and advanced network security features, including access control lists (ACLs); user authentication, authorization, and accounting (such as PAP/CHAP, TACACS+, and RADIUS); and data encryption. To increase security, the integrated Cisco IOS Firewall Feature Set protects internal LANs from attacks with context-based access control (CBAC) and Intrusion Detection (IDS), while IPSec tunneling with data encryption standard DES and 3DES encryption provide standards-based data privacy, integrity, and authenticity as data travels through a public network.

For remote access, VPNs, Layer 2 Forwarding (L2F), and Layer 2 Tunneling Protocol (L2TP) combine with IPSec encryption to provide a secure multiprotocol solution for IP, IPX, and AppleTalk traffic, and more. Mobile users can dial in to a service provider's local point of presence (POP) and data is "tunneled" (or encapsulated inside a second protocol such as IPSec or L2TP) back to the Cisco 1751 router to securely access the corporate network via the Internet.

### Cisco IOS Software QoS Features

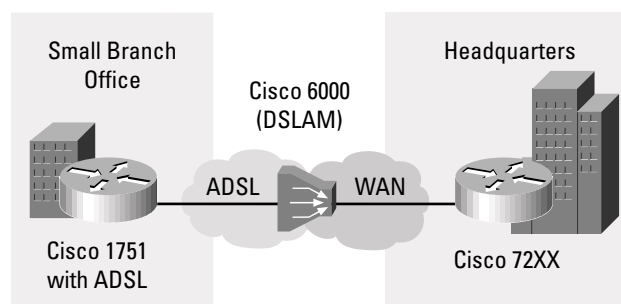
Through Cisco IOS Software, the Cisco 1751 Router delivers quality of service (QoS) capabilities, including Resource ReSerVation Protocol (RSVP), Weighted Fair Queuing (WFQ), Committed Access Rate (CAR), and IP Precedence. These features enable businesses to prioritize traffic on their networks by user, application, traffic type, and other parameters, to ensure that business-critical data and delay-sensitive voice are appropriately prioritized.

Because the Cisco 1751 router provides robust voice compression, up to 8 voice calls can occupy a single 64K data channel simultaneously, without compromising data performance. Cisco IOS voice compression technology integrates data and voice traffic to enable efficient use of existing data networks.

### High-Performance Architecture for VPNs and Broadband Service

A robust RISC architecture and Cisco IOS features enable the Cisco 1751 to support VPN applications with tunneling and security, as well as DSL, cable, and other broadband access technologies. An internal slot on the Cisco 1751 motherboard supports an optional VPN module that provides hardware-assisted IPSec DES and 3DES encryption at T1/E1 speeds. The Cisco 1751 equipped with the WIC-1ADSL supports VPN over ADSL service. See Figure 6. The Cisco 1751 with the uBR910 series cable DSU supports business-class broadband cable access. The Ethernet WIC (WIC-1ENET) provides an alternate method of deploying DSL/cable Internet access with the use of an external modem. In some cases, the ISP provides the broadband modem.

**Figure 6** The Cisco 1751, deployed in conjunction with the ADSL WIC, enables SMB and small branch customers to reap the benefits of ADSL.



## Network Management and Ease of Installation

The Cisco 1751 router supports a range of network-management and ease-of-installation tools:

- Cisco ConfigMaker is a Windows wizard-based tool designed to configure a small network of Cisco routers, switches, hubs, and other network devices from a single PC. This tool makes it easy to configure value-add security features such as the Cisco IOS Firewall Feature Set, IPSec encryption, and network address translation (NAT); establish VPN policies (including QoS and security); and configure the Dynamic Host Configuration Protocol (DHCP) server.
- CiscoWorks for Windows, a comprehensive network management solution for small to medium sized networks that provides Web-based network monitoring and device configuration management.
- CiscoWorks2000, the industry-leading Web-based network management suite from Cisco, simplifies tasks such as network inventory management and device change, rapid software image deployment, and troubleshooting.
- For service providers, Cisco Service Management (CSM) provides an extensive suite of service management solutions to enable planning, provisioning, monitoring, and billing.

## Extending Cisco End-to-End Solutions

As part of the comprehensive Cisco end-to-end networking solution, the Cisco 1700 Series enables businesses to extend a cost-effective, seamless network infrastructure to the small branch office. The Cisco 1700 Family of access routers includes the Cisco 1751 and Cisco 1720—a modular device optimized for data-only connections. WAN cards work with both devices, as well as with Cisco 1600, 2600, and 3600 series routers. They are powered by Cisco IOS Software for robust WAN service between branches and central offices in organizations with multiple sites. Both feature RISC-based processors to provide performance for encryption and support for emerging broadband technologies.

The Cisco 1751 also shares VoIP technology and analog voice interface cards with Cisco 2600 and 3600 series routers. This feature provides an end-to-end solution for multiservices communications between offices, simplifying inventory needs and leveraging IT expertise across more devices in an organization.

For a complete list of physical interfaces, see Tables 3, 4, 5, and 6.

**Table 3** Physical Interfaces/Architecture

|   |   |
|---|---|
| One 10/100 BaseT Fast Ethernet Port (RJ45)        | Automatic speed detection; automatic duplex negotiation; VLAN support   |
| One Voice Interface Card Slot                     | Supports a single voice interface card with two ports per card  |
| Two WAN Interface Card/Voice Interface Card Slots | Supports any combination of up to two WAN interface cards or voice interface cards  |
| Ethernet WAN Interface Cards                      | Supports PPP and PPPoE; operates in full and half-duplex modes  |
| One Auxiliary (AUX) Port                          | RJ-45 jack with RS232 interface (plug compatible with Cisco 2500 Series AUX port); asynchronous serial DTE with full modem controls (CD, DSR, RTS, CTS); asynchronous serial data rates up to 115.2 kbps  |
| One Console Port                                  | RJ-45 jack with RS232 interface (plug compatible with Cisco 1000/1600/2500 series console ports); asynchronous serial DTE; transmit/receive rates up to 115.2 kbps (default 9600 bps, not a network data port); no hardware handshaking such as RTS/CTS |
| One Internal Expansion Slot                       | Supports hardware-assisted services such as encryption (up to T1/E1)  |
| RISC Processor                                    | Motorola MPC860P PowerQUICC at 48MHz  |



**Table 4** WAN Support

|  |   |
|--|---|
| Asynchronous Serial Interfaces on Serial WAN Interface Cards | Interface speed: up to 115.2 Kbps; asynchronous serial protocols: Point-to-Point Protocol (PPP), Serial Line Internet Protocol (SLIP); asynchronous interface; EIA/TIA-232  |
| ISDN WAN Interface Cards                                     | ISDN dialup and ISDN leased line (IDSL) at 64 and 128 Kbps; encapsulation over ISDN leased line; Frame Relay and PPP  |
| ADSL WAN Interface Cards                                     | Supports ATP adaption Layer 5 (AAL5) services and applications; interoperates with Alcatel DSLAM with Alcatel chipset and Cisco 6130/6260 DSLAM with Globespan chipset; ANSI T1.413 issue 2 and ITU 992.1 (G.DMT) compliant |

**Table 5** WAN Interface Cards for the Cisco 1751

| Module        | Description  |
|---------------|--|
| WIC-1T        | One serial, async, and sync (T1/E1)                    |
| WIC-2T        | Two serial, async, and sync (T1/E1)                    |
| WIC-2A/S      | Two low-speed serial (up to 128 kbps), async, and sync |
| WIC-1B-S/T    | One ISDN BRI S/T                                       |
| WIC-1B-U      | One ISDN BUI U with integrated NT1                     |
| WIC-1DSU-56K4 | One integrated 56/64-kbps, four-wire DSU/CSU           |
| WIC-1DSU-T1   | One integrated T1/fractional T1 DSU/CSU                |
| WIC-1ADSL     | One-port ADSL interface                                |
| WIC-1ENET     | One-port 10BaseT Ethernet Interface                    |

**Table 6** Voice Interface Cards for the Cisco 1751

|                |  |
|----------------|--|
| VIC-2FXS       | Two-port FXS voice/fax interface card for voice/fax network module |
| VIC-2FXO       | Two-port FXO voice/fax interface card for voice/fax network module |
| VIC-2FXO-EU    | Two-port FXO voice/fax interface card for Europe                   |
| 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 |
| VIC-2BRI-NT/TE | Two-port network Side ISDN BRI interface                           |

### Voice Implementation Requirements

To implement VoX using the Cisco 1751, the following table describes the DSP requirements to support their specific voice port configuration. At a minimum, one DSP

is required for each analog VIC and two DSPs for each ISDN BRI VIC.

Table 7 summarizes the DSP resources required based on VIC type.

**Table 7**

| VIC                                      | Number of Voice Calls Supported per VIC | Minimum Number of DSPs Required                       |
|--|---|---|
| Analog<br>(VIC-2FXS, VIC-2FXO, VIC2-E/M) | 2                                       | 1 DSP<br>(PVDM-256K-4 or higher)                      |
| Digital<br>(VIC-2BRI-NT/TE)              | 4 (4 B-channels)                        | 2 DSPs (Two PVDM-256K-4 or one PVDM-256K-8 or higher) |

The Cisco 1751-V includes one PVDM-256K-4 (one DSP) which allows support for one analog VIC with no additional DSP requirements. If two analog VICs or one or more digital ISDN VICs are used, then additional DSP

resources are needed. The Cisco 1751 or Cisco 1751-V has two DSP slots to allow easy expandability to support additional voice channels. For a complete list of DSP modules see Table 8.

**Table 8** Cisco 751 DSP Modules

|              |   |
|--------------|---|
| PVDM-256K-4  | 4-channel packet voice/fax DSP module (one DSP)     |
| PVDM-256K-8  | 8-channel packet voice/fax DSP module (two DSPs)    |
| PVDM-256K-12 | 12-channel packet voice/fax DSP module (three DSPs) |
| PVDM-256K-16 | 16-channel packet voice/fax DSP module (four DSPs)  |
| PVDM-256K-20 | 20-channel packet voice/fax DSP module (five DSPs)  |

### Cisco IOS Software Feature Sets

The Cisco 1751 router supports a choice of Cisco IOS Software feature sets. Each feature set requires specific

amounts of Flash and DRAM memory in the product. For default memory configurations, please see Table 9.

**Table 9** Cisco 1751 Memory Defaults and Maximums

| Model Number                    | Default FLASH/Maximum FLASH | Default DRAM/Maximum DRAM |
|---------------------------------|-----------------------------|---------------------------|
| Cisco 1751                      | 16 MB/16 MB                 | 32 MB/96 MB               |
| Cisco 1751-V Multiservice Model | 32 MB/32 MB                 | 64 MB/128 MB              |

The Cisco 1751 router supports a choice of Cisco IOS Software feature sets with rich data features as well as data/voice features (Table 10). Each feature set requires specific amounts of RAM and Flash memory in the product.

- Cisco IOS IP base feature sets include: NAT, OSPF, RADIUS, and NHRP.
- Plus feature sets contain L2TP, L2F, the Border Gateway Protocol (BGP), IP Multicast, Frame Relay SVC, RSVP, the NetWare Link Services Protocol (NLSP), AppleTalk SMRP, the Web Cache Control Protocol (WCCP), and the Network Timing Protocol (NTP).

- Encryption is offered in special encryption feature sets (Plus IPsec 56, and Plus IPsec 3DES). The VPN encryption module requires an IOS IP Plus IPsec image.
- DSL support is only in the Plus feature sets.



**Table 10** Cisco IOS Features

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

| Feature Name                                  | Product Code     | CD Number          |
|---|------------------|--------------------|
| IP  | S17C-12105YB     | CD17-C-12.1.5=     |
| IP ADSL                                       | S17C7-12105YB    | CD17-C-12.1.5=     |
| IP Plus ADSL                                  | S17C7P-12105YB   | CD17-C7P-12.1.5=   |
| IP Plus IPSec 56 (DES) ADSL                   | S17C7L-12105YB   | CD17-C7L-12.1.5=   |
| IP Plus IPSec 3DES ADSL                       | S17C7K2-12105YB  | CD17-C7K2-12.1.5=  |
| IP/FW/IDS                                     | S17CH-12105YB    | CD17-CH-12.1.5=    |
| IP/FW/IDS Plus IPSec 56 (DES) ADSL            | S17C7HL-12105YB  | CD17-C7HL-12.1.5=  |
| IP/IPX  | S17B-12105YB     | CD17-B-12.1.5=     |
| IP/IPX/FW/IDS Plus ADSL                       | S17B7HP-12105YB  | CD17-B7HP-12.1.5=  |
| IP/FW/IDS Plus IPSec 3DES ADSL                | S17C7HK2-12105YB | CD17-C7HK2-12.1.5= |
| IP/IPX/AT/IBM                                 | S17Q-12105YB     | CD17-Q-12.1.5=     |
| IP/IPX/AT/IBM Plus ADSL                       | S17Q7P-12105YB   | CD17-Q7P-12.1.5=   |
| IP/IPX/AT/IBM/FW/IDS Plus IPSec 56 (DES) ADSL | S17Q7HL-12105YB  | CD17-Q7HL-12.1.5=  |
| IP/IPX/AT/IBM/FW/IDS Plus IPSec 3DES ADSL     | S17Q7HK2-12105YB | CD17-Q7HK2-12.1.5= |

**Cisco 1751 Data/Voice Software Feature Packs for Cisco IOS Release 12.1.(5)YB**

| Feature Name  | Product Code      | CD Number           |
|---|-------------------|---------------------|
| IP/Voice Plus                                       | S17CVP-12105YB    | CD17-C7VP-12.1.5=   |
| IP/Voice Plus ADSL                                  | S17C7VP-12105YB   | CD17-C7VP-12.1.5=   |
| IP/Voice Plus IPSec 56 (DES) ADSL                   | S17C7VL-12105YB   | CD17-C7VL-12.1.5=   |
| IP/Voice/FW/IDS Plus ADSL                           | S17C7HV-12105YB   | CD17-C7HV-12.1.5=   |
| IP/Voice/FW/IDS Plus IPSec 56 ADSL                  | S17C7HVL-12105YB  | CD17-C7HVL-12.1.5=  |
| IP/Voice Plus IPSec 3DES ADSL                       | S17C7VK2-12105YB  | CD17-C7VK2-12.1.5=  |
| IP/Voice/FW/IDS Plus IPSec 3DES ADSL                | S17C7HVK2-12105YB | CD17-C7HVK2-12.1.5= |
| IP/IPX/Voice/FW/IDS Plus ADSL                       | S17B7HPV-12105YB  | CD17-B7HPV-12.1.5=  |
| IP/IPX/AT/IBM/FW/IDS Voice Plus IPSec 56 (DES) ADSL | S17Q7HVL-12105YB  | CD17-Q7HVL-12.1.5=  |
| IP/IPX/AT/IBM/FW/IDS/Voice Plus IPSec 3DES ADSL     | S17Q7HVK2-12105YB | CD17-Q7HVK2-12.1.5= |

## Other IOS Features Include:

### QoS Features

- Frame Relay Fragmentation (FRF.12)
- IP Precedence
- Generic Traffic Shaping (GTS)
- Frame Relay Traffic Shaping (FRTS)
- Weighted Random Early Detection (WRED)

### Voice Support

- VoIP
- VoFR
- VoATM

### Codec Support

- G.711
- G.729
- G.729a
- G.723.1
- G.726

## Technical Specifications

### Dimensions

- Width: 11.2 in. (28.4 cm)
- Height: 4.0 in. (10.0 cm)
- Depth: 8.7 in. (22.1 cm)
- Weight (minimum): 3.0 lb (1.36 kg)
- Weight (maximum): 3.5 lb (1.59 kg)

### Power

- Locking connector on power socket
- External Power Brick
- AC Input Voltage: 100 to 240 VAC
- Frequency: 50 - 60 Hz
- AC Input Current: rated 1 A, measured 0.5 A
- Power Dissipation: 20W (maximum)

### Environmental

- Operating Temperature: 32 to 104°F (0 to 40°C)
- Nonoperating Temperature: -4 to 149°F (-20 to 65°C)
- Relative Humidity: 10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating

## Safety

- Regulatory Approvals
  - UL 1950, 3rd Edition
  - CSA 22.2 No 950-95, 3rd Edition
  - EN60950 with A1 through A4 and A11
  - EN41003
  - TCA TS001-1997
  - AS/NZS 3260 with A1 through A4
- IEC 60950 with A1 through A4 and all country deviations
- NOM-019-SCFI
- GB4943
  - ETSI 300-047
  - BS 6301 (power supply) EMI
  - AS/NRZ 3548 Class B
- CNS-13438
  - FCC Part 15 Class B
  - EN60555-2 Class B
  - EN55022 Class B
  - VCCI Class II
  - CISPR-22 Class B
- EN55024 comprised of:
  - IEC 1000-4-2 (EN61000-4-2)
  - IEC 1000-4-3 (ENV50140)
  - IEC 1000-4-4 (EN61000-4-4)
  - IEC 1000-4-5 (EN61000-4-5)
  - IEC 1000-4-6 (ENV50141)
  - IEC 1000-4-11
  - IEC 1000-3-2 Network Homologation
- Europe: CTR2, CTR3, TBR21
- Canada: CS-03
- United States: FCC Part 68
- Japan: Jate NTT
- Australia/New Zealand: TS013/TS-031, TS002, TS003
- Hong Kong: CR22

## Service and Support

Leading-edge technology deserves leading-edge support. Service and support for the Cisco 1751 is available on a one-time or an 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 to Cisco.com 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 taking full advantage of Cisco expertise.

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