

Chapter 3rd [Networking Concepts]

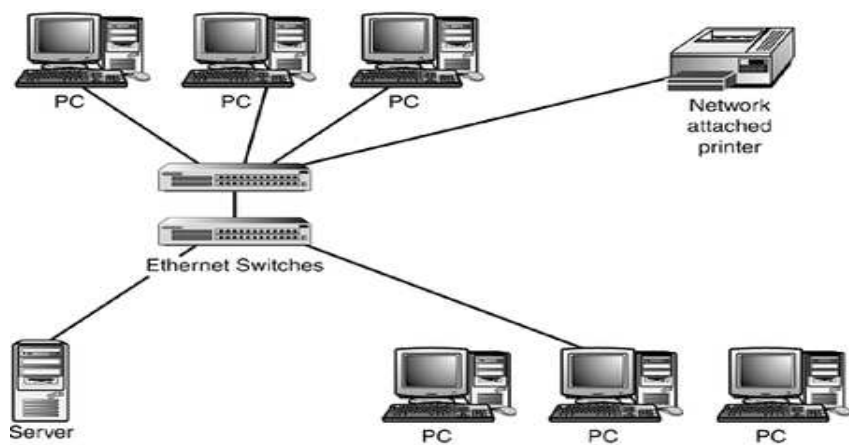
Categories of networks:- Generally a network has three primary category. Into which category a network falls is determined by its size, its ownership, the distance it covers and its physical architecture. These are

- Local area network (LAN)
- Metropolitan area network (MAN)
- Wide area network (WAN)

Local Area Network (LAN):- LAN is designed for small physical areas such as an office, group of buildings or a factory. LANs are designed to allow resources to be shares between personal computer or workstations. Resources to be shared including hardware, software, or data.

Characteristics of LAN:-

- LAN's are private networks, not subject to tariffs or other regulatory controls.
- LAN's operate at relatively high speed when compared to the typical WAN.
- There are different types of Media Access Control methods in a LAN, the prominent ones are Ethernet, Token ring.
- It connects computers in a single building, block or campus, i.e. they work in a restricted geographical area.



Metropolitan Area Network (MAN)

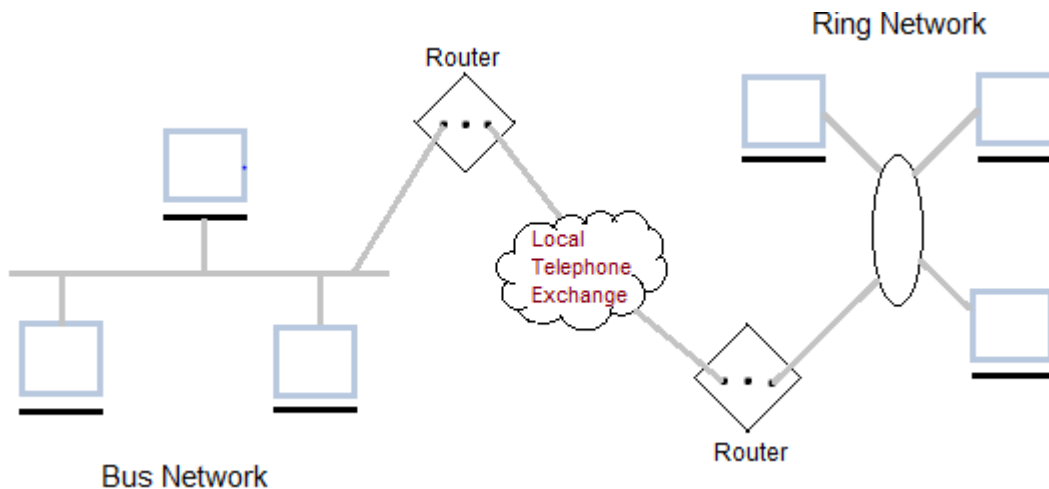
It was developed in 1980s. It is basically a bigger version of LAN. It is also called MAN and uses the similar technology as LAN. It is designed to extend over the entire city. It can be means to connecting a number of LANs into a larger network or it can be a single cable. It is mainly hold and operated by single private company or a public company.

The fault tolerance of a MAN is less and also there is more congestion in the network. It is costly and may or may not be owned by a single organization. The

data transfer rate and the propagation delay of MAN is moderate. Devices used for transmission of data through MAN are: Modem and Wire/Cable. Examples of a MAN are the part of the telephone company network that can provide a high-speed DSL line to the customer or the cable TV network in a city.

Characteristics of MAN

- It generally covers towns and cities (50 km)
- Communication medium used for MAN are optical fibers, cables etc.
- Data rates adequate for distributed computing applications.



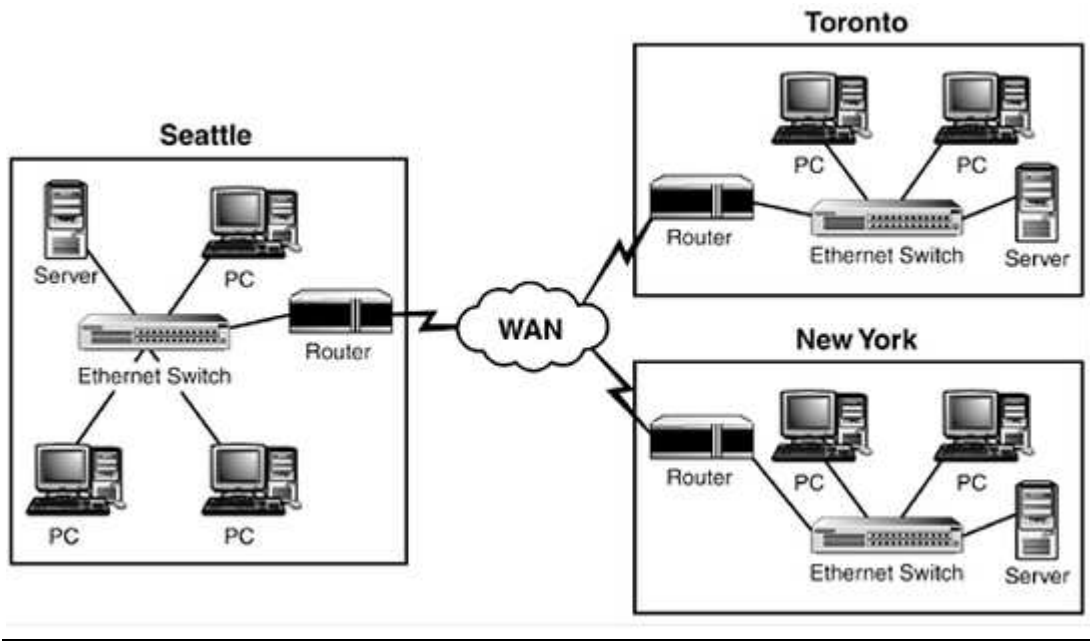
Wide Area Network (WAN)

It is also called WAN. WAN can be private or it can be public leased network. It is used for the network that covers large distance such as cover states of a country. It is not easy to design and maintain. Communication medium used by WAN are PSTN or Satellite links.

WAN's data rate is slow about a 10th LAN's speed, since it involves increased distance and increased number of servers and terminals etc. Speeds of WAN ranges from few kilobits per second (Kbps) to megabits per second (Mbps). Propagation delay is one of the biggest problems faced here. Devices used for transmission of data through WAN are: Optic wires, Microwaves and Satellites. Example of a Switched WAN is the asynchronous transfer mode (ATM) network and Point-to-Point WAN is dial-up line that connects a home computer to the Internet.

Characteristics of WAN

- It generally covers large distances(states, countries, continents).
- Communication medium used are satellite, public telephone networks which are connected by routers.



Assinment:-

- 1-Write down the category of Network.
- 2-Compare the different types of networks.