Chapter : 4.3 Common Terminologies

Topic : 4.3.3 Wide Area Network (WAN)

Wide Area Network (WAN)

- Wide Area Network (WAN) spans over a large geographical area such as a state or a country.

- A Wide Area Network is different from MAN because of the distance between each of the network.

- The best example of a WAN could be the Internet that is the largest network in the world.
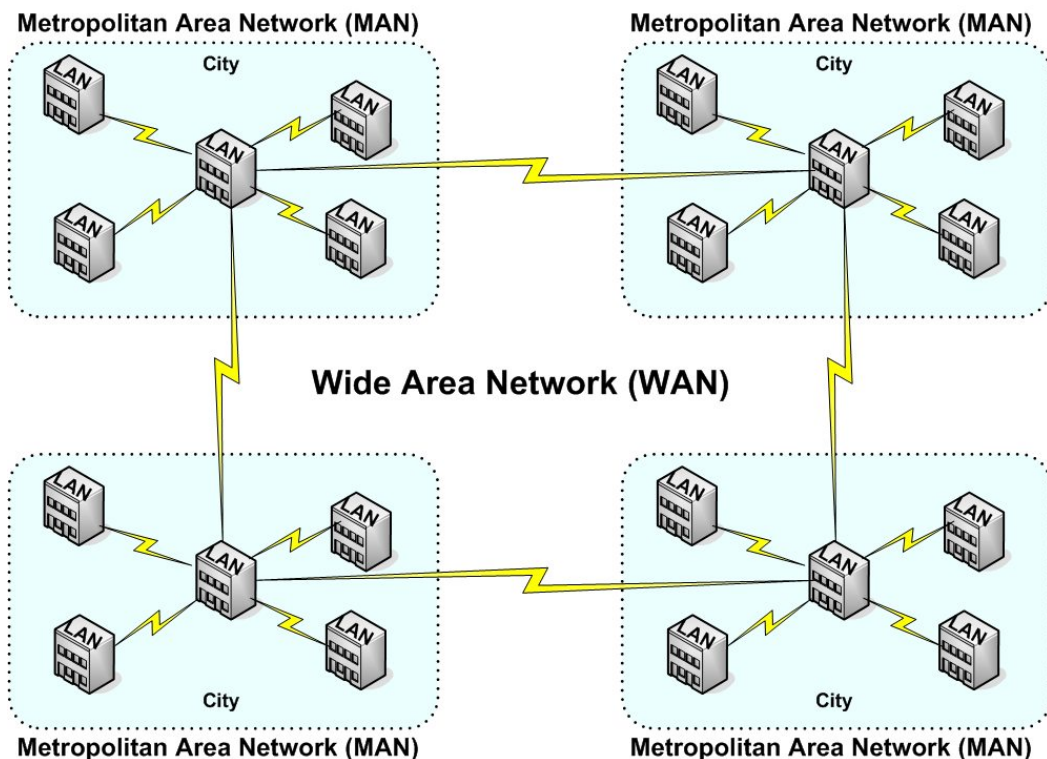

FIG 4.6: Wide Area Network (WAN)

- The world's most popular and longest Wide Area Network is an **Internet**.
- It makes communication of computers and users in one location with the computers and users in another location.
- It covers long distance via telephone lines, fiber optic cables or satellite links.

- The protocol used in a WAN is TCP/IP (Transfer Control Protocol/) in combination with the devices such as router, switches, firewall and modems.
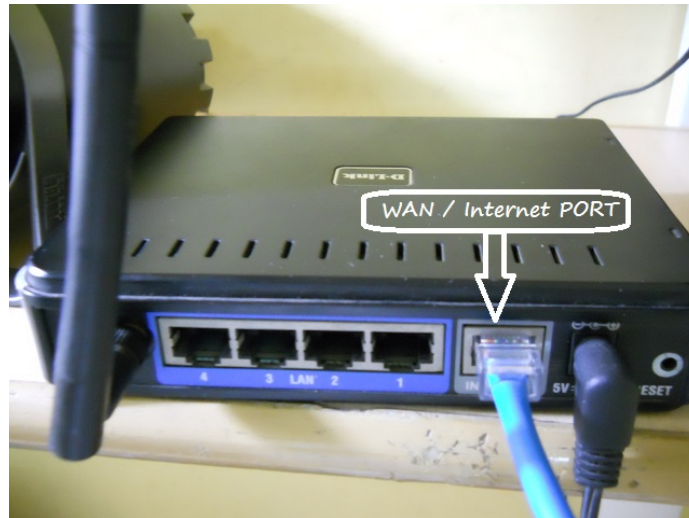

FIG 4.7: WAN connection in the Modem

Chapter : 4.3 Common Terminologies

Topic : 4.3.4 WAN Connection Types

WAN Connection Types

- The three different WAN connections that can be used to connect the LAN's together are,

  ➢ Dedicated connection.

  ➢ Circuit switching.

  ➢ Packet switching.

- **Dedicated connection**

  ➢ This connection is also referred as point-to-point connection or leased connection.

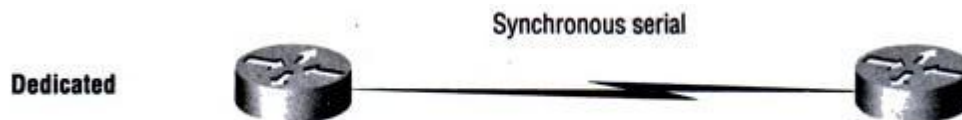 ➢ It uses synchronous serial lines up to **45Mbps**.

FIG 4.8: Dedicated connection

  ➢ No setup is made before transmission, it constantly transfers the data.

- **Circuit switching**

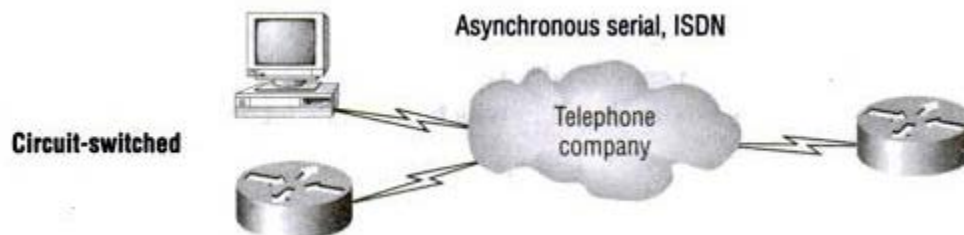 ➢ The term circuit switching is same like a phone call.

FIG 4.9: Circuit switching

  ➢ No data can transfer before end to end connection is established.

  ➢ It is used for low-bandwidth data transfer.

  ➢ Examples of circuit-switched networks are

❖ Dial-up.

❖ ISDN (Integrated Service Digital Network).

- **Packet switching**

➢ Packet switching method allows user to share bandwidth with other companies to save money.
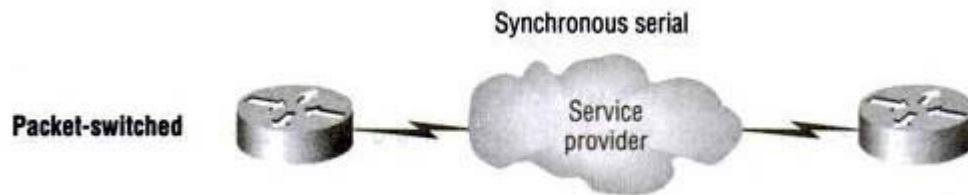

FIG 4.10: Packet- switching

➢ The packet switching transfers packets across a carrier network.

➢ Speed can range from 56Kbps to T3 (45Mbps).

➢ Examples of packet switching are,

❖ Frame Relay,

❖ X.25 Network,

❖ Internet Protocol,

❖ Ethernet.

Chapter : 4.3 Common Terminologies

Topic : 4.3.5 Node

Node

- A node is a system or device connected to a computer network.
- Nodes can be computers, Personal Digital Assistants (PDAs), cell phones, or various other network appliances.
- For example, if a network connects a file server, five computers, and two printers, there are eight nodes on the network.
- Each device on the network has a network address, such as a MAC address, which uniquely identifies each device. This helps keep track of where data is being transferred to and from on the network.
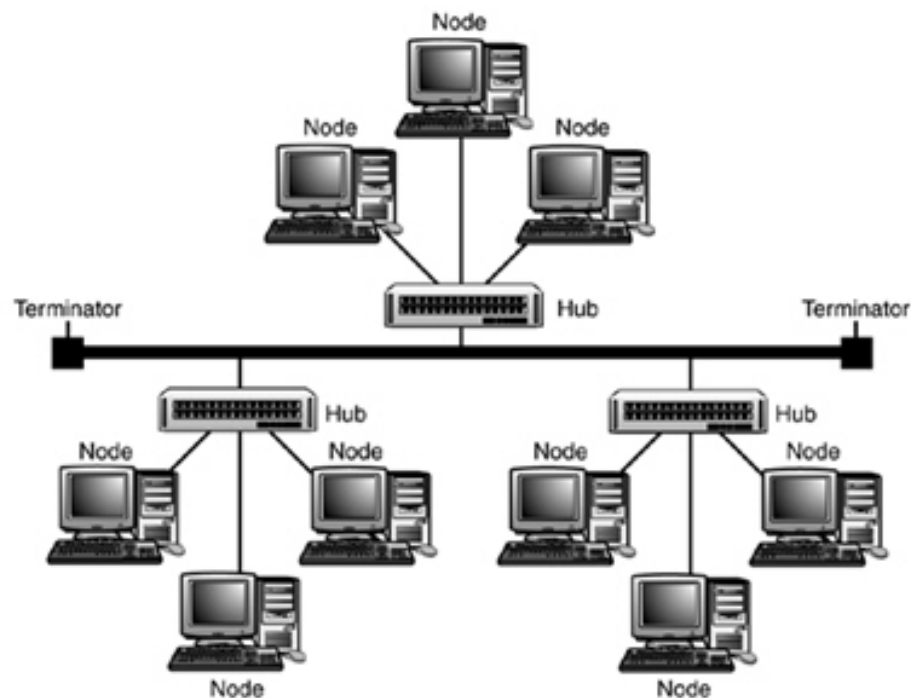

FIG 4.11: Node

Chapter : 4.3 Common Terminologies

Topic : 4.3.6 Host

Host

- A host is one or more networked computers that have been setup to handle each user visiting or requesting information.
- A host is responsible for many different responsibilities, for example, a host may be responsible for handling each of the computer players in an online game or for sending users a web page on the Internet.
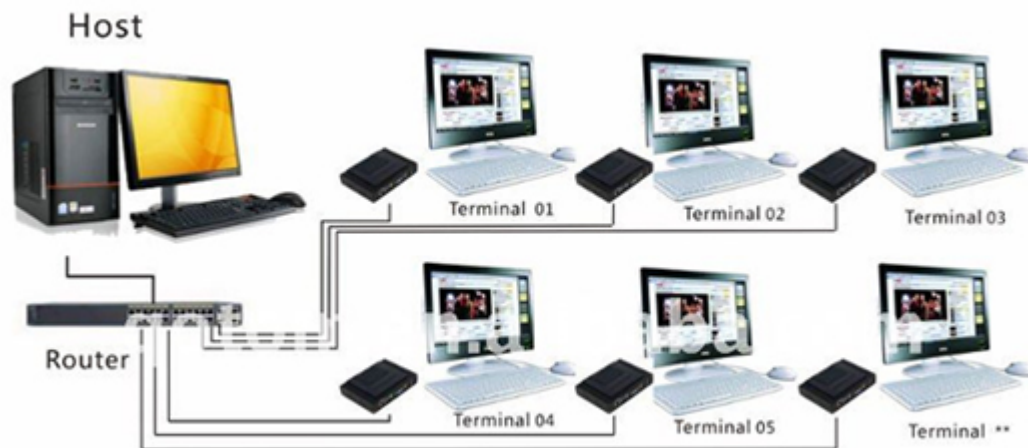- Each computer connected to the host computer is known as a client.

FIG 4.12: Host

Chapter : 4.3 Common Terminologies

Topic : 4.3.7 Workstation

Workstation

- Workstation, a high-performance computer system that is basically designed for a single user and has advanced graphics capabilities, large storage capacity, and a powerful microprocessor (Central Processing Unit).

- A workstation is a name given to a single computer that is connected to another computer or network.

- A workstation is more capable than a Personal Computer (PC) but is less advanced than a mid-range computer.
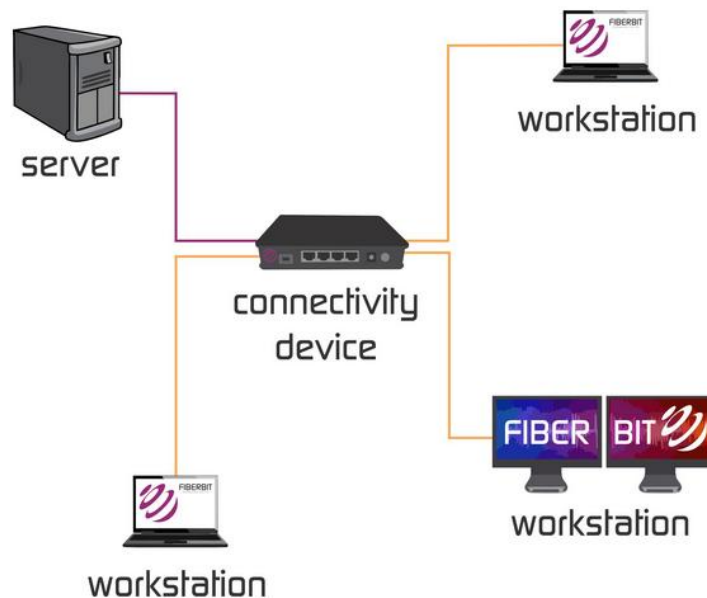

FIG 4.13: Workstation

Chapter : 4.3 Common Terminologies

Topic : 4.3.8 Bandwidth

Bandwidth

- The amount of information that can be transmitted through a communications channel in a given amount of time that is, the capacity of the channel.

- It is often uttered in bits per second, or alternatively bytes per second, leading to lots of confusion.

- Bandwidth figures are used to express the capacity of a network link or interface (e.g., a 100Mbps Ethernet interface) or the rate of information transfer (e.g. a file downloading at 3.2KB/s).

- When referring to user's own connection, bandwidth, communication speed or connection speed is the total maximum capacity of the network or modem connection.

- The more bandwidth a computer has, the faster it will be able to receive and send information.

- A modem with a connection of 56kbps is nearly twice as fast as one 28.8kbps and users with a broadband connection can get transfers speeds of several MB every second, which is more than triple the speed of the fastest modem.
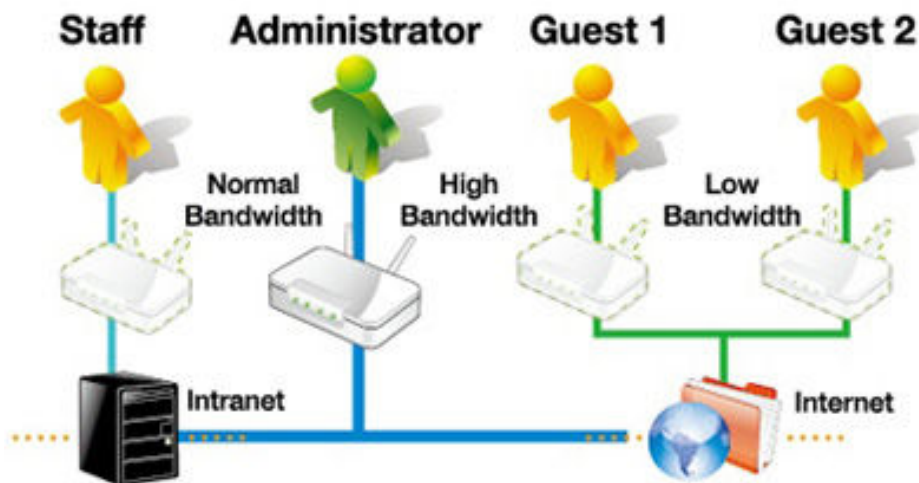

FIG 4.14: Bandwidth