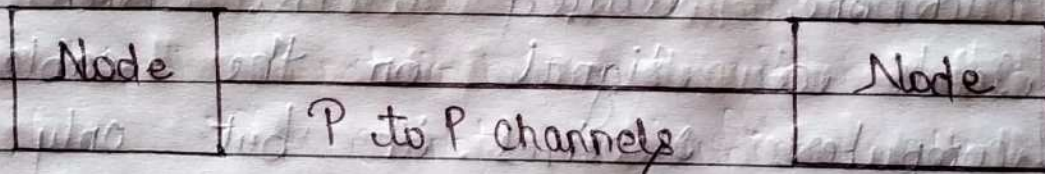


## Point-to-Point Channel / Communication :-

A point-to-point line configuration provides a dedicated link between two devices, the entire capacity of channel is reserved for transmission b/w those two devices. Most point-to-point line configuration use an actual length of wire or cable to connect the two ends. But, other position such as Microwave or Satellite links are also possible. When we change television channels by infrared remote control, we are establishing a point-to-point line configuration b/w remote control & television control system.



## Topology (Network Topology) :-

A network topology is the arrangement with which computer system or network devices are connected to each other. Topologies may define both physical and logical aspect of the network. Both logical and physical topologies could be same or different in a same network.

## Types of Topology :-

These are following types of Topologies :-

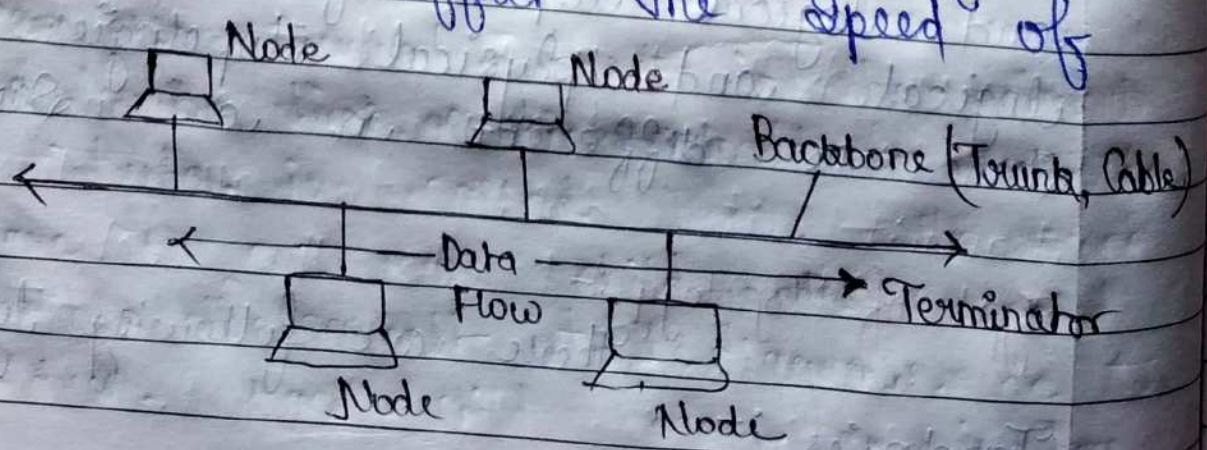


- i) Bus Topology
- ii) Ring Topology
- iii) Star Topology
- iv) Mesh Topology
- v) Tree Topology
- vi) Hybrid Topology

### i) Bus Topology :-

In case of Bus Topology, all devices share single communication line or cable. It is the simplest type of topology that can be used in the network. It has a single cable acting as a backbone called trunk. When a computer sends a signal on the cable, every computer receives it but only the one for whom it was sent takes it while rest of the computers discard it.

In this topology, only one computer can send a message at a time. Therefore, the no. of computers can affect the speed of bus.





## Advantages of Bus Topology :-

- i) Easy to connect a computer or peripheral to a linear bus.
- ii) Require less cable length.
- iii) Bus Topology is mostly used in small network, good for LAN.

## Disadvantages of Bus Topology :-

- i) Entire network shuts down if there is a break in the main cable.
- ii) Difficult to identify the problem if the entire network shuts down.
- iii) The data transmission can slow because each computer is checked to receive the message and then forward.

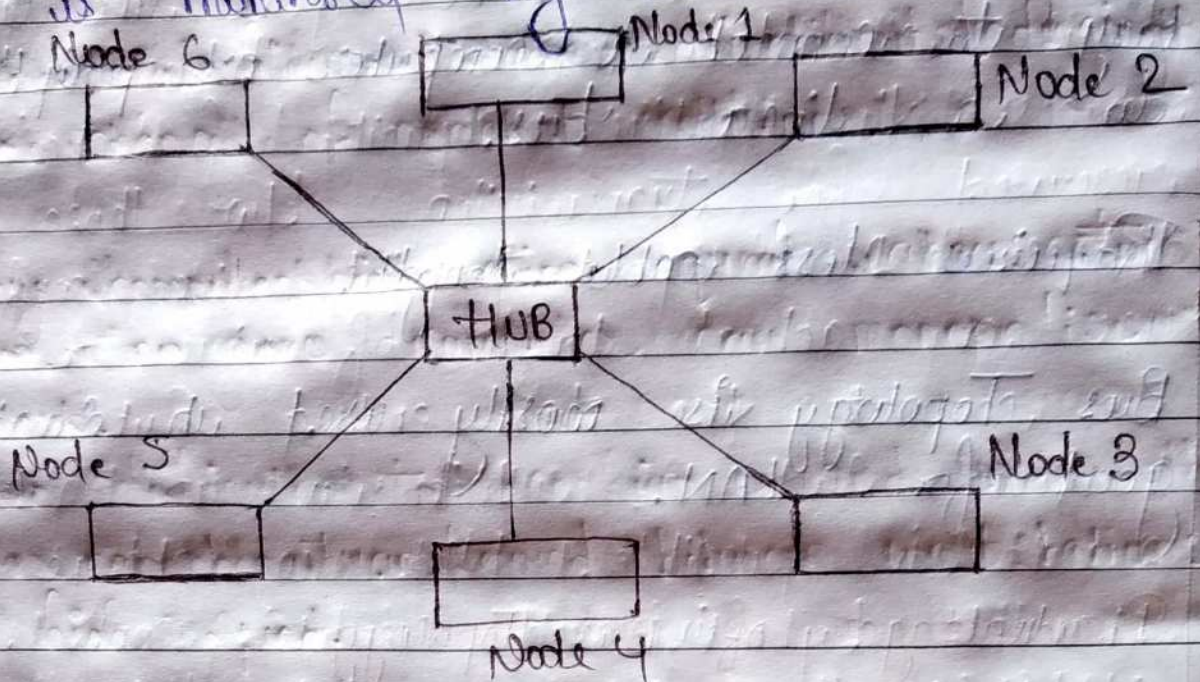
## ii) Star Topology :-

All hosts in star topology that are connected to a central device known as hub. Computers connected to a hub by cabling segments send their traffic to the hub, that resends the message either to all the computers or only to the destination computer. A hub lies

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in the centre of all computers and it is monitored by network.



In failure of a single computer or a network, cable does not effect the entire network.

### Advantages of Star Topology :-

- i) Easy to modify.
- ii) The centre of a star network is good place to diagnose network faults.
- iii) We can use several types in the network with a hub that can accommodate multiple cable types.
- iv) Flexible & easiest to diagnose.

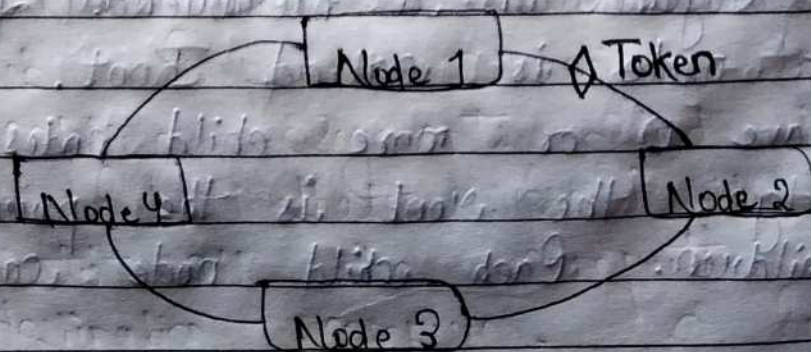


## Disadvantages of Star Topology :-

- i) If the central hub fails, the whole network fails.
- ii) Many star networks require a device at the central point to subbroadcast.
- iii) It costs more to cable a star network.

## iii) Ring Topology :-

In Ring Topology, each host machine connects the exactly two other machines, creating a circular structure. When one host tries to communicate or send a message to a host which is not adjacent to it, the data travels through all intermediate hosts. To connect one or more host in the existing structure, the administrative may need only one more extra cable. The receiving strips the data from the token and send the token back to the sending computer with an acknowledgement. Only the computer with the token can transmit data.



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## Advantages of Ring Topology

- i) All data flow in one direction reducing the chance of packet collisions.
- ii) Every computer is given equal access to the token, no one computer can monopolise the network.
- iii) Data can be transferred between workstations at high speed.

## Disadvantages of Ring Topology

- i) Failure of one computer in the ring can effect the whole network.
- ii) It is difficult to troubleshoot in a ring network.
- iii) Adding or Removing computers disturb the network.

## iv) Tree Topology :-

This is a network topology containing zero or more nodes that are linked together in a hierarchical fashion. The topmost node is called Root. The root may have 0 or more child nodes connected by Edge, the root is the parent node to its children. Each child node can in turn