

- **Packet-switched**—Devices transport packets using virtual circuits (VCs) that provide end-to-end connectivity.

Programmed switching devices provide physical connections. Packet headers are used to identify the destination. Packet switching offers leased-line-type services over shared lines, but at a much lower cost. Packet-switched networks typically use serial connections with speeds ranging from 56 Kbps to E3.



### Other WAN Connections

- **Digital Subscriber Line (DSL)**—Delivers high-bandwidth connections over existing copper telephone lines. There are four varieties of DSL:
  - Asymmetric digital subscriber line (ADSL)
  - High-data-rate digital subscriber line (HDSL)
  - Single-line digital subscriber line (SDSL)
  - Very-high-data-rate digital subscriber line (VDSL)

DSL does not use the entire bandwidth available on the twisted pair, leaving room for a voice channel.
- **Cable**—Uses a coaxial cable to transport the data.

### WAN Cabling

The router end of the cable connects to the DB-60 port on a serial WAN interface card (using a DB-60 connector). The connector on the other end of the serial cable is specified according to the standard used.

The ports on either end of a WAN connection are specified as DTE (data terminal equipment) or data communications equipment (DCE). DCE converts user data into the service provider's preferred format. The port configured as DTE requires external clocking from the CSU/DSU or another DCE device.

### Physical Parameters for WAN Connections

A WAN service provider assigns your organization the parameters required for making the WAN link connection.

- Customer premises equipment (CPE) is located on the subscriber's premises. It includes both equipment owned by the subscriber and devices leased by the service provider.
- Demarcation, or demarc, marks the point where CPE ends and the local loop begins. Usually, it is located in the telecommunications closet.
- Local loop, or "last-mile," is the cabling from the demarc into the WAN service provider's central office (CO).
- The central office is a switching facility that provides a point of presence for WAN service. The central office is the entry point to the WAN cloud and the exit point from the WAN for called devices.
- A switching point for calls.
- The toll network is a collection of trunks inside the WAN cloud.

