

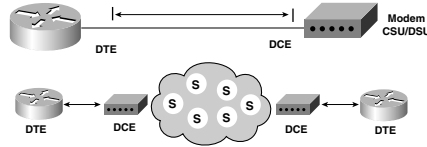
WAN Specifications and Connections

There are several ways to carry traffic across the WAN. The implementation depends on distance, speed, and the type of service required. The speeds of connections vary from 56 Kbps to T1/E1 (1.544/2.048 Mbps). WANs use serial communication for long-distance communication. Cisco routers use a proprietary 60-pin connector. The network end of the cable must match the service hardware.

Cabling Routers for Serial Connectors

When cabling routers, you need to determine whether you need a data terminal equipment (DTE) connector or a data circuit-terminating equipment (DCE) connector:

- **DTE**—The endpoint of the user's device on the WAN link.
- **DCE**—The point where responsibility for delivery data passes into the hands of the SP. The DCE provides clocking and is responsible for forwarding traffic.



If you connect routers back-to-back, one of the routers will be a DTE, and the other will be a DCE.

Router Ports

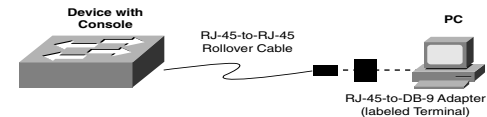
Routers can have fixed or modular ports:

- **Fixed ports**—Each port has a port type and number (such as “Ethernet 0”).
- **Modular ports**—Each port has a port type, slot number, and port number (such as “serial 1/0”).

Configuring Devices

You must establish a connection through a console port in order to configure a Cisco device. Some devices use a rollover cable to connect a console port to a PC. To set up the connection, do the following:

1. Cable the device using a rollover cable. You might need an adapter for the PC.
2. Configure the terminal emulation application with the following COM port settings: 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control.



WAN Specifications and Connections Summary

- WANs use serial transmission for long-distance communication.
- Cisco routers use a proprietary 60-pin connector on serial ports.
- A DTE/DCE is the point where the service provider assumes for the WAN. A DCE provides clocking.
- Routers have either fixed or modular ports. The syntax you use to configure each interface depends on the type of port.
- Rollover cables are used to set up a console connection.

Operating and Configuring a Cisco IOS Device

Basic Operation of Cisco IOS Software

Cisco IOS software enables network services in switches and routers. Cisco IOS Software provides the following features:

- Network protocols and functions
- Connectivity
- Security
- Scalability
- Reliability
- Management

The Cisco IOS command-line interface (CLI) can be accessed through a console connection, modem connection, or Telnet session. These connections are called EXEC sessions.