

CHAPTER 7

- **Application layer protocols:** The rules for implementing the end-user services provided by a network.
- **Bandwidth:** The capacity of a transmission medium.
- **Broadband:** Any communication link with a transmission rate exceeding 128,000 bps.
- **Bus topology:** A strategy for connecting the nodes of a LAN in which all the nodes are connected to a single shared communication line. If two or more nodes use the link at the same time, the messages collide and are unreadable.
- **Cable modem:** A broadband technology that uses the links that deliver cable TV signals into homes.
- **Computer network:** A set of independent computer systems connected by telecommunication links for the purpose of sharing information and resources.
- **Dedicated point-to-point lines:** Transmission lines that directly connect two machines.
- **Digital subscriber line (DSL):** A broadband technology that uses the same wires that carry regular telephone signals, but with a different set of frequencies; DSL transmits digital signals.
- **Domain Name Service (DNS):** An Internet application that converts a symbolic host name into its 32-bit IP address.
- **End system:** An individual computer on a computer network.
- **Ethernet:** A broadband technology that provides dedicated data transmission throughout a building or a campus at rates of either 10 Mbps or 100 Mbps.
- **Fast Ethernet:** A “new and improved” version of Ethernet that transmits at 100 Mbps across coaxial cable, fiber optic cable, or regular twisted-pair copper wire.
- **Framing:** Identifying the start and the end of a message.
- **Gigabit networking:** Networks with transmission lines that support speeds in excess of 1 billion bits per second (Gbps).
- **Host:** An individual computer on a computer network.
- **Hub:** A device that contains a number of ports, with a wire leading from each port to an Ethernet interface in the wall of a room in the building.
- **Hypertext:** A collection of documents interconnected by pointers called links.
- **Internet backbone:** An international ISP that provides global coverage.
- **Internet Service Provider (ISP):** A wide-area network whose purpose is to provide access from a private network to the Internet or from an individual’s computer to the Internet.
- **Internet:** A huge interconnected “network of networks” that includes nodes, LANs, WANs, bridges, routers, and multiple levels of ISPs.
- **IP (Internet Protocol):** The network layer in the Internet.
- **Local area network (LAN):** A computer network that connects hardware devices, such as computers, printers, and storage devices, that are all in close proximity.
- **Logical link control protocols:** The rules that ensure that the message traveling across a channel from source to destination arrives correctly.
- **Medium access control protocols:** The rules for determining how to arbitrate ownership of a shared line when multiple nodes want to send at the same time.

- **Mobile computing:** The ability to deliver data to users regardless of where they are located.
- **Modem:** A device that modulates a carrier so that it encodes binary information at one end of the transmission line, and then demodulates the carrier at the other end of the transmission line.
- **Network layer protocols:** The rules for delivering a message from the site where it was created to its ultimate destination.
- **Node:** An individual computer on a computer network
- **Packet:** An information block with a fixed maximum size that is transmitted through the network as a single unit.
- **Physical layer protocols:** The rules governing the exchange of binary digits across a physical communication channel, such as a fiber optic cable, copper wire, or wireless radio channel.
- **Protocol:** A mutually agreed upon set of rules, conventions, and agreements for the efficient and orderly exchange of information.
- **Ring topology:** A strategy for connecting the nodes of a LAN, which connects the network nodes in a circular fashion, with messages circulating around the ring in either a clockwise or counter clockwise direction until they reach their destination.
- **Routing:** The process of selecting one specific path for a message.
- **Shared cable:** A form of an Ethernet LAN in which the transmission wire is stretched around and through a building, and users tap into the cable at its nearest point using a transceiver.
- **Star topology:** A strategy for connecting the nodes of a LAN in which a single central node is connected to all other sites.
- **Store-and-forward, packet-switched technology:** A transmission technology in which a message must “hop” from one node to another to make its way from source to destination.
- **Switched, dial-up telephone lines:** The regular telephone lines used in homes.
- **TCP (Transport Control Protocol):** The primary transport protocol on the Internet.
- **TCP/IP:** The Internet protocol hierarchy.
- **Transport layer protocols:** The rules that create a “program-to-program” delivery service, in which we move messages from a specific program at the source to a specific program at the destination.
- **URL (Uniform Resource Locator):** The worldwide identification of a Web page that is located on a specific host computer on the Internet.
- **Wide area network (WAN):** A computer network that connects devices that are located across town, across the country, or across the ocean.
- **Wireless data communication:** Data communication that uses radio, microwave, and infrared signals to transmit data.
- **Wireless local access network:** A form of wireless data communication in which the user’s computer transmits its message to a local wireless base station that is no more than a few hundred feet from the user’s computer.
- **Wireless wide-area access network:** A form of wireless data communication in which the user’s computer transmits its message to a remote base station provided by a telecommunications company, which may be located many miles away.
- **World Wide Web:** An information system based on the concept of hypertext.

