Communication System - Part2

0xSaad / Saad Almalki

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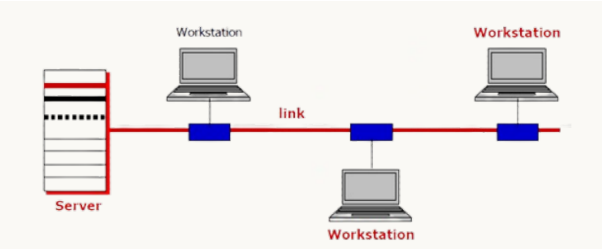
1 Line Configuration

- **1-Point to Point**
- **2-Multipoint**

1.1 Point to Point

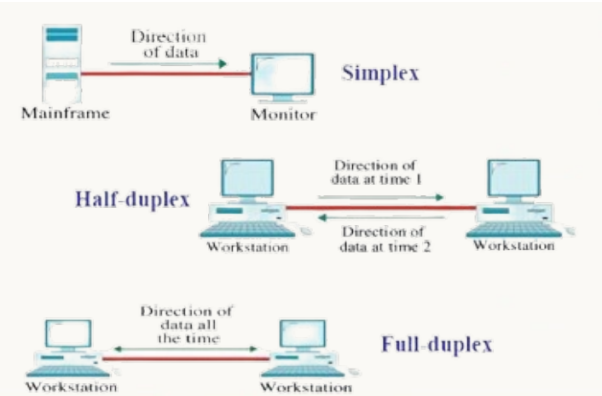
dedicated link between two devices , Entire link capacity is reserved for transmission between two devices , It utilized in star and ring topology of computer networks.

1.2 Multipoint



also called multidrop , More than two specific devices share a single link , The capacity of the channel is shared between multiple devices , This type of connection is employed in the bus network topology.

2 Directions of Data Flow

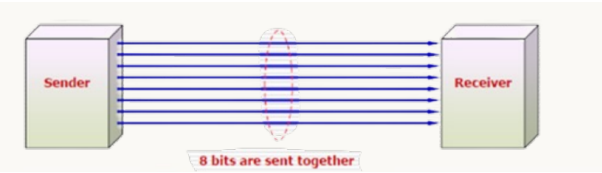


- **1-Simplex** : The transmission is unidirectional - Only one station can transmit; the other can only receive - The paging systems, TV, and FM radio are examples.
- **2-Half Duplex** : Each station can both transmit and receive, but not at the same time - When one station is sending, the other can only receive - The "Push-to-talk" walkie-talkies is half-duplex system.
- **3-Full Duplex** : Both stations can transmit and receive at once - Signals going in either direction share the capacity of the link - One example is telephone network.

3 Transmission Modes

- **1-Parallel**
- **2-Serial**

3.1 Parallel Transmission



Multiple bits are sent with each clock tick.

Advantages of Parallel transmission

- **It is characterized by high speed of data transmission.**
- **It can increase the transfer speed by a factor of n over serial transmission.**

Disadvantages of Parallel transmission

- **High cost as it requires n lines just to transmit data stream.**
- **It is practical only for short distances.**
- **Consequently, parallel transmission is usually limited to shorter distances**

3.2 Serial Transmission

One bit follows another, so it needs only one channel.

Advantages of Serial transmission

- **Only one channel is required; consequently, cost is reduced.**
- **It has few errors and is practical for long distances.**

Disadvantages of Serial transmission

- **It is slow.**
- **There is a need for serial to parallel conversions.**
- **Consequently, serial transmission is usually practical for long distances.**

Created by: Saad Almalki