

Topology :-

Architecture of network is defined as network topology. i.e. in other words how the network and machines are connected in the network.

There are following different types of topologies:-

(1) Bus Topology :-

The machines are connected in serial fashion one after the other.

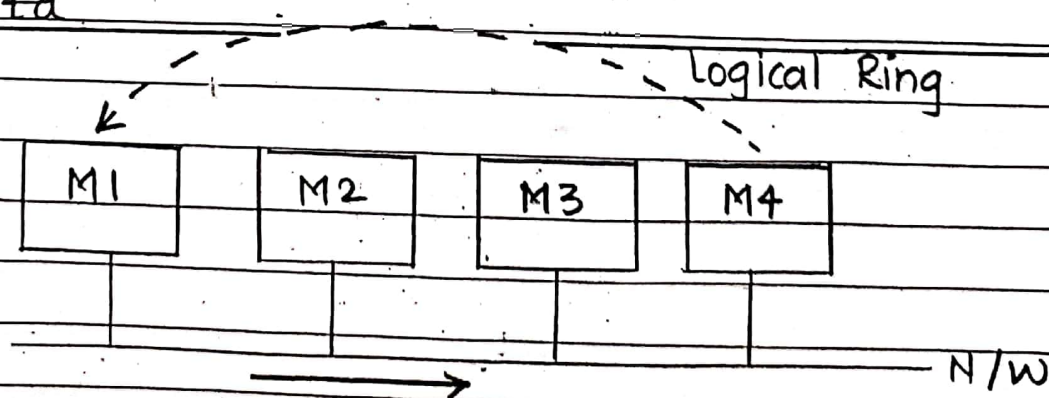
- It is unidirectional in nature and e.g. if M_1 wants to send data to M_3 , the path would be $M_1 - M_2 - M_3$ but from M_2 to M_1 , due to unidirectional nature it will follow the following path $M_2 - M_3 - M_4 - M_1$.

- The major problem would be when there is single break in the cable which will bring down the entire network.

- The one more problem with bus topology is collision; two or more devices transmitting the packet at same time.

- Solution for above problem is used of token

NOTE: Jiske pass token wohi transmit karega data



CN NOTES BY PROF. AKN

Why bus topology is known as logical ring?

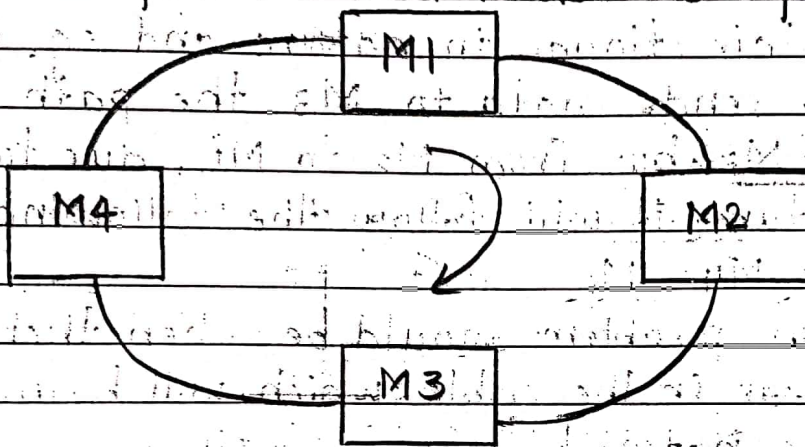
Since there is no physical connection from last to first machine.

CN NOTES BY PROF. AKN

(2) Ring Topology:-

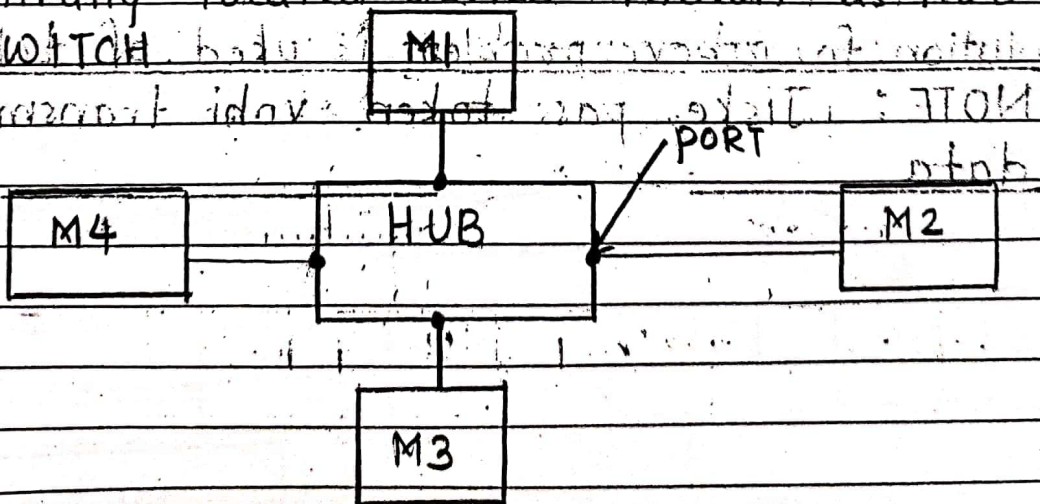
- Set of machines connected to each other in circular fashion i.e. last machine has the physical connection back to the first one.

* Rest explanation same as bus topology



(3) Star Topology:-

- Set of machines connected to each other via centrally located device known as HUB or SWITCH.



- Any device can connect to any other device with the help of hub. For eg: sending packet.

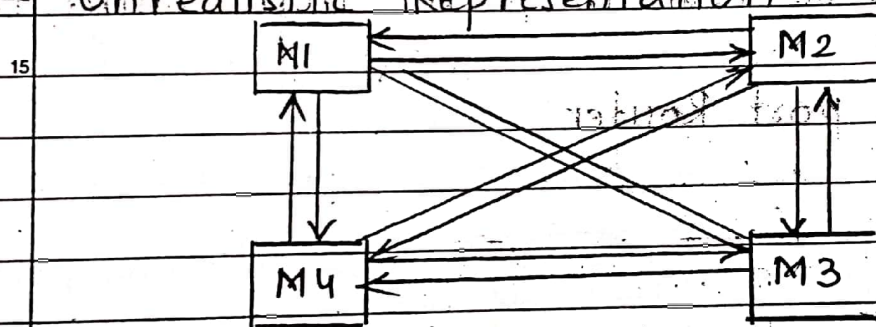
from M_1 to M_4 following path will be used

$M_1 - HUB - M_4$

- Scalability will not be a issue as one can use a hub with more ports
 - The main issue with this architecture is single point of failure (ie of a HUB)
- Why hub or switch is known as Relay Agent?
Because their job is to forward the packet.

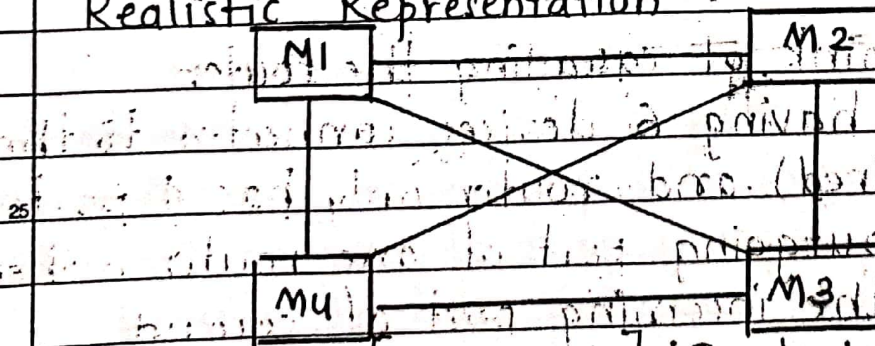
(4). Mesh Topology :-

- To overcome the problem of star i.e. single point of failure, in mesh topology connect a device to every other device in the network
- Unrealistic Representation :-



Requires $n \times (n-1)$ links.

Realistic Representation :-



Requires $[n \times (n-1)] / 2$ links.

CN NOTES BY PROF. AKN