

Part-B

Unit -1

Session 2-Networking Fundamentals

Computer Network:- It consists of two or more computers that are linked in order to share programs, data, hardware, messages and other resources.

Need for Networking:-

1. To share computer files.
2. To share computer peripherals.
3. To enable different computers to communicate.
4. To improve communication speed and accuracy.
5. To reduce cost of data transfer rate.

Types of Network:

1. **Personal area Network(PAN):-** It is organized around an individual person.Ex- mobile, computer,cell phone.
2. **Local Area Network(LAN):-** It connects computers in small areas such as home,office, single building,multiple buildings in a single campus.
3. **Metropolitan Area Network(MAN):-** It might cover a group of nearby corporate offices or a city.
4. **Wide Area Network(WAN):-** It covers a large geographical area, often a country or a continent.

Advantages of Computer Networking

1. Easy Communication
2. Resource sharing
3. File Sharing
4. Highly Flexible
5. Cost effective
6. Increased Storage

Disadvantages of Computer Networking

1. Security Issues
2. Problem detection
3. Management concern
4. Hacking

Network Architecture

1. **Peer-to Peer networks-** In this model each computer has equal status and a unique name.

2. **Client /server networks-** In this model there is a specific server and a specific client connected to a server.

Client - A client is a computer hardware device or software or a person or a computer that accesses a service made available by a server.

Server- It is a physical computer dedicated to run services to serve the needs of other computers when they request it.

Differences between Peer-to-Peer and Client/Server network

Peer-to-Peer Network	Client/Server Network
1. Clients and server are not distinguished; each node act as client and server.	1. There is a specific server and specific client connected to the server.
2. Each node can request for services and can also provide the services.	2. The client request for service and server responds with the service.
3. Each peer retains its own data.	3. The data is stored in a centralized server.
4. These networks are less expensive to implement.	4. These networks are expensive to implement.
5. This model focuses on connectivity to the remote computers.	5. This network model focuses on information sharing.

Switching Techniques: It is used to connect the systems for making one-to-one communication.

Types of Switching techniques:-

1. **Circuit Switching:-** It enables a dedicated path between sender and receiver and once the connection is established then the dedicated path will remain to exist until the connection is terminated. It works like a telephone.
2. **Message Switching:-** In this technique a message is transferred as a complete unit and routed through intermediate nodes at which it is stored and forwarded. No establishment of dedicated path between sender and receiver. Also known as store and forward network.
3. **Packet Switching:-** Messages are broken into packets and each packet includes a header with source, destination and intermediate address information.