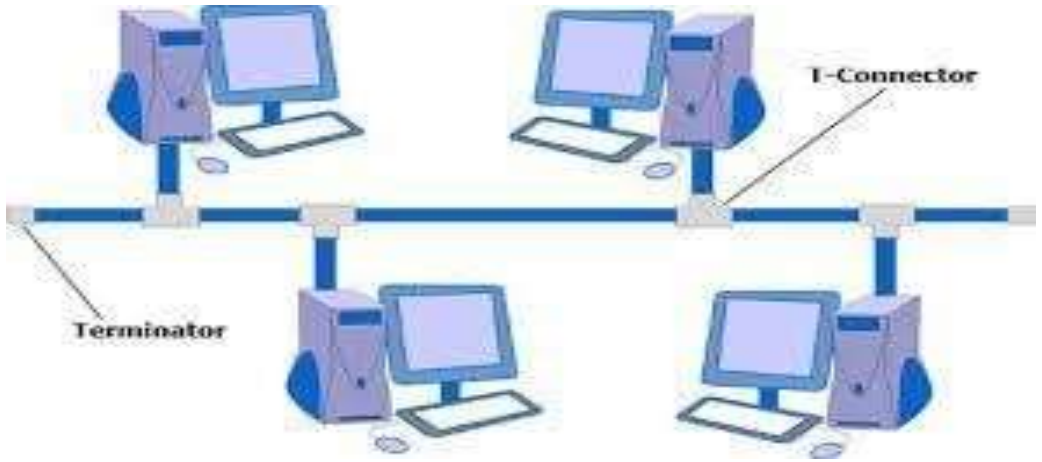
LAN Topology

Topology refers to the arrangement or connection pattern of computer(nodes) and other devices of network.

The Network topologies differ in structure or the layout of the different devices and computers connected to the network.

Bus topology



It is the simple form of network technologies in which all the devices on the network are connected through a center cable called a Bus .

System connect to this backbone using T-Connector

Each computer on the network checks the destination address as the data signal travels through the bus

Advantages of Bus Topology

Easy to implement, as computer are connected linearly through cable .

Easy extendable ie, new device can be easily added

Not very expensive

Doesn't used any specialized network device

It works well for small networks

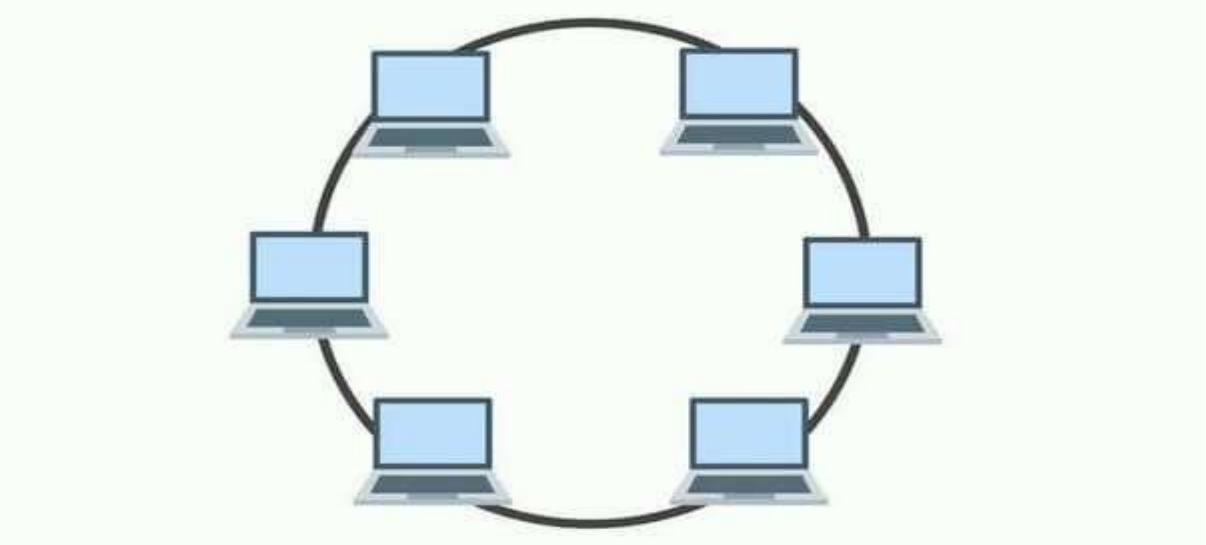
Disadvantage of Bus Topology

If the cable gets damaged, the entire network will be collapses

A computer can transmit data only if network is not being utilized

Network slow down if additional computers are connected to the same network

Ring Topology



It is the form of LAN topology in which the device are connected in the form of ring

Every devices has exactly two neighbor for communication purpose

Each device has a receiver and transmitter to receive the data signal to send them to the next computer .

Ring topology doesn't have terminated ends, thus the data signals travel in a circle

Advantages of RingTopology

All Computer in the ring have equal access to resources.

Each computer in the ring gets an opportunity to transmit data

Addition of more computers doesn't affect the performance of network

Does not require a central node to manage the connectivity between the computers

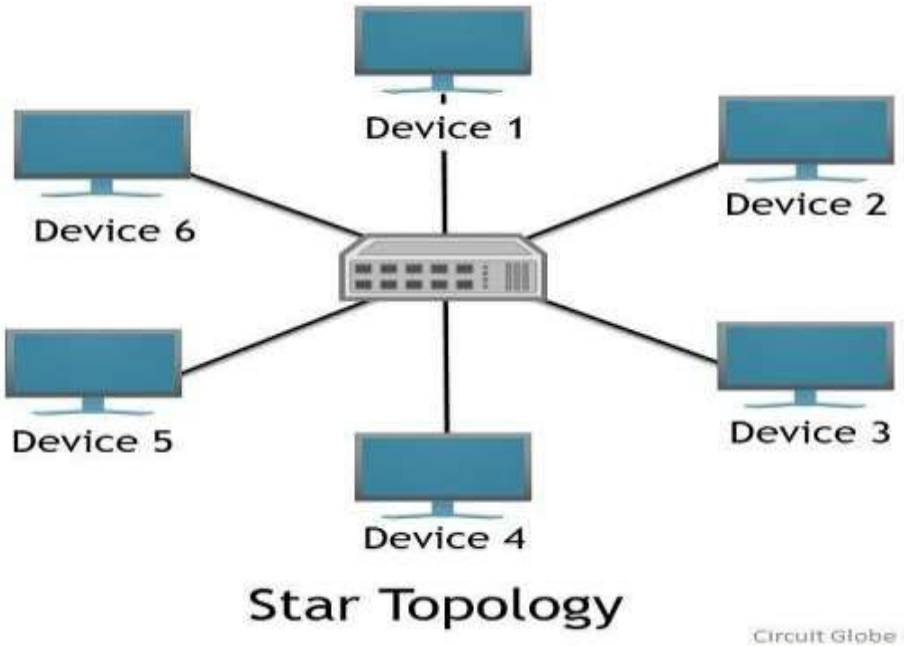
disadvantageof RingTopology

If one workstation or port goes down, the entire network gets affected.

Each packet of data must pass through all the computers between source and destination. This makes it slower than Star topology

Network is highly dependent on the wire which connects different components.

Star Topology



In Star topology, all the components of network are connected to the central device which may be a hub, a router or a switch

If one device wants to send data to another device, it's to first send the info to central device then central device transmit that data to the destination device.

The data signal is transmitted from a source computer to destination computer via a cable.

Advantages of Star Topology

Failure of a device attached to the network doesn't halt the complete network, only that device is down.

Easy to add a new devices with in network

No disturbance when a new device is added or remove

Easy to detect the failure and troubleshoot the network

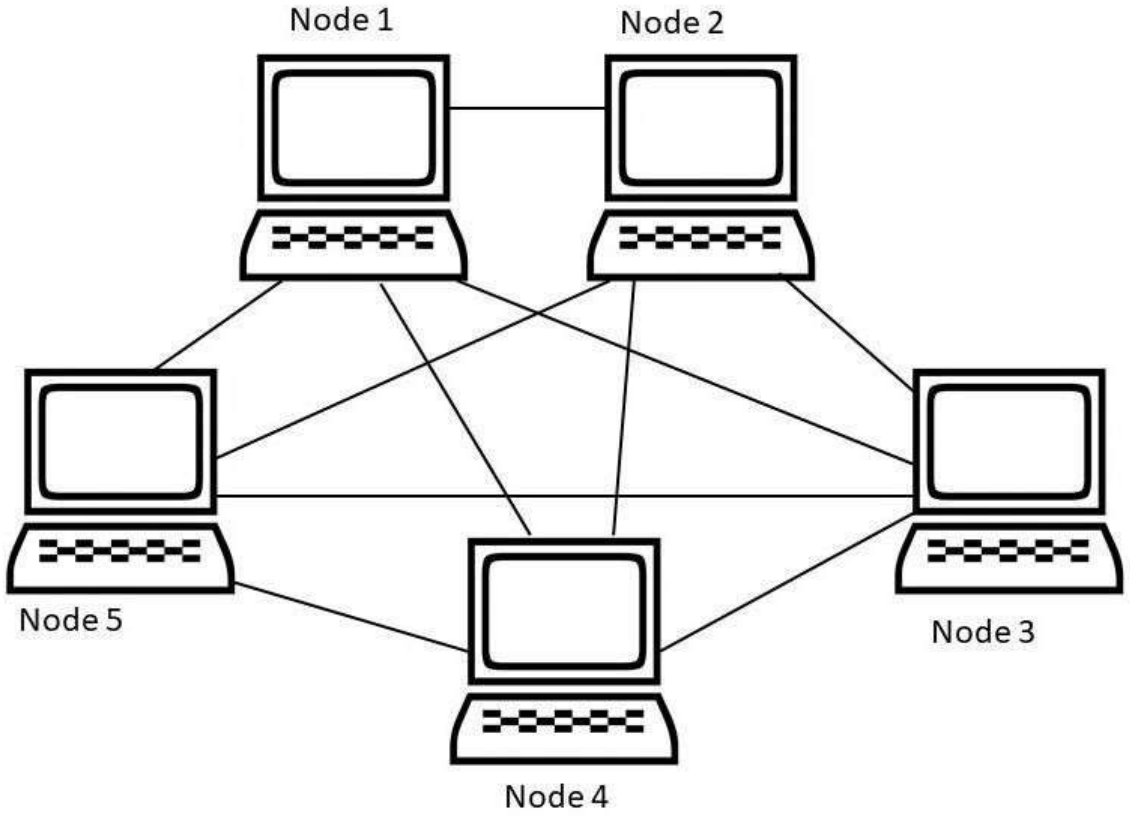
Disadvantages of Star Topology

The use of hub, a router or a switch as central device increases the overall cost of the network

Too much dependency on central device has its own drawbacks. If it fails whole network goes down.

Performance and as well number of nodes which can be added in such topology is depended on capacity of central device.

Mesh Topology



A mesh topology is a network setup where each computer and network device is interconnected with one another.

This topology setup allows for most transmissions to be distributed even if one of the connections goes down

Advantages of Mesh Topology

- A failure of one device does not cause a break in the network or transmission of data.
- Data can be transmitted from different devices simultaneously.
- Adding additional devices does not disrupt data transmission between other devices

Disadvantagesof Mesh Topology

Overall cost of this network is way too high as compared to other network topologies

Set-up and maintenance of this topology is very difficult.
Even administration of the network is tough.