PART 6

Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.
NETWORK TYPES

• There are mainly three types of computer networks based on their size (AREA COVERED):

  TYPES OF NETWORK

  PAN  LAN  MAN  WAN
PAN [ PERSONAL AREA NETWORK ]

- PAN is a computer network that enables interconnection between electronic devices near a person.
A Local Area Network is a computer network that interconnects computers within a LOCAL (limited) area such as an Office Building, House, school campus, laboratory etc.
A Metropolitan Area Network is a computer network that interconnects several LANs together. It covers larger area of about city / Town.
WAN [ WIDE AREA NETWORK]

- A **Wide Area Network** is a computer network that interconnects computers which may spread over large geographical area in the region or country or even the world. The Internet is considered as WAN.
A Network Topology represents the way to connect different computers on a network. It comprises of nodes and links. The types of Topology include Point to Point, Bus, Star, Tree, and Mesh.
In point to point network there is a dedicated connection between two ends or devices. It send or receive signals from exactly one device.
BUS TOPOLOGY

In Bus topology, each device is connected through a single cable called backbone of the network.

The purpose of the terminator is to absorb signals so that they do not reflect back down the line.
ADVANTAGES of BUS TOPOLOGY

- Easy to install
- Economic
- Short Cable length required
- Easy to Extend

DISADVANTAGES of BUS TOPOLOGY

- Difficult to diagnose fault or error
- Whole network get fail if main cable fails.
- Not suitable for large Networks.
- Additional devices slow down the Network
STAR TOPOLOGY

- In this topology no. of devices are linked/connected with a centralized device i.e. Hub or Switch which forms a Star shape.
ADVANTAGES OF STAR TOPOLOGY

• Easy to install
• Diagnosis of error is easy
• Good performance as no data collision

DISADVANTAGES OF STAR TOPOLOGY

• Long cable length is required
• Difficult to Expand
• Whole network get fail if centralized node fails.
RING TOPOLOGY

- In ring network, each device is connected with two other devices to form a ring.
ADVANTAGES OF RING TOPOLOGY

• Better than Bus topology in case heavy network load
• Uni-directional
• No data collision as data is transmitted in one direction
• Short cable length required

DISADVANTAGES OF RING TOPOLOGY

• Dependency on backbone cable
• Node failure will cases network failure
TREE TOPOLOGY

• This configuration looks like branches of Tree.
• It is a hybrid topology, combines features of Star and Bus topologies both.
• Here Star networks are connected via bus network.
ADVANTAGES OF TREE TOPOLOGY

• As it consists of Star networks, it can be easily maintained.
• Error diagnosis and correction is easy.
• If one segment fails, it will not effect other segments.

DISADVANTAGES OF TREE TOPOLOGY

• When more segments are needed to add, maintenance becomes more difficult.
• Dependency on backbone cable.
• As it consists of Star networks, it can be easily maintained.
• Error diagnosis and correction is easy.
MESH TOPOLOGY

- In mesh topology each computer and network device is interconnected with one another.
- It uses point to point connection.
- Best suitable for long distance communication.

TYPES:
- PARTIALLY CONNECTED
- FULLY CONNECTED
ADVANTAGES

- Each connection can carry its own data load
- It is robust
- A fault is diagnosed easily
- Provides security and privacy

DISADVANTAGES

- Difficult to install and maintain
- Cabling cost is high as it requires bulk cable
- Complexity of mesh network increased, with increased number of devices.
IN NEXT VIDEO

• NETWORK PROTOCOL