COMPUTER NETWORK PART-1

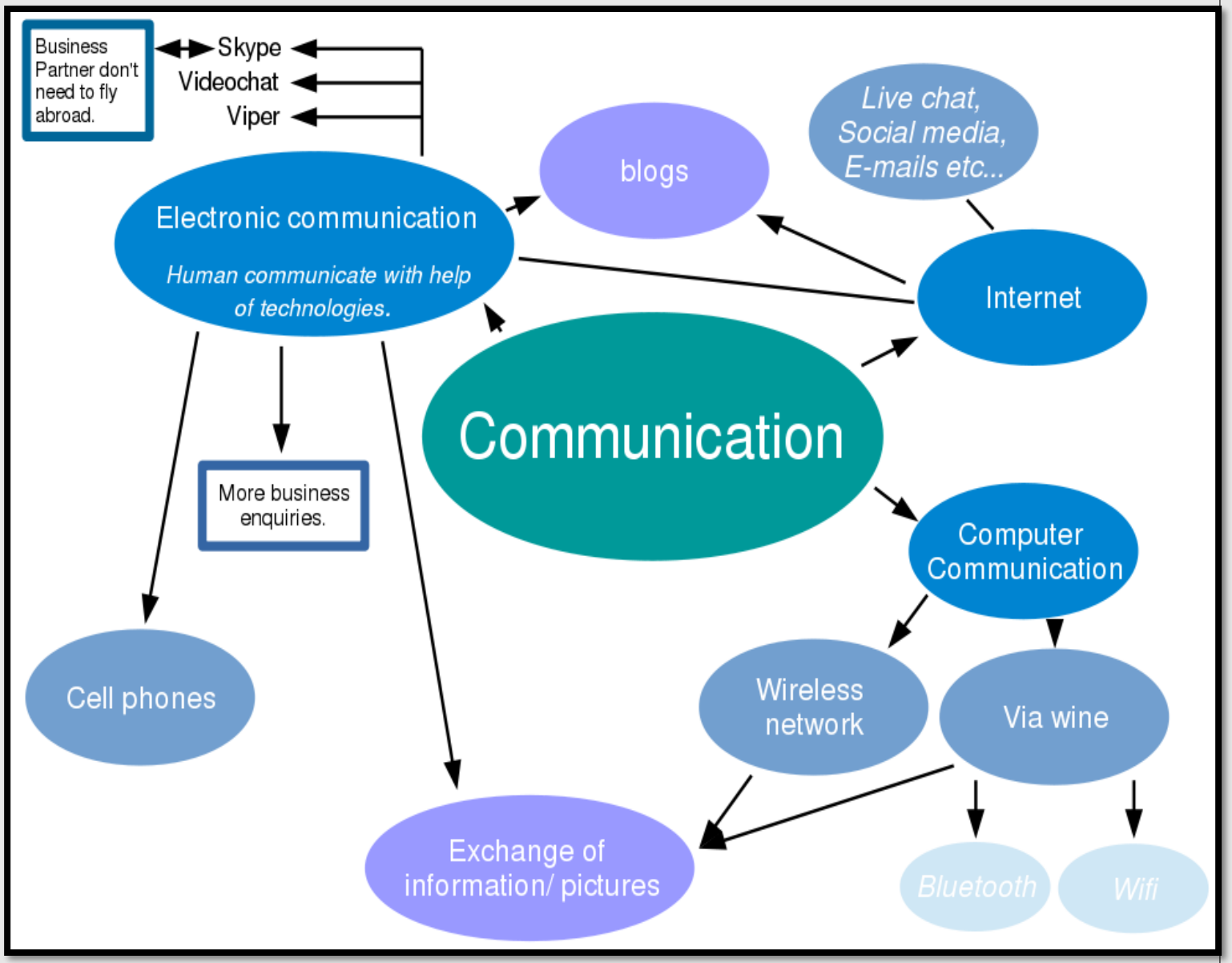
Topics covered (First Week)

- Computer communication
- Computer Network
- Need for network
- Types of network
- Network Topology

Communications

• Communications is about the transfer of information from a sender, across a distance, to a receiver.

• Communication is an act of transmitting messages.

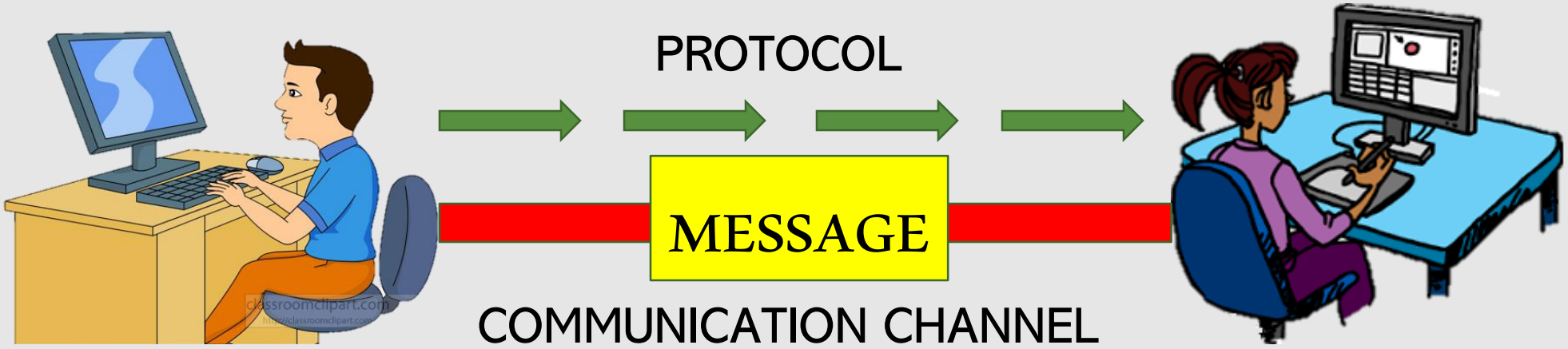


COMPUTER NETWORK COMMUNICATIONS

- We transmit information or data by using two types of signals, namely analog and digital.
- Computers communicate with digital signals.
- The older forms of communications technology, such as telephones and radios, use analog signals.

Computer communication involves :

Sender, Receiver, Protocol, Communication channel



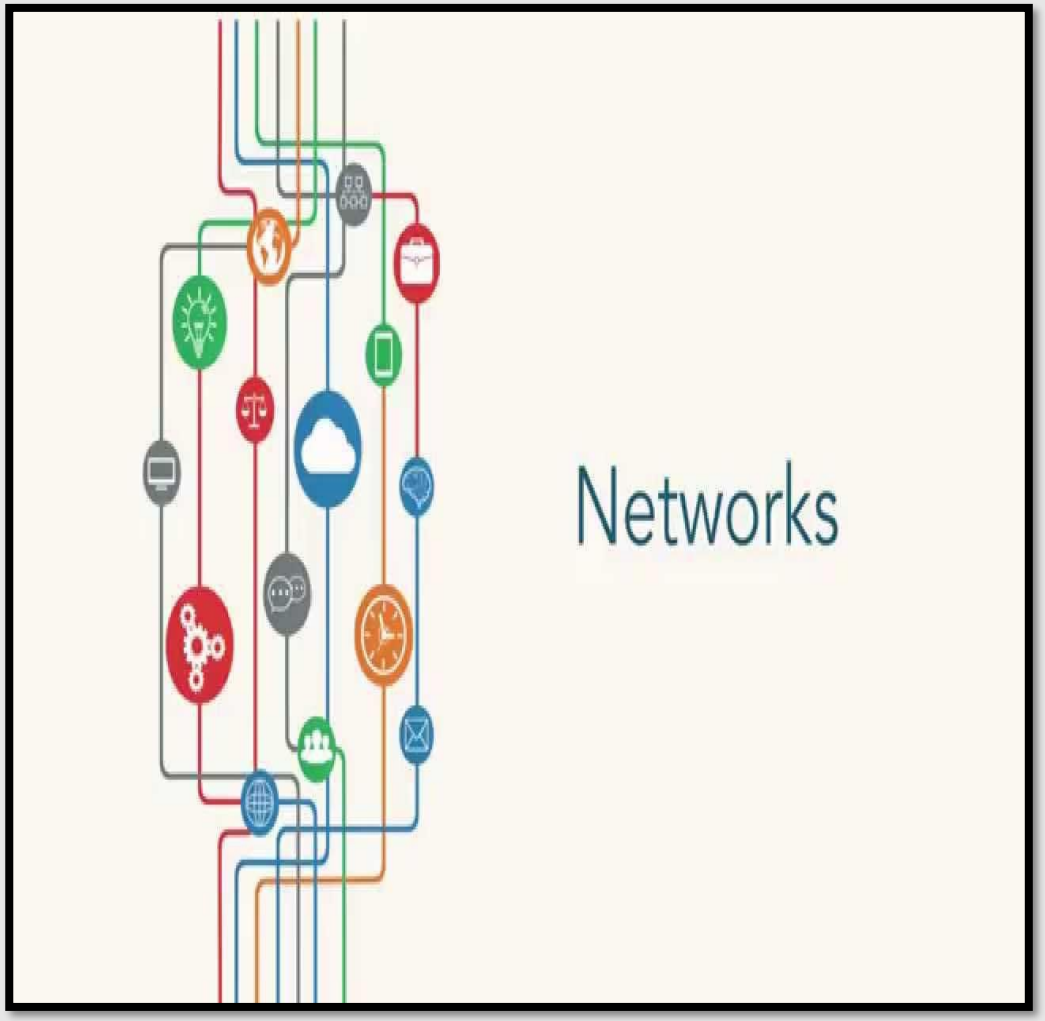
COMPUTER NETWORK

Computer network

- A computer network is a system of interconnected computers and peripheral devices.
- For example, it may connect computers, printers, scanners and cameras.

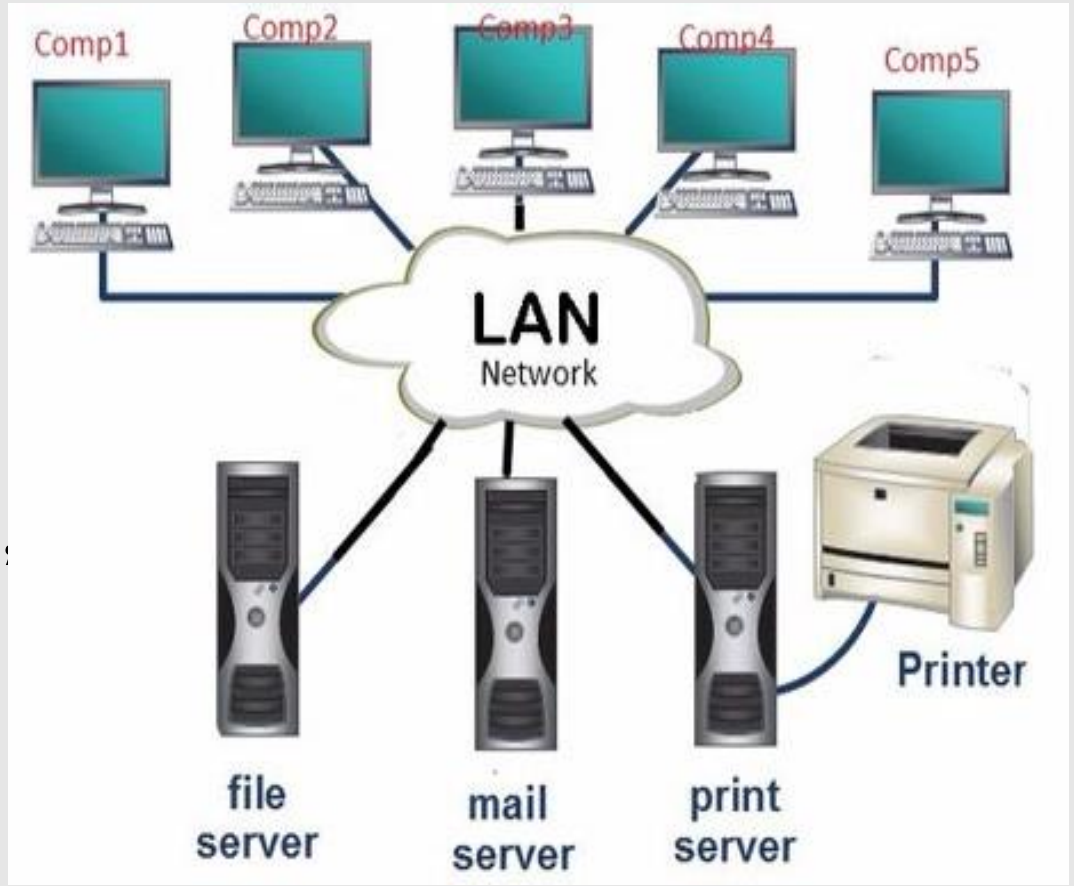
Need for network

- You can share resources such as hardware devices, software and programs.
- Sharing of data and information.
- It saves time and money.
- Transfer of money from one bank account to another via Electronic Fund Transfer.



Local Area Networking (LAN)

- Smallest network compared to the other two networks.
- The simplest form of LAN is to connect two computers together.
- LAN is operated within a limited physical area, such as at home, school, a single building or several buildings.

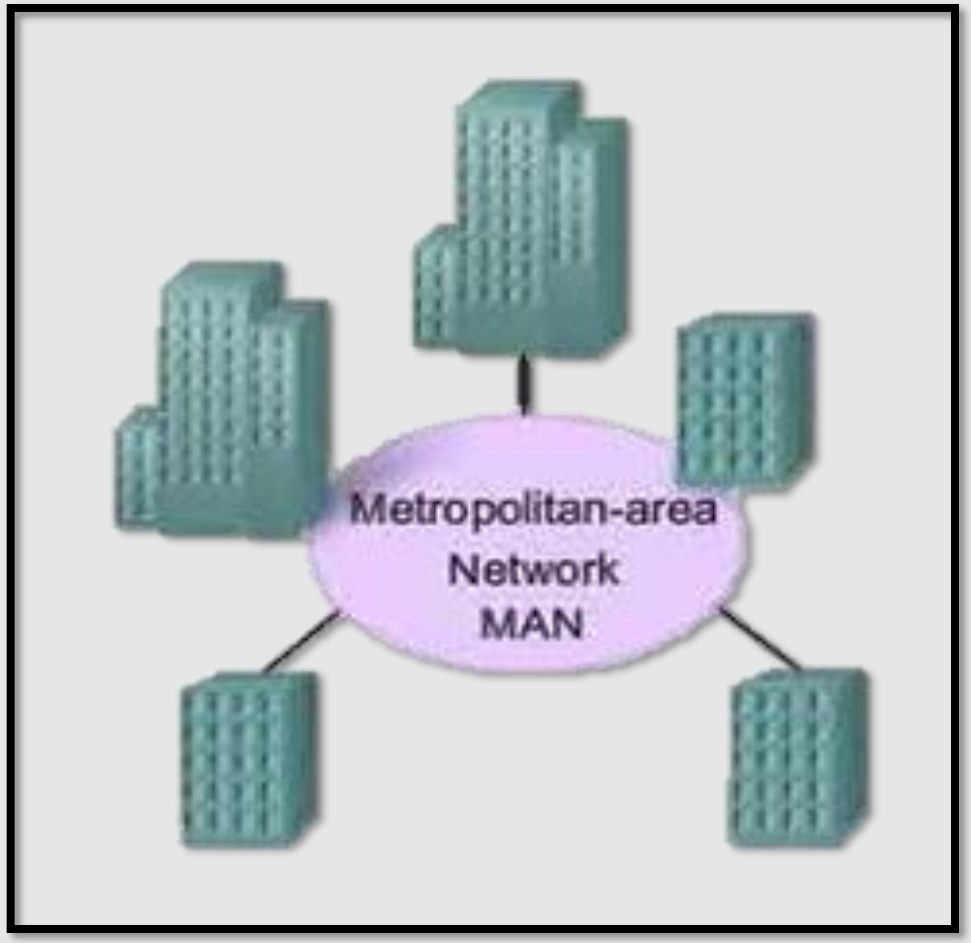


Wide Area Network (WAN)

- The largest network of all network types.
- Internet is the largest WAN in the world.
- WAN generally covers large distances such as states, countries or continents.
- Eg: Local banks have always maintained their business online by connecting all computers of their branches in the countries. International banks also use WAN to connect their computers all over the world.
- WAN is a group of MANs or LANs or the mixture of both networks.

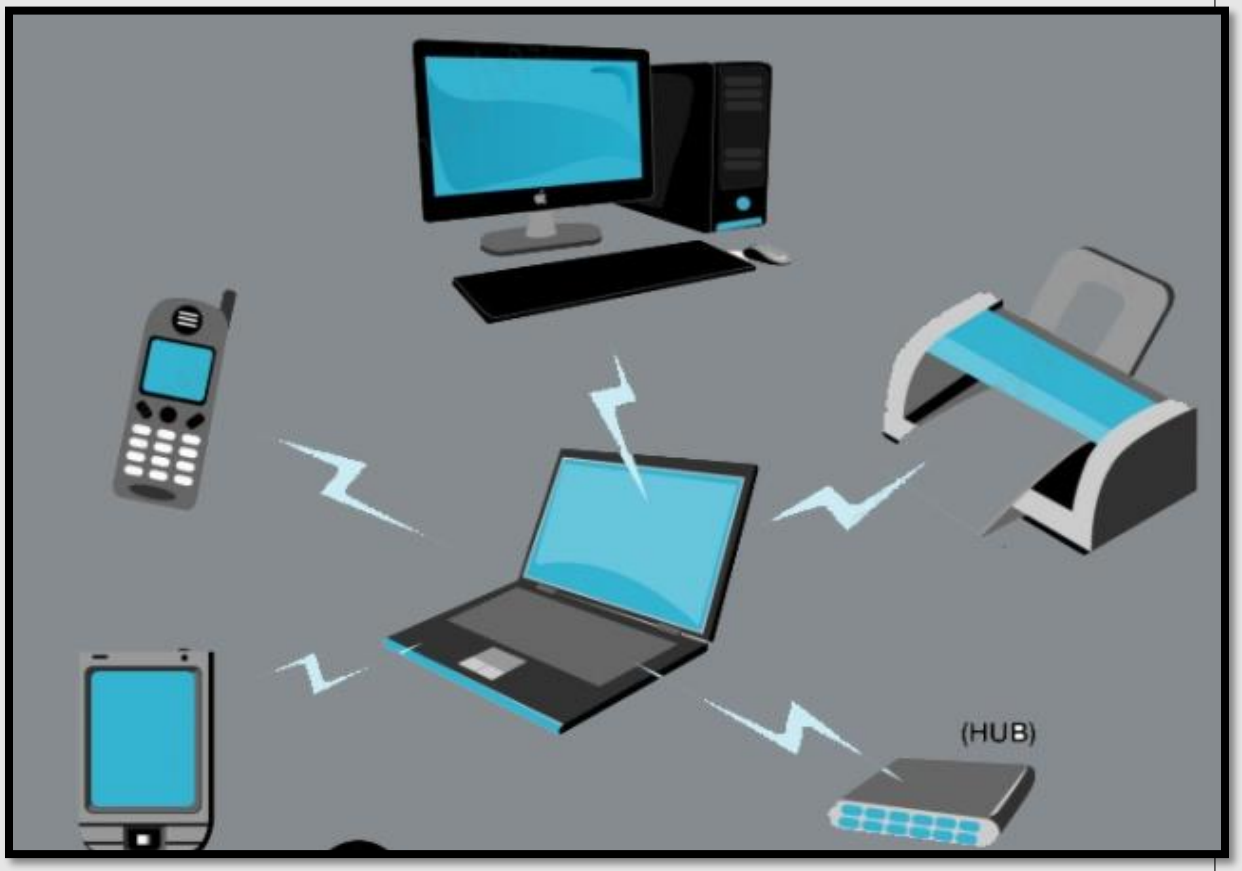
Metropolitan Area Network (MAN)

- 'Metropolitan' - describes important cities like New Delhi, Mumbai, Kolkata, Bengaluru, Chennai etc.
- Companies that have several branches within the Mumbai city such as banks, use a MAN.
- Can be a collection of several LANs within the same city.
- MAN can be defined as a group of computers and network devices connected together within a large physical area.



Personal Area Network (PAN)

- It is a network that connects personal devices like laptops, smartphones, digital cameras, printers, etc.
- Wire or wire less technology
- Eg. Bluetooth and WIFI

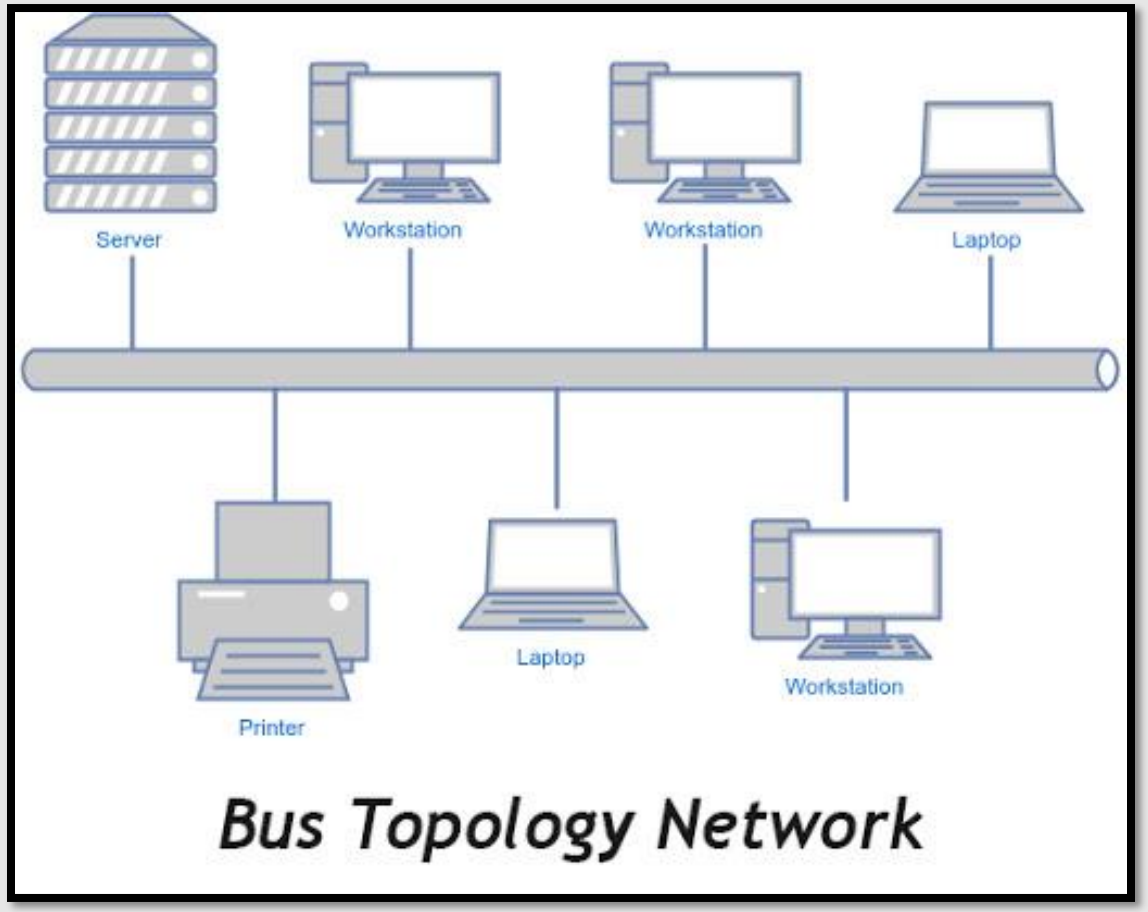


Network Topology

It refers to the layout of connected computer and devices on the network. Bus, Ring and Star are three main types of network topologies.

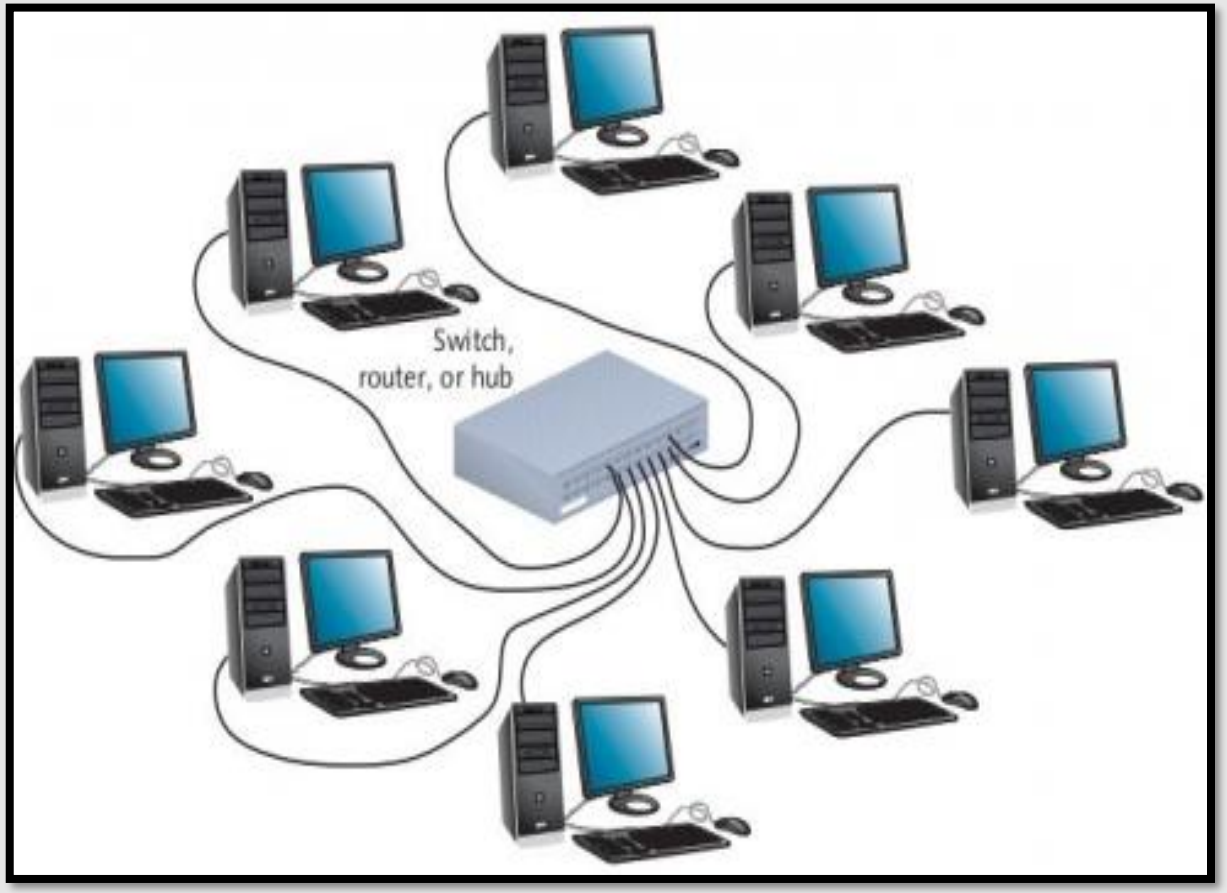
Bus Topology

- All the computers and devices are connected to one single cable called **Bus.**
- It is also called **Linear network.**
- Only one computer can communicate at a time.
- In this topology, computer system can be easily added to or removed from the network



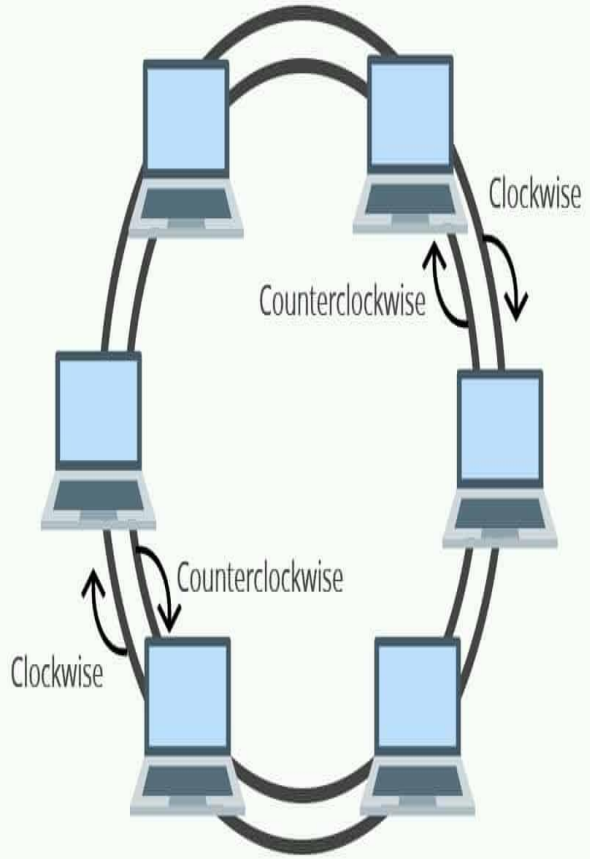
Star Topology

- Connector called a **Hub** is placed at the centre to which all the other nodes are connected .
- It is easy to add or remove nodes
- When the hub fails then the network also fails



Ring Topology

- Nodes are connected in a circular chain in which each node is connected to the next one and the last one is connected to the first one.
- If node fails, network goes off.
- Computers are attached to a single ring of cable
- There is no beginning or end in a ring topology



THANK YOU