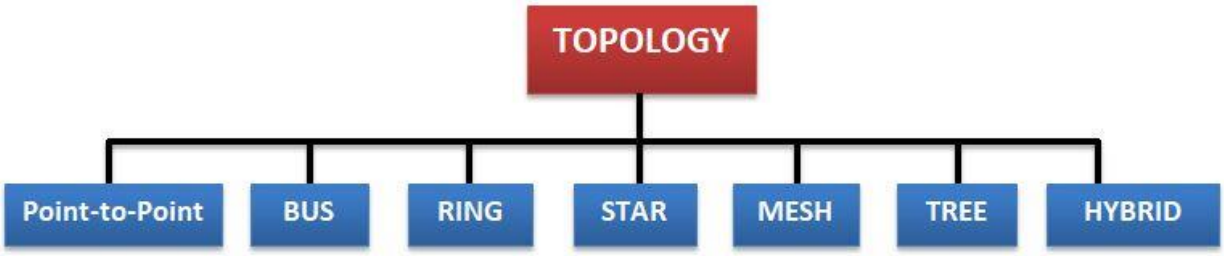
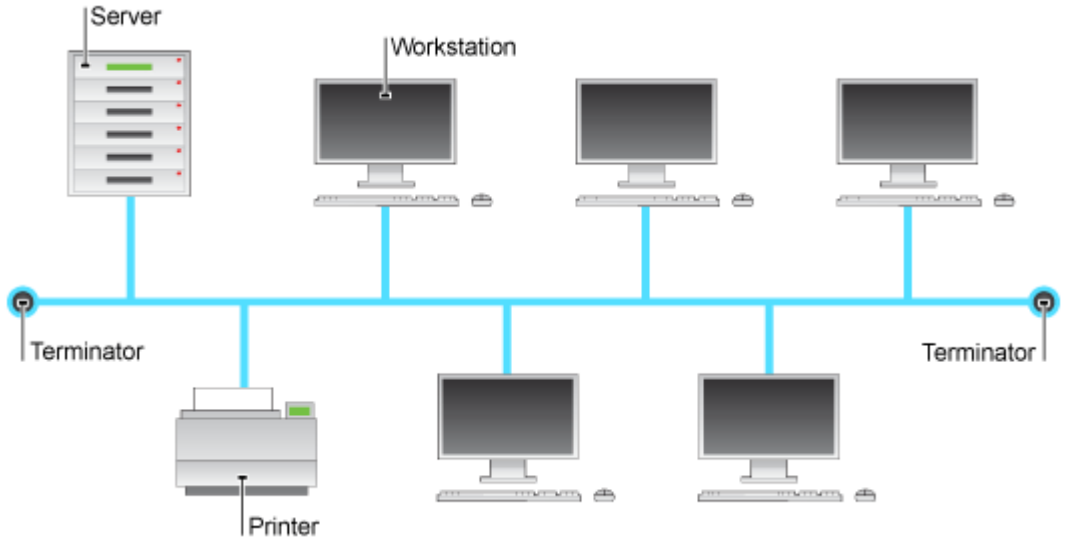
Network Topologies:

- Topology is physical layout of computers, cables & other components on network.
- There are several different network topologies & network may be built using multiple.
- The different types of network layouts are Bus topology, Star topology, Mesh topology.
- Other are Ring topology, Hybrid topology, tree topology and Wireless topology & more.
- Network topology is the layout of a network, it consists of two parts; physical and logical.
- Network Topology, the physical part describes the physical layout of a computer network.
- Network Topology, while the logical part describes how the data flows in that network.



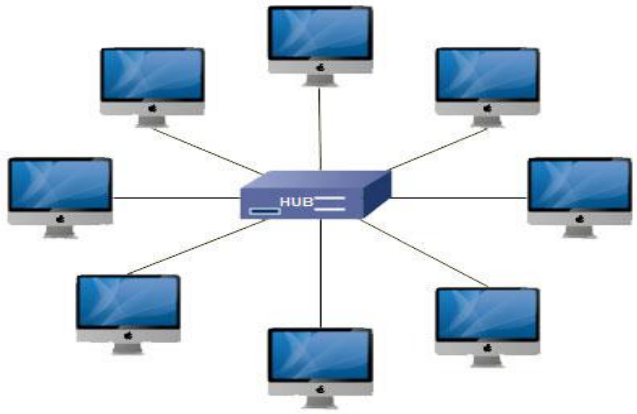
Bus Topology:

- In this topology, all computers connect through a single continuous coaxial cable.
- In this bus Topology This coaxial cable is known as the backbone cable of topology.
- Both ends of the backbone cable are terminated through the terminators.
- In Bus Topology to connect a computer to the backbone cable, a drop cable is used.
- To connect drop cable to the computer and backbone cable, the BNC plug and BNC T.
- Cable length required for this topology is the least compared to other networks.
- Easy to set-up & extend bus network, costs very less, less expensive than other topologies.
- Dependency on central cable If main cable some problem, whole network breaks down.
- Security is very low because all the computers receive the sent signal from the source.
- Signal from source is broadcasted and it travels to all workstations connected to bus cable.
- In Bus Topology terminator is added at ends of central cable, to prevent bouncing of signals.



Star Topology:

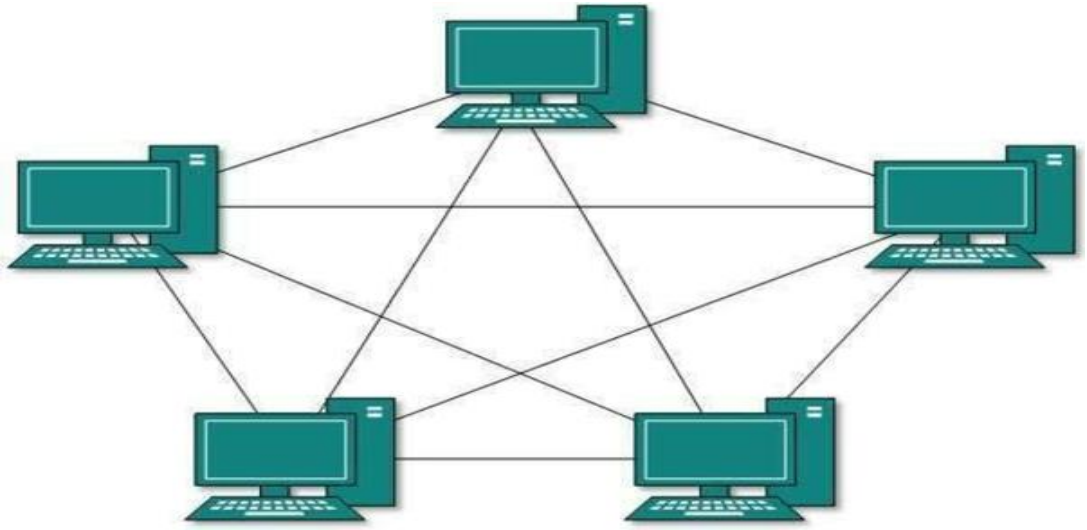
- A star topology is designed with each node like workstations, printers, laptops, servers etc.
- In Start topology every end device is directly connected to a central device called switch.
- Each workstation has a cable that goes from its network card to a network switch.
- Most popular & widely used LAN technology Ethernet currently operates in Star Topology.
- Easy to install & wire no disruptions to the network when connecting or removing devices.
- In Start Topology the fault can be easy detect and easy to remove parts from the network.
- If the switch fails, nodes attached are cannot participate in network communication.
- Requires more cable length more expensive than bus topology because of Switch cost.



Star topology

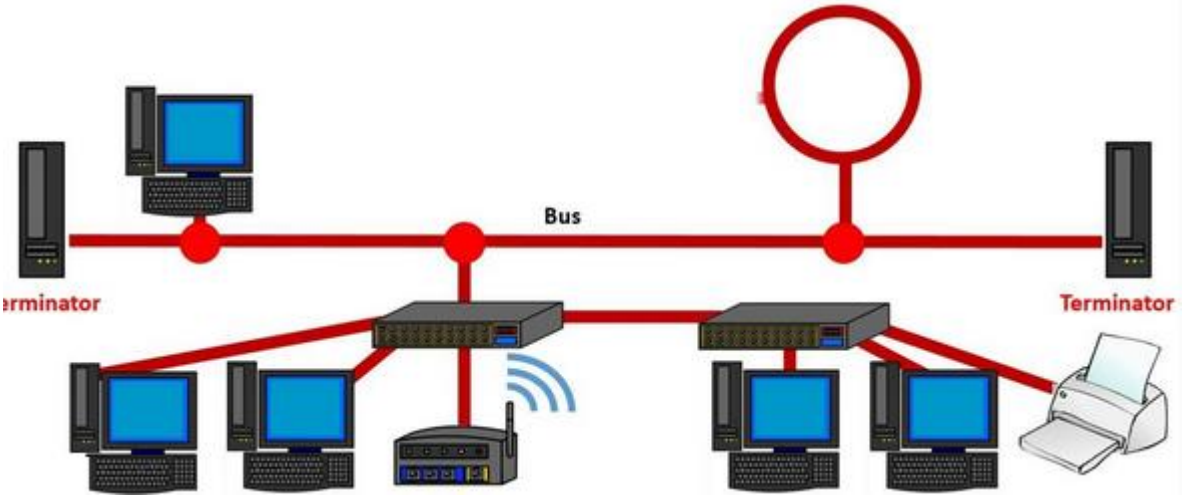
Mesh Topology:

- In Mesh topology, every network device is connected to other network devices.
- Mesh topology is costly because of the extra cables needed and it is very complex.
- The main advantage of mesh topology is multiple paths to the destination computer.
- difficult to manage but If one link is down, have another path to reach the destination.



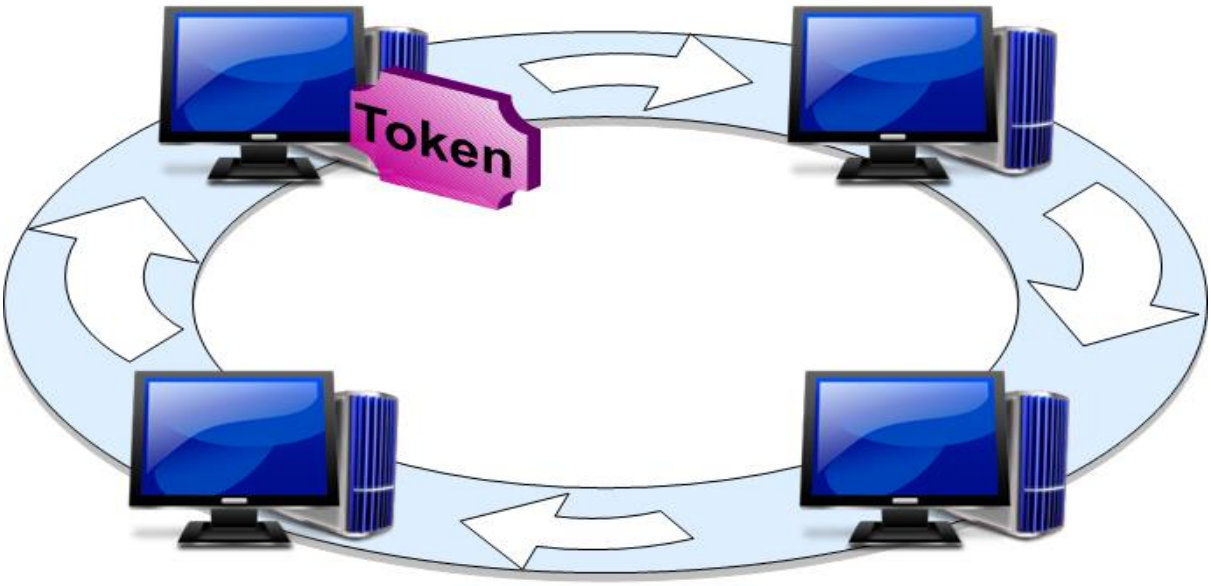
Hybrid Topology:

- Hybrid topology is a mixture of different topologies, Example is star-bus-ring topology.
- two networks; one is built from star topology and another is built from the bus topology.
- If connect both networks to build single large network, topology of new network is hybrid.
- You can combine any of topology with another topology to build the Hybrid Topology.
- Hybrid topology is mostly used to mix the wired network with the wireless network.



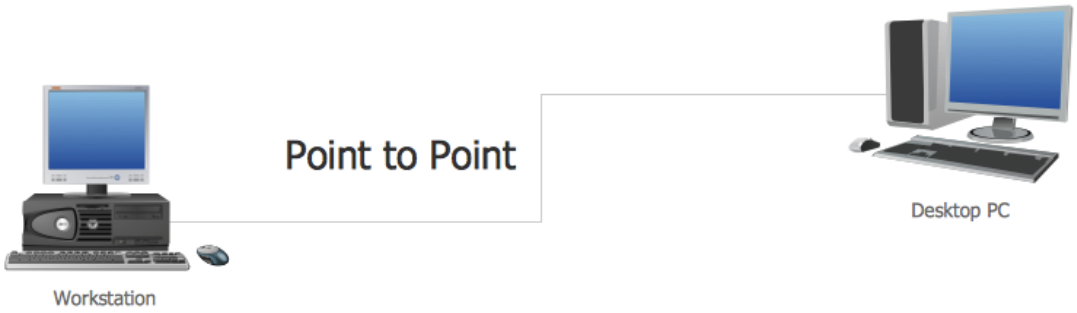
Ring Topology:

- In a ring topology, all computers are connected via cable that loops in a ring or circle.
- In ring topology each device is connected with the two devices on either side of it.
- In Ring Topology data moves down a one-way path from one computer to another.
- When data signals pass from one computer to next, each computer regenerates signals.
- Link failure can fail the entire network as the signal will not travel forward due to failure.



Point-to-Point Topology:

- Point to Point topology is simplest topology connects two nodes directly.
- The Packets sent from one site are delivered to the other and vice versa.
- Point-to-point connections are used to connect LANs to service provider WANs.
- Entire bandwidth of common link is reserved for transmission between two nodes.
- Alternatively, it is also used to connect a node or computer directly to a switch.
- Connection between the switch and the computer is a real point-to-point connection.
- Point-to-point connections can be used to connect switches or routers to each other.



Point-to-Multipoint Topology:

- This topology, end device connects directly to multiple end devices in the network.
- In a multipoint connection ,the link is between a sender and multiple receivers.
- A variation to the point-to-point topology is the point-to-multipoint topology.
- Point-to-multipoint topology one device connecting to the multiple devices.