Expt.No.

Date

Page No. 8

all The nodes.

2) Failure : The breakdown in one station leads to the failure of the overall network.

3) Delay : Communication delay is directly proportional to the number of nodes. Adding new devices increases ~~numb~~ the communication delay.

Conclusion :- Thus we have executed diffrent Topologies in network.

25/3/22

Expt No.
Date
Page No. 7

5) Ring Topology

In Ring Topology, each device has a dedicated point to point line configration only with the two devices on either side of it. A signal is passed along the ring in one direction, from device to device, until it reaches its destination.

Advantages.
1) It is easy to install and reconfigure.
2) Twisted pair cabling is inexpensive and easily available.

3) Network Management: Faulty devices can be removed from the network without bringing the network down.

Disadvantages.

1) It requires specialized test equipments to determine the cable faults. If any fault occur, then it would distopt the communication for

Expt.No.
Date
Page No. 6

1) Bus topology includes ease of installation.

The cost of cables is less as compare to other topology.

Disadvantage

1) Reconfiguration difficult: Adding new device to the network would slow down the network.

2) Attenuation: Attenuation is loss of signal leads to communication issues.

3) Extensive Cabling: A bus topology is quite simpler, but still requires a lot of cabling.

2) It allows to get the network isolated and also prioritize form diffrent computers.

Disadvantages

If the centeral hub fails, the whole system fails.

The cost is high due to cabling.

4) Bus Topology

A Bus topology is a multipoint. One long cable acts as a backbone to link all devices in the network.
Nodes are conected to bus cable by drop lines and taps. A drop line is a connection running between the device and main cable.

Advantages

Disadvantage

The cost of installation is high.

Performance is based on the single concentrated i.e hub.

3) Tree Topology

A tree topology is a variation of a star. Nodes in a tree are linked to a central hub that controls the traffic to the network. However, not every device plugs directly into the central hub. The central hub in the tree is active hub. An active hub contains a repeater which is a hardware device that ~~regenerated~~ the recieved bits patterns ~~before~~ sending them out

Advantage of Tree topology

It allows more device to be attached to a single control hub. Thus it decrease dist.

Disadvantages are
1) Installation and reconfiguration are difficult.
2) The cost of cables is high as bulk wiring is required.

2] Star Topology
In a star topology each device has a dedicated point-to-point link only to a central controller, usually called a hub. Devices are not directly link to each other. A star topology does not allow direct traffic between devices.

Advantages of Star Topology

1) It is less expensive than mesh Topology.

2) It is easy to install and reconfigure.

3) It includes robustness.

1) Mesh Topology

In a mesh topology, every device has a dedicated point-to point link to every other device.

A fully connected mesh network therefore has $n(n-1)/2$ physical channels to link n devices. To accommodate that many links, every device on the network must have n-1 input/output ports.

Several Advantages of Mesh Network Topology are

1) The use of dedicated links gaurantees that each connection can carry its own data load. Thus eliminating traffic problems that can occur when links must be ch shared by multiple devices.

2) A Mesh Topology is robust.

3) Another advantage is privacy or security. When every message sent travels along a dedicated line, only the intended recieptent sees it.

Expt No.
Date 11/3/22
Page No. 1

Practical No:- 1

Aim:- To study various LAN Topologies and their creation using network devices, cables and computers.

Software required:- CISCO packet tracer student.

Theory:- The term Topology refers to the way a network is laid out, either physically or logically. Two or more device connect to a link; two or more links form a topology. The topology of a network is the geometric representation of the relationship of all the links and linking devices to each other. There are Five basic topologies:-

1) Mesh Topology
2) Star Topology
3) Tree Topology
4) Bus Topology
5) Ring Topology.