

# Overview of the Router

---

The Cisco 2520/CPA2520, Cisco 2521/CPA2521, Cisco 2522/CPA2522, and Cisco 2523/CPA2523 routers are full-featured multiport serial routers with synchronous serial, LAN, and asynchronous/synchronous serial ports permitting use as a router or communications server.

---

**Note** Throughout this publication, “the router” refers to the Cisco 2520/CPA2520, Cisco 2521/CPA2521, Cisco 2522/CPA2522, and Cisco 2523/CPA2523 routers except when specified otherwise.

---

## Router Hardware Features

The multiport serial routers are available in the following configurations:

- |                           |   |
|---------------------------|---|
| <b>Cisco 2520/CPA2520</b> | 1 Ethernet port with a selectable attachment unit interface (AUI) connection or 1 Ethernet 10BaseT connection<br>1 Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port (RJ-45)<br>2 high-speed synchronous serial ports<br>2 low-speed asynchronous/synchronous serial ports |
| <b>Cisco 2521/CPA2521</b> | 1 Token Ring shielded twisted pair (STP) port or 1 Token Ring unshielded twisted-pair (UTP) port<br>1 ISDN BRI port (RJ-45)<br>2 high-speed synchronous serial ports<br>2 low-speed asynchronous/synchronous serial ports   |

- Cisco 2522/CPA2522** 1 Ethernet port with a selectable AUI connection or 1 Ethernet 10BaseT connection  
1 ISDN BRI port (RJ-45)  
2 high-speed synchronous serial ports  
8 low-speed asynchronous/synchronous serial ports
- Cisco 2523/CPA2523** 1 Token Ring STP port or 1 Token Ring UTP port  
1 ISDN BRI port (RJ-45)  
2 high-speed synchronous serial ports  
8 low-speed asynchronous/synchronous serial ports

Figure 1-1, Figure 1-2, Figure 1-3, and Figure 1-4 shows the rear panels of the Cisco 2520/CPA2520, Cisco 2521/CPA2521, Cisco 2522/CPA2522, and Cisco 2523/CPA2523 routers, respectively.

The multiprotocol serial routers function not only as multiprotocol routers but also as communication servers (see Figure 1-1) for telecommuting services. The multiprotocol serial routers offer high-speed synchronous serial lines for T1 connections, and low-speed asynchronous/synchronous serial lines to attach terminal equipment such as a channel service unit/data service unit (CSU/DSU).

Figure 1-1 through Figure 1-4 show the rear panels of the multiprotocol serial routers.

**Figure 1-1 Cisco 2520/CPA2520 Multiprotocol Serial Router—Rear Panel**

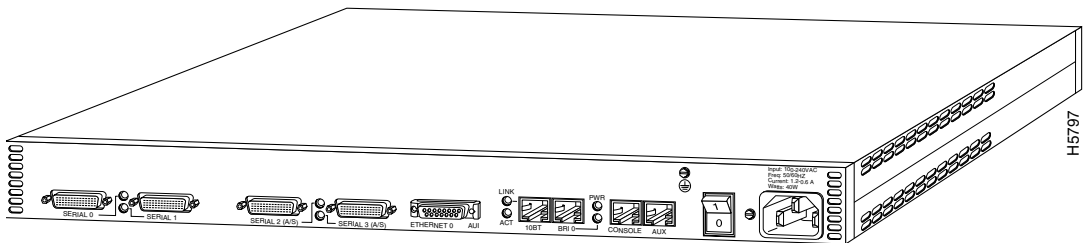


Figure 1-2 Cisco 2521/CPA2521 Multiport Serial Router—Rear Panel

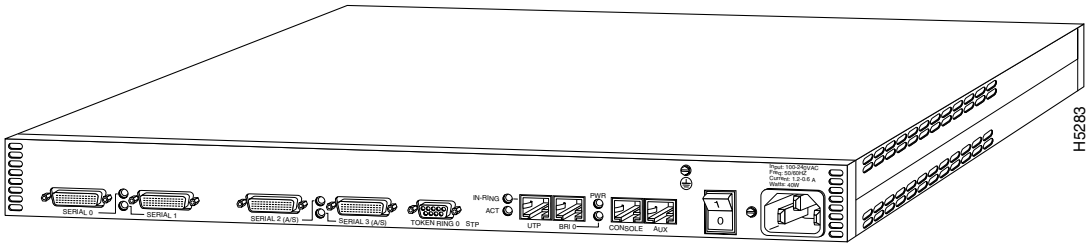


Figure 1-3 Cisco 2522/CPA2522 Multiport Serial Router—Rear Panel

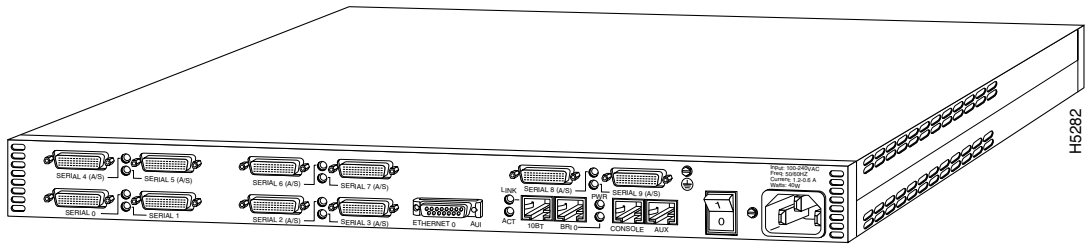
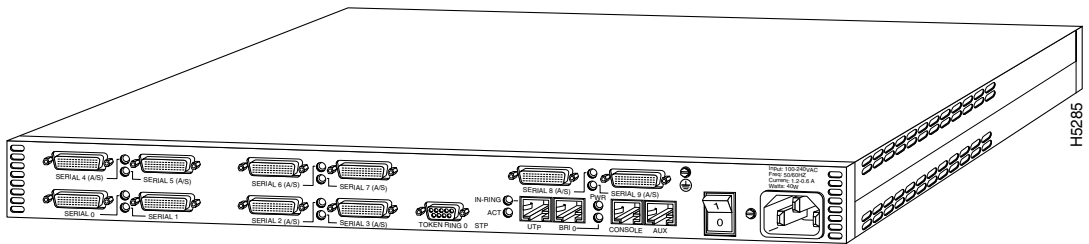


Figure 1-4 Cisco 2523/CPA2523 Multiport Serial Router—Rear Panel



# Port Configuration

The asynchronous/synchronous ports are configured as either asynchronous or synchronous. The default is a synchronous port configuration.

## Asynchronous/Synchronous Port Features

The low-speed asynchronous/synchronous ports connect terminals, printers, modems, microcomputers, and remote LANs over asynchronous serial lines to an internetwork, or to synchronous devices such as DSU/CSUs on the same ports. The asynchronous/synchronous ports support data transmission rates of up to 115.2 kbps on the following serial interfaces:

- EIA/TIA-232
- EIA/TIA-449
- EIA-530
- V.35
- X.21

---

**Note** EIA/TIA-232 and EIA/TIA-449 were known as recommended standards RS-232 and RS-449 before their acceptance as standards by the Electronic Industries Association (EIA) and Telecommunications Industry Association (TIA).

---

The multiport serial routers support numerous protocols. The following are examples of some of the low-speed synchronous and asynchronous protocols:

- Autobaud
- Bisync
- Frame Relay
- Half-duplex operation
- HDLC

- PPP
- SDLC
- X.25

## Communications Server Services

The multiport router acts as a communications server to connect terminals, printers, modems, microcomputers, and remote LANs over asynchronous serial lines to an internetwork. The communications server uses a set of connection services to allow remote networks access to an internetwork of LANs and WANs.

The router supports four types of server operation:

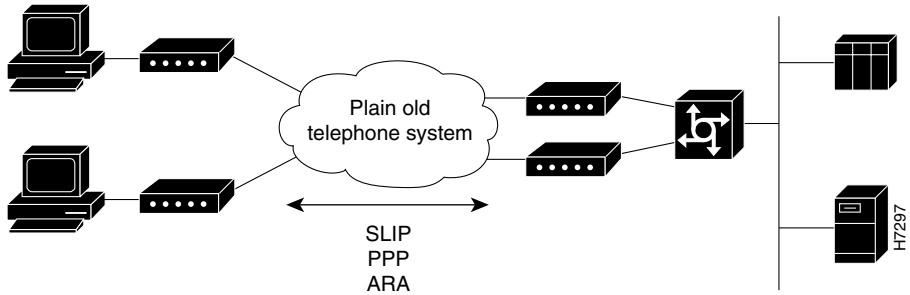
- Remote node services
- Terminal services
- Asynchronous routing services
- Protocol translation services

## Remote Node Services

Remote node services support remote network connectivity with Serial Line Internet Protocol (SLIP), Point-to-Point Protocol (PPP), or AppleTalk Remote Access Protocol (ARA protocol).

Single users with laptop or desktop computing devices can access corporate data and many other resources on the Internet using dialup lines. Figure 1-5 shows an example network.

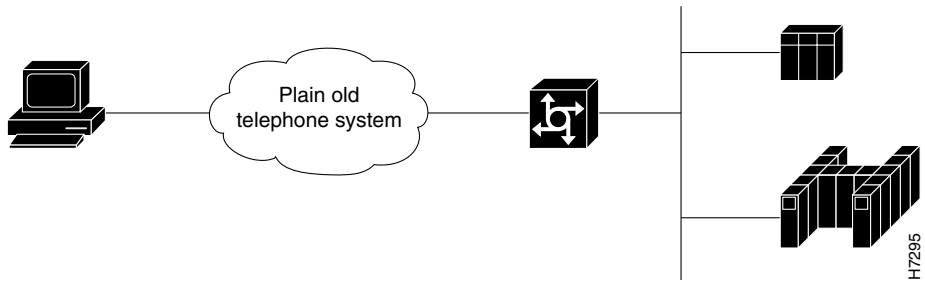
Figure 1-5 Remote Node Services—Example Network



## Terminal Services

Terminal services provide terminal-to-host connectivity with virtual terminal protocols including Telnet, rlogin, local-area transport (LAT), TN3270, and X.25 packet assembler/disassembler (PAD). Terminal services can be used to connect to a modem in a modem pool for outbound connectivity. Figure 1-6 shows an example network.

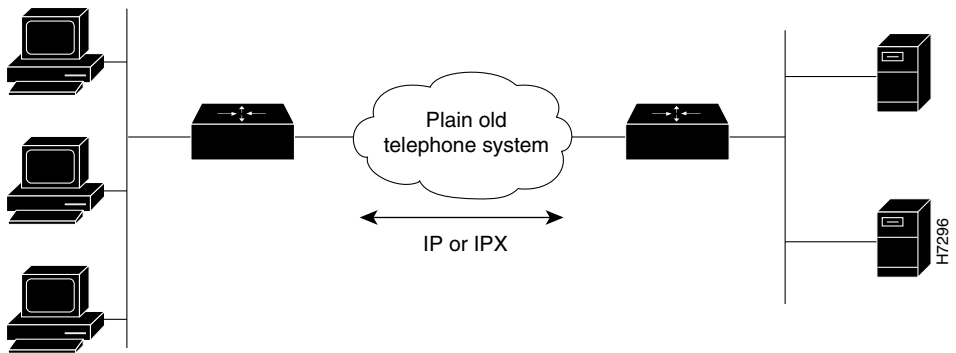
Figure 1-6 Terminal Services—Example Network



## Asynchronous Routing Services

Routing services enable the multiport router to route packets over LANs and WANs using the asynchronous interfaces. A key benefit of asynchronous routing is that it provides low-cost operation by using dialup telephone networks only when needed. Figure 1-7 shows an example network.

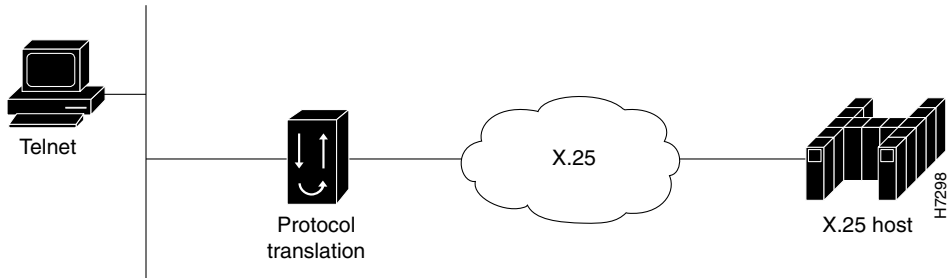
**Figure 1-7 Asynchronous Routing—Example Network**



## Protocol Translation Services

Protocol translation allows terminal services running over one protocol to be translated to terminal services running over another protocol such as an X.25 packet PAD to Telnet (using Transmission Control Protocol/Internet Protocol [TCP/IP]). Protocol translation on the multiport router supports Telnet, TN3270, LAT, and X.25 PAD. Figure 1-8 shows an example network.

**Figure 1-8 Protocol Translation Services—Example Network**



## System Specifications

The system specifications of the Cisco 2500 series multiport routers are listed in Table 1-1.

**Table 1-1 System Specifications**

| Description                    | Specification   |
|--------------------------------|---|
| Dimensions (H x W x D)         | 1.75 x 17.5 x 10.56 inches (one rack unit)<br>(4.44 x 44.45 x 26.82 cm) |
| Weight                         | 10 lb (4.5 kg)  |
| Input voltage, AC power supply | 100 to 240 VAC  |
| Current                        | 0.6 to 1.2A   |
| Frequency                      | 50 to 60 Hz   |
| Power dissipation              | 40W (maximum), 135.5 Btus <sup>1</sup> /hr                              |
| Input voltage, DC power supply | - 40 to -72 VDC   |
| Current                        | 1.5 to 1.0A   |
| Power dissipation              | 40W (maximum), 135.5 Btus/hr  |
| Processor                      | 20-MHz Motorola 68EC030   |

| Description               | Specification   |
|---------------------------|---|
| Network interface options | <p>model 2520:</p> <ul style="list-style-type: none"> <li>• 1 Ethernet (AUI or 10BaseT), 1 ISDN BRI port, 2 synchronous serial, 2 asynchronous/ synchronous serial</li> </ul> <p>model 2521:</p> <ul style="list-style-type: none"> <li>• 1 Token Ring (DB-9 or UTP), 1 ISDN BRI port, 2 synchronous serial, 2 asynchronous/ synchronous serial</li> </ul> <p>model 2522:</p> <ul style="list-style-type: none"> <li>• 1 Ethernet (AUI or 10BaseT), 1 ISDN BRI port, 2 synchronous serial, 8 asynchronous/ synchronous serial</li> </ul> <p>model 2523:</p> <ul style="list-style-type: none"> <li>• 1 Token Ring (DB-9 or UTP), 1 ISDN BRI port, 2 synchronous serial, 8 asynchronous/ synchronous serial</li> </ul> |
| Operating environment     | 32 to 104°F (0 to 40°C)   |
| Nonoperating temperature  | −40 to 185°F (−40 to 85°C)  |
| Operating humidity        | 5 to 95%, noncondensing   |
| Noise level               | 34 dBa @ 3' (0.914 m)   |
| Regulatory Compliance     | FCC Class A. For more regulatory information, refer to the <i>Regulatory Compliance and Safety Information</i> document that accompanied your router.   |

1. BTU = British thermal unit.

## Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the information packet that shipped with your chassis.

If you purchased your product from a reseller, you can access Cisco Connection Online (CCO) as a guest. CCO is Cisco Systems' primary, real-time support channel. Your reseller offers programs that include direct access to CCO's services.

For service and support for a product purchased directly from Cisco, use CCO.

## Cisco Connection Online

CCO is Cisco Systems' primary, real-time support channel. SMARTnet customers and partners can self-register on CCO to obtain additional content and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously—a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: <http://www.cisco.com>.
- WWW: <http://www-europe.cisco.com>.
- WWW: <http://www-china.cisco.com>.
- Telnet: [cco.cisco.com](http://cco.cisco.com).
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82.

Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact [ccohelp@cisco.com](mailto:ccohelp@cisco.com). For additional information, contact [ccoteam@cisco.com](mailto:ccoteam@cisco.com).

If you need technical assistance with a Cisco product that is under warranty or covered by a Cisco maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or [tac@cisco.com](mailto:tac@cisco.com).

Please use CCO to obtain general information about Cisco Systems, Cisco products, or upgrades. If CCO is not accessible, contact 800 553-6387, 408 526-7208, or [csrep@cisco.com](mailto:csrep@cisco.com).

## Ordering Documentation

Documentation for Cisco products is available in three forms: on a CD-ROM, printed books, and on the World Wide Web. You have the option of subscribing to the documentation CD through an update service. Or you can order printed documentation at an additional cost. Refer to the information packet included with the router for detailed ordering information. You can also access Cisco documentation on the World Wide Web URL <http://www.cisco.com>.

