Meeting 9

Computer Network

Definition

A computer network is a group of interconnected computers. Networks may be classified according to a wide variety of characteristics. The benefit of a computer network are: Sharing hardware resources easily and Sharing information easily.

A network is a collection of computers connected to each other. The network allows computers to communicate with each other and share resources and information. The Advanced Research Projects Agency (ARPA) designed "Advanced Research Projects Agency Network“ (ARPANET) for the United States Department of Defense. It was the first computer network in the world in late 1960's and early 1970's.

Type of Computer Network

1. Local-area networks (LANs): The computers are geographically close together (that is, in the same building).

2. Wide-area networks (WANs): The computers are farther apart and are connected by telephone lines or radio waves.

3. Campus-area networks (CANs): The computers are within a limited geographic area, such as a campus or military base.

4. Metropolitan-area networks (MANs): A data network designed for a town or city.

5. Home-area networks (HANs): A network contained within a user's home that connects a person's digital devices.

Characteristics Different Type of Network

The following characteristics are used to categorize different types of networks:\

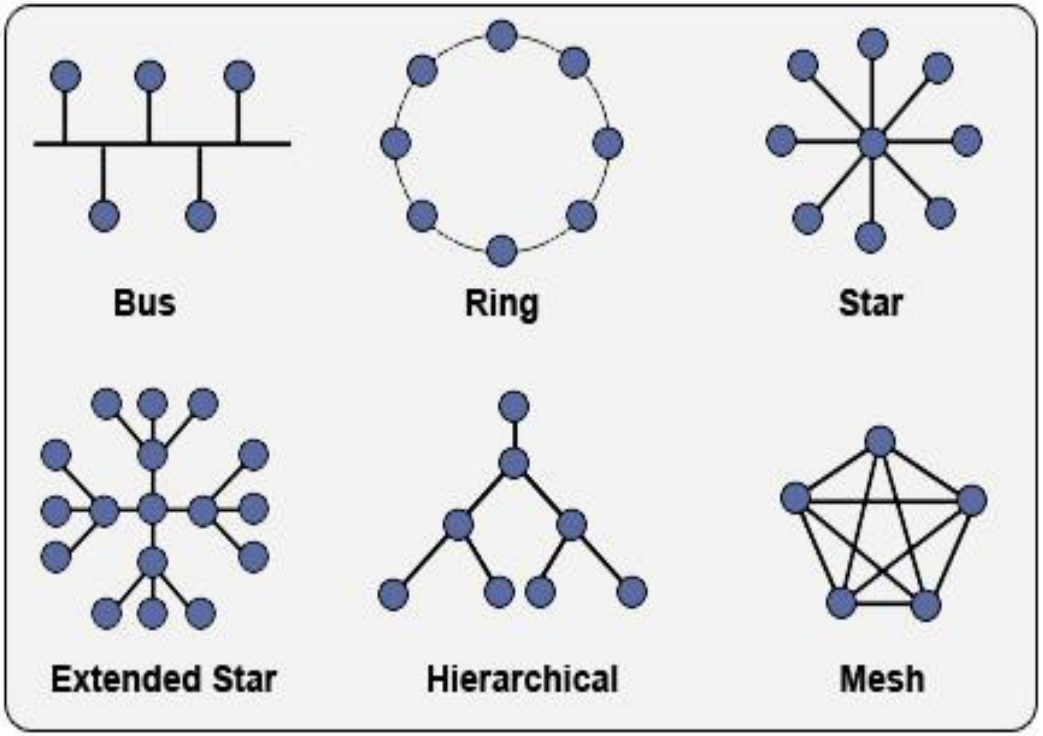
1. topology: The geometric arrangement of a computer system. Common topologies include a bus, star, and ring.

2. protocol: The protocol defines a common set of rules and signals that computers on the network use to communicate. Two of the most popular protocols for LANs is called Ethernet and the IBM token-ring network.

3. architecture: Networks can be broadly classified as using either a peer-to-peer or client/server architecture.

Computers on a network are sometimes called nodes. Computers and devices that allocate resources for a network are called servers.

Network Topology

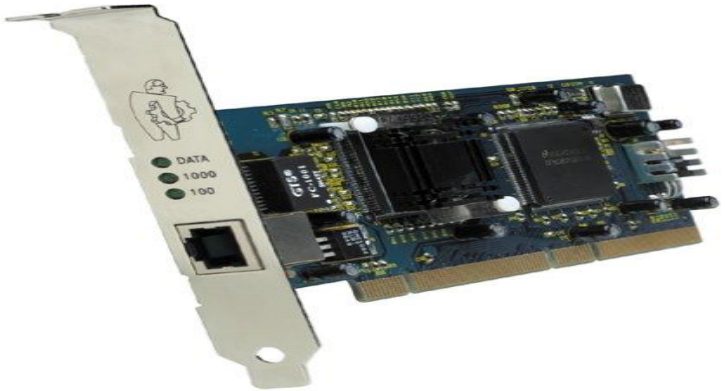


Devices for Computer Network

There are many kinds of devices to create a computer network. For a basic computer network we would need:

1. Network Interface Cards

A network card, network adapter or NIC (network interface card) is a piece of computer hardware designed to allow computers to communicate over a computer network. NIC can be identified easily. It has a special port called RJ-45. RJ means Registered Jack. And also a led to indicate a data is being transferred.



2. Repeaters

A repeater is an electronic device that receives a signal and retransmits it at a higher power level, or to the other side of an obstruction, so that the signal can cover longer distances without degradation.

3. Hub

A hub contains multiple ports. When a packet arrives at one port, it is copied to all the ports of the hub for transmission. When the packets are copied, the destination address in the frame does not change to a broadcast address. Below is a picture of 5-port ethernet hub.

4.router

a device that forwards data packets between computer networks, creating an overlay internetwork. A router is connected to two or more data lines from different networks. When a data packet comes in one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. Routers perform the "traffic directing" functions on the Internet.

Exercises Meeting-9

1. What is the function of Computer Network …
2. Many types of Computer Network, explain and mentioned that ….
3. Give the 5 examples of network topology ….
4. A piece of computer hardware designed to allow computers to communicate over a computer network is ….
5. Could you mentioned the devices to create a computer network ….

References

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