Computer Network

Computer Network is an interconnection of two or more computer that are able to exchange information . The connection between computers can be done via cabling, most commonly the Ethernet cable, or fiber optic cable. Connections can also be wireless.

Types of network (On the basis of geographical area covered)

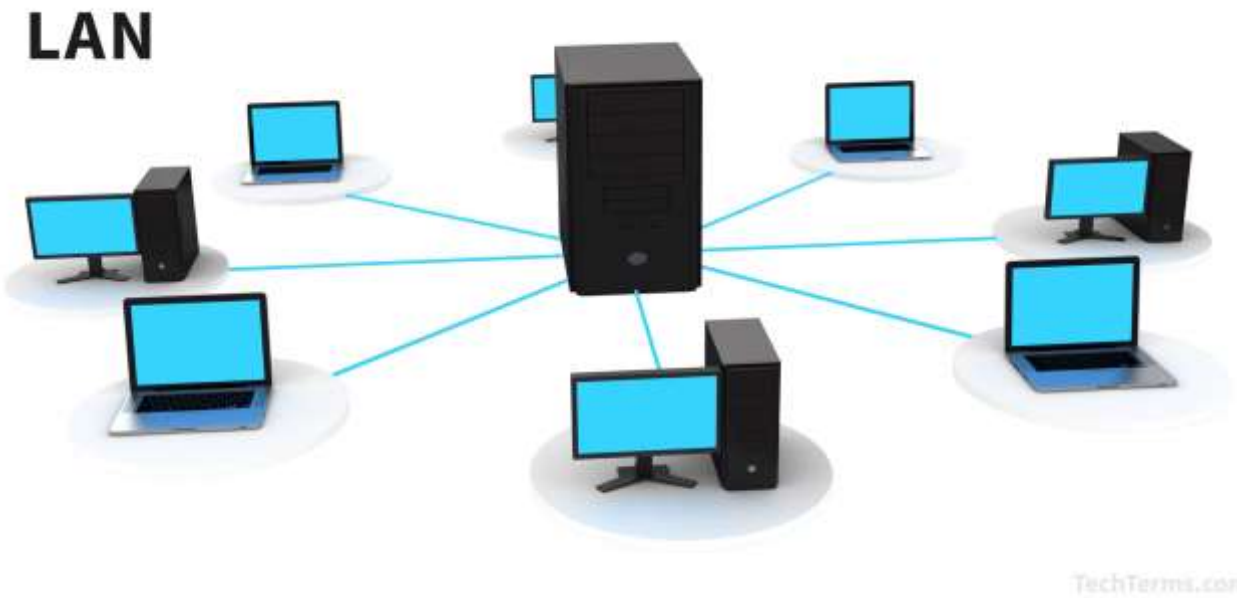
- LAN (Local Area Network)
- MAN (metropolitan area network)
- WAN(Wide Area Network)

On The Basic of Architecture

- Peer to peer network
- Client Server Network

LAN(Local Area Network)

- **LAN: LAN stands for Local Area Network. It is the type of Network which covers small geographical area such as room, building, school, university etc. Since it covers small area,**



- Advantages of LAN

1.It is cheaper to establish.

2.Data transmission is faster than MAN and WAN.

3.It has higher security to resources of the network

4.It is eager to establish, manage the network and operate

- Disadvantages of LAN

1.It is limited only to a small area.

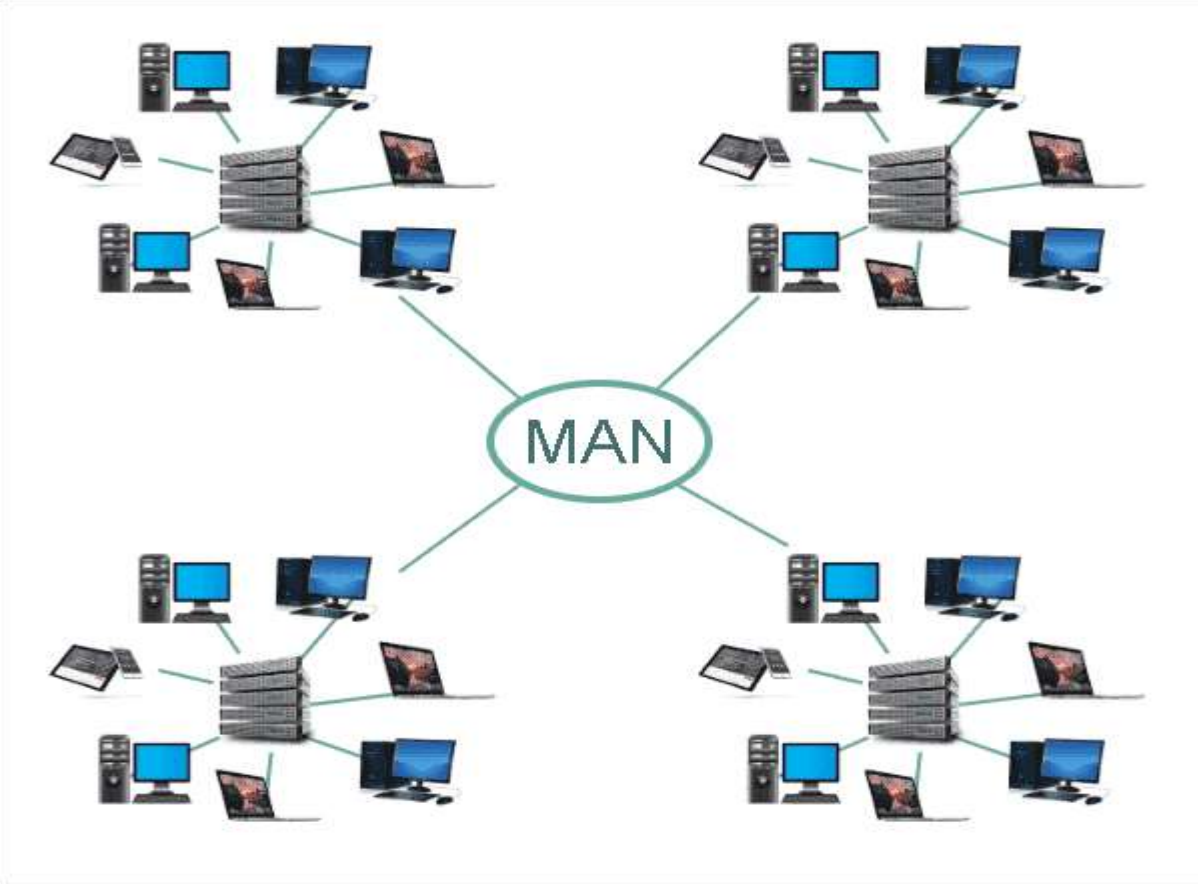
2.It can connect less number of computers comparatively.

3.Cannot be used as distributed network.

MAN (Metropolitan Area Network

- **MAN stands for Metropolitan Area Network. It covers an entire city, district or village. MAN connects two or more than two LAN together**

Cable Television network is an example of MAN.



- Advantages of MAN

1.It covers larger geographical area than LAN.

2.It can connect large number of computer than LAN.

3.We can use guided as well as unguided type of transmission media.

- Disadvantages of MAN

1.It is expensive to set up then LAN.

2.Transmission speed slower compared to LAN.

3.It is complex to establish, manage and provides security.

WAN (Wide Area of Network)

- WAN is a network system that connects the computer over long distances like cities , countries, continents or worldwide. It Also Called Network of Network .

- **Advantage of WAN**

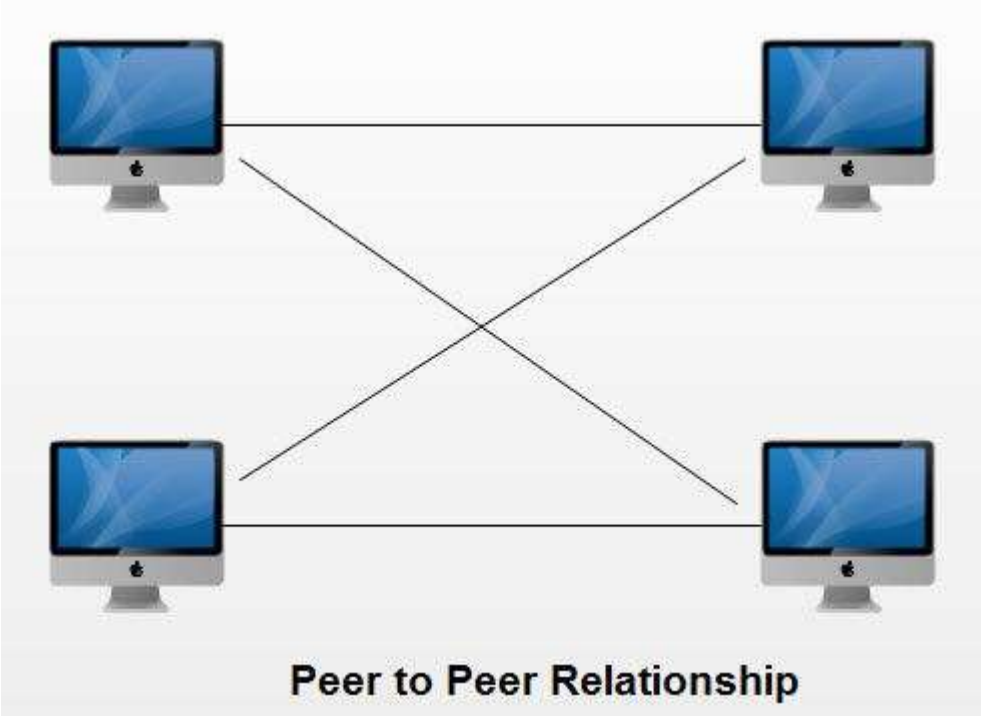
1. It covers larger geographical area than LAN and MAN.
2. It can connect large number of computer compared to LAN and MAN.
3. Using WAN communication can be done over a large distance.

- **Disadvantage of WAN**

1. It is expensive to establish, manage and operate.
2. It is the slowest type of network compared to that of LAN and MAN.
3. Highly qualified manpower are required to establish and run these type of network.

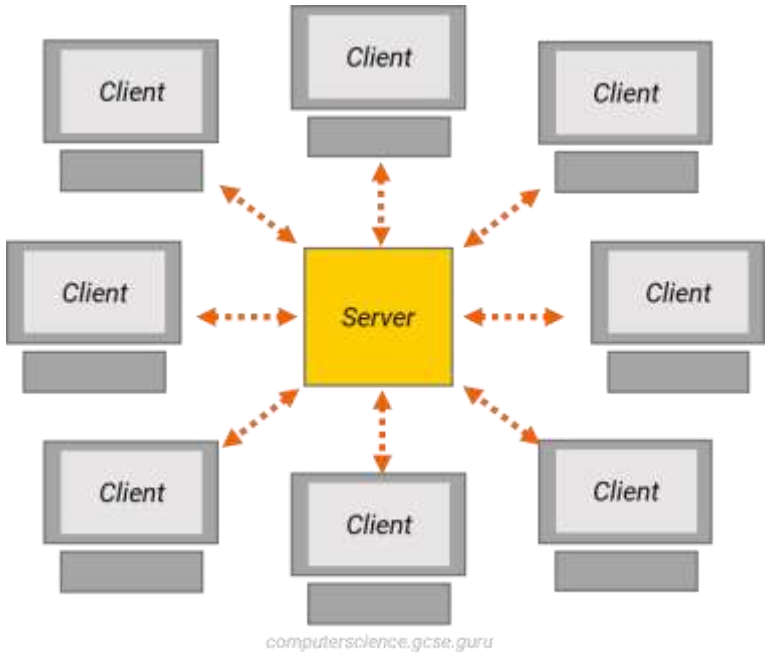
Peer To Peer Network

- **These type of network architecture in which all the computers in a network are connected with each other having equal access and responsibility are known as peer -to-peer network**



Client Server Network

- **client server architecture has the main computer called server which control and monitors all the computers or client in a network. The server always provides services to the client. In this type of architecture client cannot carry out any operation without the authority of server.**



Network Devices

The device are used to connect computers in the network through different communication media are called as Network devices.

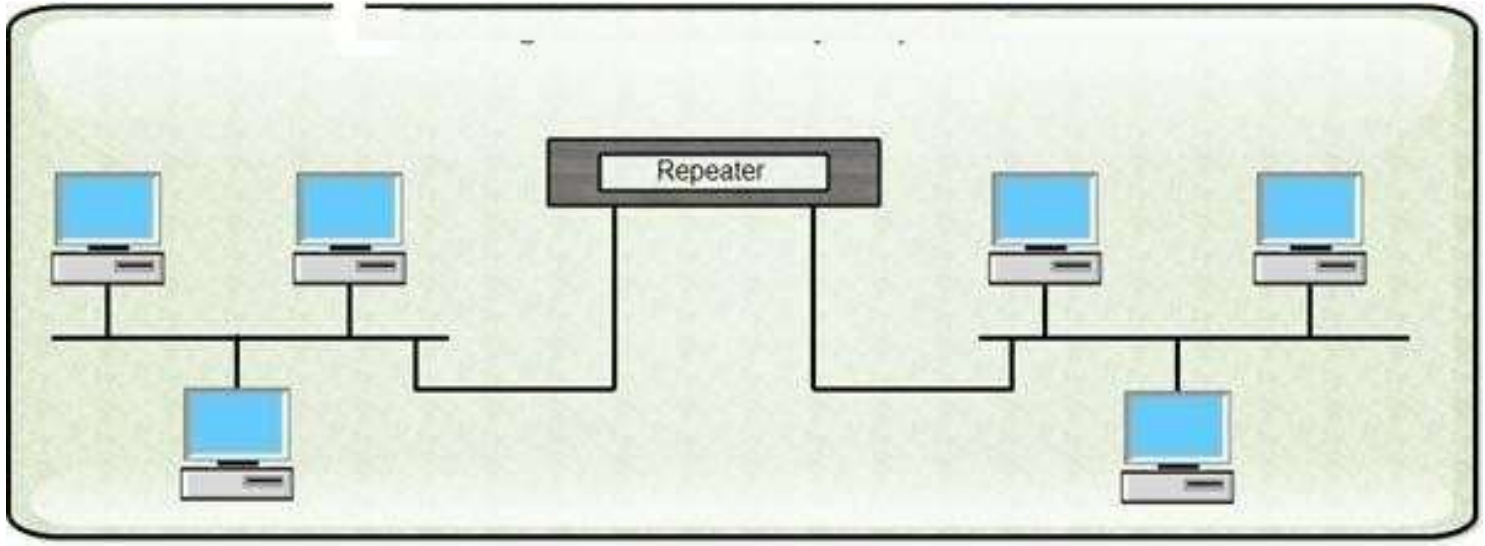
Network connecting devices are required to amplify the signal or restore the original strength of signal and to provide an interface to connect multiple computer in the network.

1. Network Interface Card(NIC)

A network interface card (NIC) is a hardware component, typically a circuit board or chip, which is installed on a computer so that it can connect to a network.

The network card operates as a middleman between a computer and a data network

Repeater



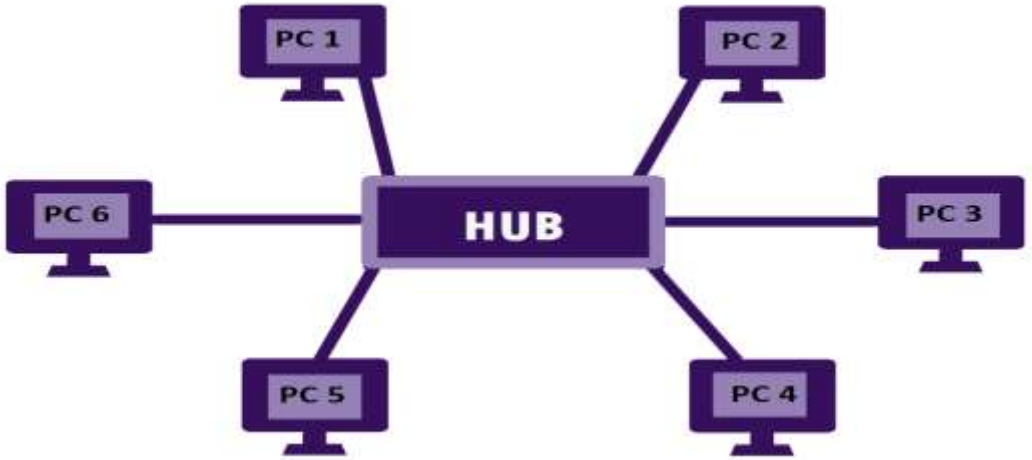
repeater is an electronic device that receives a signal and retransmits it

It Has only two port and can connect only two segment of a network.

Repeaters are used to extend transmissions so that the signal can cover longer distances.

The problem with the repeater is that they cannot separate noise from message and they retransmit entire signals with including the noise

Hub



Hub is a network devic that is used to connect multiple computer in a network

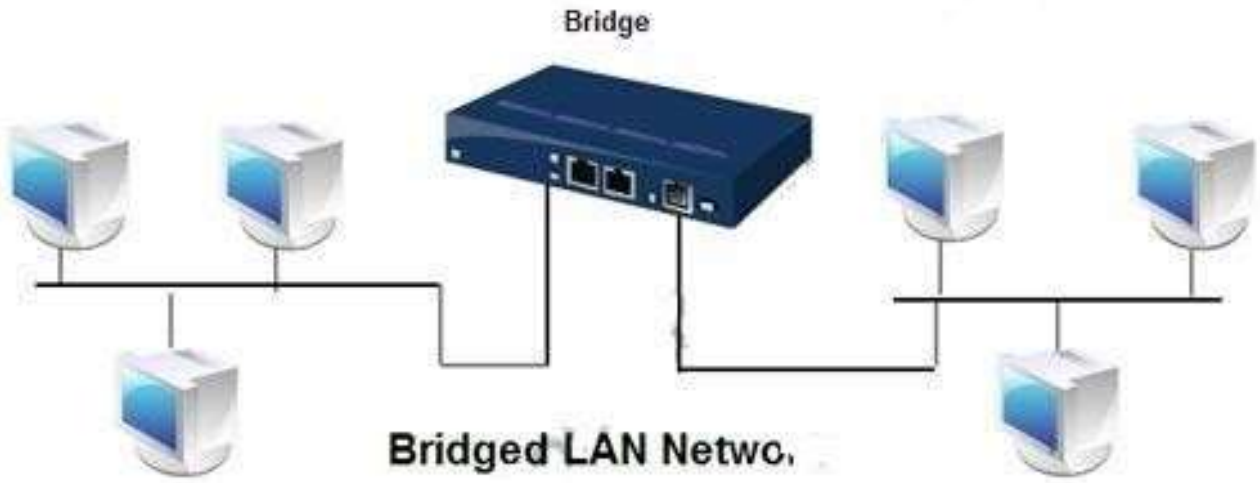
All the information send to the hub is automatically send to each port of every device

Hub is less expensive, less intelligency, and less complicated

Transmission mode is half duplex(Hub can snd or receive the information, but it cannot do both at a time)

Hub increase the network traffic.

Bridge



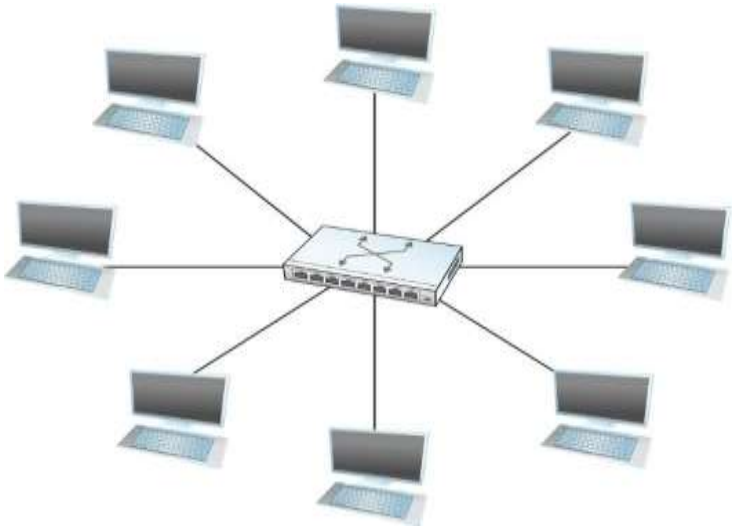
This device is use to join two different networks or two segment with in the same network

Bridge is use to connect two LAN like a repeater; It forwards complex and correct frames to the other segment

It is More Intelligent then Hub

Bridge Reduce the amount of traffic compare to hub

Switch



Like hub, Switch is also a network device that connects multiple computer in the network.

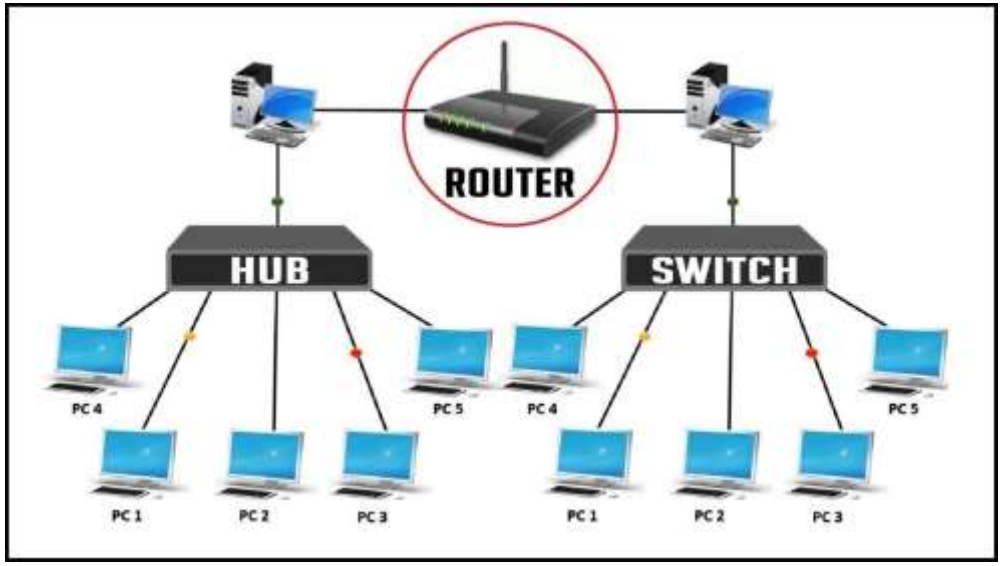
At first it Broadcast the message after that it can unicast and multicast.

Switch can easily identify that which device is connected with which port by using mac address, that why it deliver message on particular destination.

It is more Intelligent then Hub and Bridge.

Transmission mode is full duplex(Switch can send or receive the information at a time)

Router



Router is a network connecting device that is used to connect heterogeneous(different type) network

Router is used to interconnect the network in the internet

A router can connect two LANs, a LAN and WAN or two WANs

A main work of router is to choose a congestion free path through which the data packet will travel .

Router receive data packet from the sender , analyze and forward these data packets then give to the receiver

Transmission mode is full duplex (Router can send or receive the information at the same time)