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FACULTY OF ENGINEERING & TECHNOLOGY

DCS-503 Computer Networks

Lecture-03

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OUTLINE

- CATEGORIES OF TOPOLOGY
- POINT –TO -POINT
- MESH TOPOLOGY
- BUS TOPOLOGY

TOPOLOGY IN COMPUTER NETWORK

A Network Topology is the arrangement with which computer systems 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.

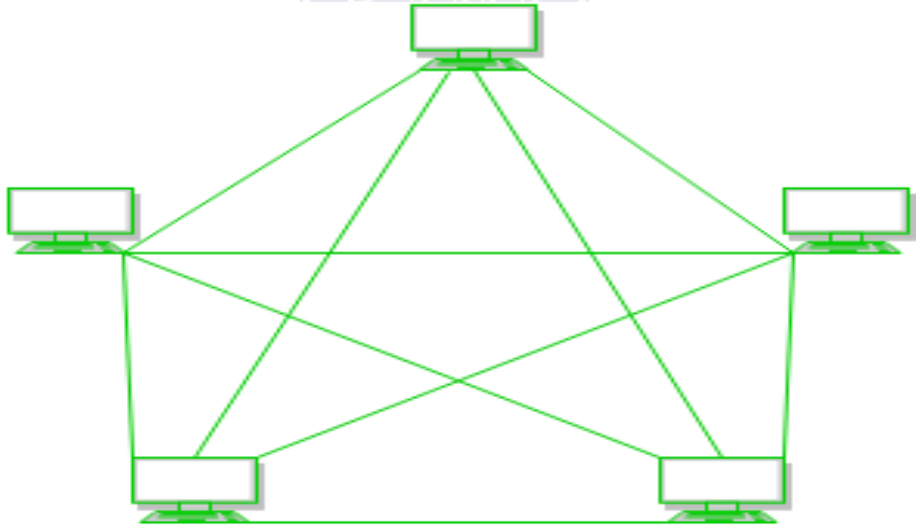
POINT-TO-POINT

Point-to-point networks contains exactly two hosts such as computer, switches or routers, servers connected back to back using a single piece of cable. Often, the receiving end of one host is connected to sending end of the other and vice-versa.

MESH TOPOLOGY IN COMPUTER NETWORK

In mesh topology, every device is connected to another device via particular channel. Every device is connected with another via dedicated channels. These channels are known as links.

If suppose, N number of devices are connected with each other in mesh topology, then total number of ports that is required by each device is N-1.



MESH TOPOLOGY ADVANTAGE AND PROBLEM

ADVANTAGE :

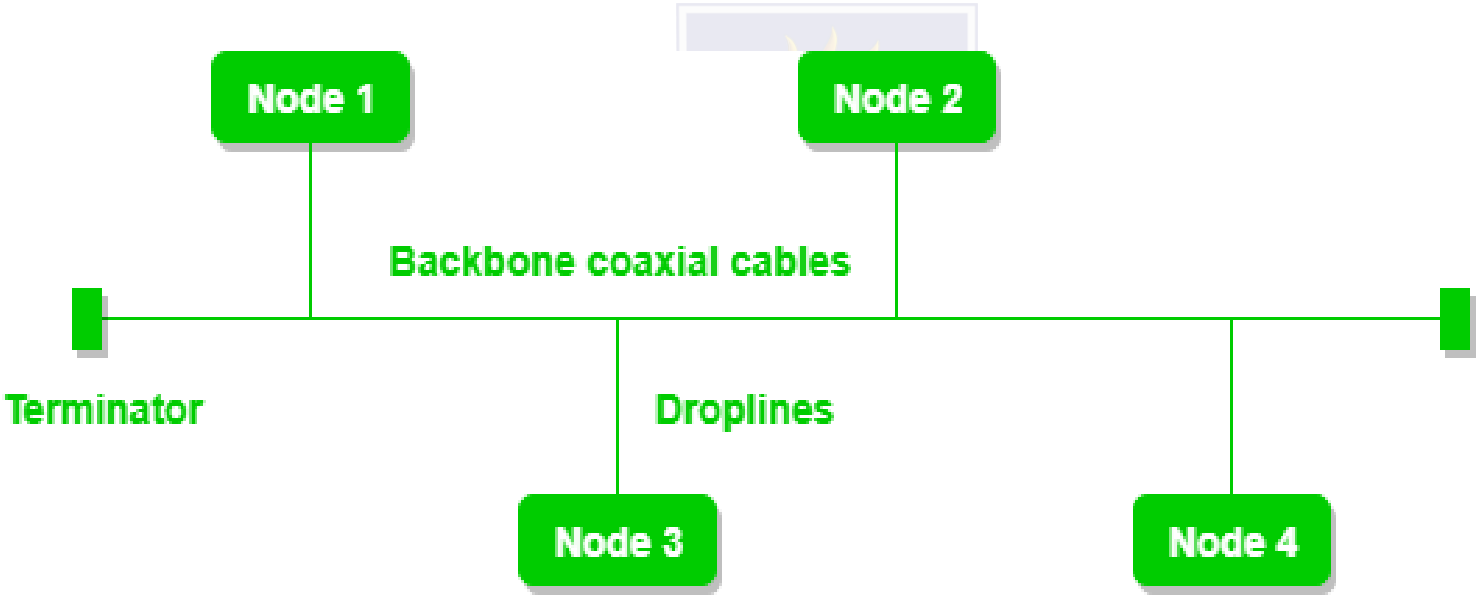
- It is robust.
- Fault is diagnosed easily. Data is reliable because data is transferred among the devices through dedicated channels or links.
- Provides security and privacy.

PROBLEM:

- Installation and configuration is difficult.
- Cost of cables are high as bulk wiring is required, hence suitable for less number of devices.
- Cost of maintenance is high

BUS TOPOLOGY IN COMPUTER NETWORK

Bus topology is a network type in which every computer and network device is connected to single cable. It transmits the data from one end to another in single direction. No bi-directional feature is in bus topology.



TOPOLOGY IN COMPUTER NETWORK

BUS TOPOLOGY ADVANTAGE AND PROBLEM

ADVANTAGE :

- If N devices are connected to each other in bus topology, then the number of cables required to connect them is 1 which is known as backbone cable and N drop lines are required.
- Cost of the cable is less as compared to other topology, but it is used to built small networks.

PROBLEM:

- If the common cable fails, then the whole system will crash down.
- If the network traffic is heavy, it increases collisions in the network. To avoid this, various protocols are used in MAC layer known as Pure Aloha, Slotted Aloha, CSMA/CD etc.

Multiple Choice Question

MUTIPLE CHOICE QUESTIONS:

1. A term that refers to the way in which the nodes of a network are linked together.

a)network b)topology c)connection d) interconnectivity

2. A network comprising of multiple topologies

A) Complex B)Hybrid C)BUS D)STAR

3. A Topology that involves Tokens

A)RING B)Hybrid C)BUS D)STAR

4._____ LAN topology describes the possible connections between pairs of networked end-points that can communicate.

A) Complex B)Hybrid C)logical D)STAR Intranet

5. A _____WAN can be developed using leased private lines or any other transmission facility

A)Hybrid B)Peer-to-Peer C)Autonomous D)Integrated

REFERENCES

- http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html