Solved Question Paper

June 2016

4.iii)What is the mesh topology ? How is it different from star topology ? [2 marks]

In mesh topology, every node has a dedicated point-to point link to every other node. Dedicated means that the links carry traffic only between the two nodes.

So mesh topology does not have traffic congestion problems. Every node has n-1 link, for a fully connected mesh topology having n nodes. So the total number of links will be n(n-1).This also means that every node has (n-1) I/O ports.

Advantages :

1. Use of dedicated links guarantees that each connection can carry its own data load. Thus eliminates the traffic problem.

2. If one link fails, it does not affect the rest of network. This means it is robust.

3. Point to point links make fault identification and fault isolation easy.

4. Privacy or security is high, since the other link cannot gain access to the dedicated link where the message is travelling.

Disadvantages :

1. More cabling and Ito ports are required, because every node must be connected to every other node.

2. Cost is very high, because more number of node and cabling required.

3. Installation and reconfiguration is difficult.

Difference between mesh and star topology:

- Mesh topology is commonly used for WAN (Wide area networks) on the other hand Star is commonly used for LAN (Local are networks).

- To setup star topology you need a central hub or switch to link nodes together. But to setup mesh topology you don't need central device because, in mesh topology computers or nodes connected directly to each other on many alternative routes

▪ The star topology use a hub in the center, only one hub. So all data exchange will go through that one hub/router to reach another computer .If the hub is down, all the network is down too. In a mesh topology, each computer in the network has its own hub/or itself, so data exchange is done directly from one computer/or its hub, to another computer/or its hub, this is more secure since only one computer will be down in a case of problem with the hub.

▪ Star topology has minimal line cost because only n-1 lines are required for connecting n nodes. Mesh topology is the most expensive network , because if there are n nodes in a network, then n(n-1)/2 links are required.

▪ In star topology communication is not very fast between any two nodes while in mesh topology communication is very fast between any two nodes.

Star Topology

Mesh Topology