

**Topology** - is the arrangement of the various elements (links, nodes, etc.) of a computer network.

## **BUS Topology**

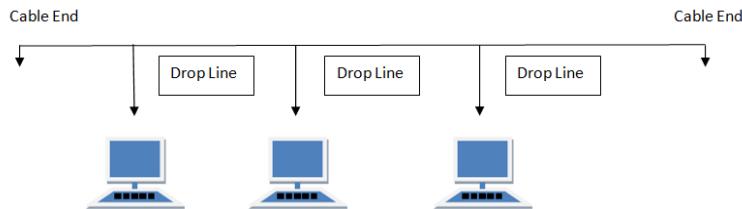
Bus topology is a network type in which every computer and network device is connected to a single cable. When it has exactly two endpoints, then it is called Linear Bus topology. It transmits data only in one direction. Every device is connected to a single cable.

**Advantages-**

- 1) short cable length 2) easy to extend

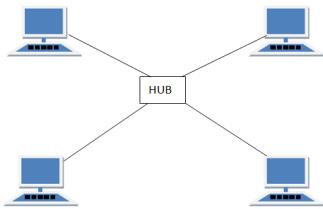
**Disadvantages-**

- 1) fault diagnosis is difficult 2) nodes must be intelligent to select the data sent.



## **STAR Topology**

In this type of topology all the computers are connected to a **single hub** through a cable. This **hub is the central node** and all other nodes are connected to the central node. It is used in most existing information networks involving data processing or voice communications



**Advantages-** 1) one device per connection 2) easy to extend

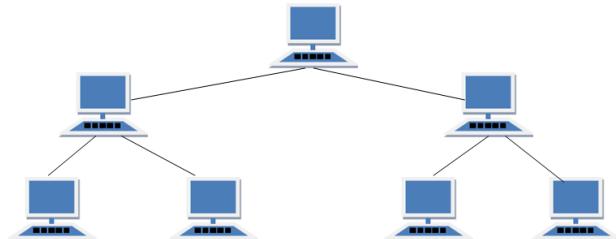
**Disadvantages –** 1) long cable length 2) central node dependency

## **TREE Topology**

It has a root node and all other nodes are connected to it forming a hierarchy. It is also called **hierarchical topology**. It should at least have three levels to the hierarchy.

**Advantages-** 1) Easy to extend 2) fault isolation is easy

**Disadvantages –** 1) dependent on the root computer 2) complex access protocols



**Q Write two advantage and disadvantage of networks.**

**Ans Advantage:**

- We can share resources such as printers and scanners.
- Can share data and access file from any computer.

**Disadvantage:**

- Server faults stop applications from being available.
- Network faults can cause loss of data.

**Q What are the factors that must be considered before making a choice for the topology?**

Ans There are number of factors to consider in before making a choice for the topology, the most important of which are as following :

- (a) Cost.
- (b) Flexibility
- (c) Reliability

**Q What are the similarities and differences between bus and tree topologies?**

**Ans . Similarities:**

- In both Bus and Tree topologies transmission can be done in both the directions, and can be received by all other stations.
- In both cases, there is no need to remove packets from the medium.

**Difference:**

- Bus topology is slower as compared to tree topology of network.
- Tree topology is expensive as compared to Bus Topology

**Q .Write the two advantages and two disadvantages of Bus Topology in network.**

**Ans Advantage:**

- Easy to connect a computer or peripheral to a linear bus.
- Requires less cable length than a star topology.

**Disadvantage :**

- Slower as compared to tree and star topologies of network
- Breakage of wire at any point disturbs the entire network

**Q Briefly mention two advantages and two disadvantages of Star Topology in network.**

**Ans Advantage:**

- Easy to install and wire.
- No disruptions to the network when connecting or removing devices.

**Disadvantage :**

- Requires more cable length than a linear topology.
- If the hub, switch, or concentrator fails, nodes attached are disabled.