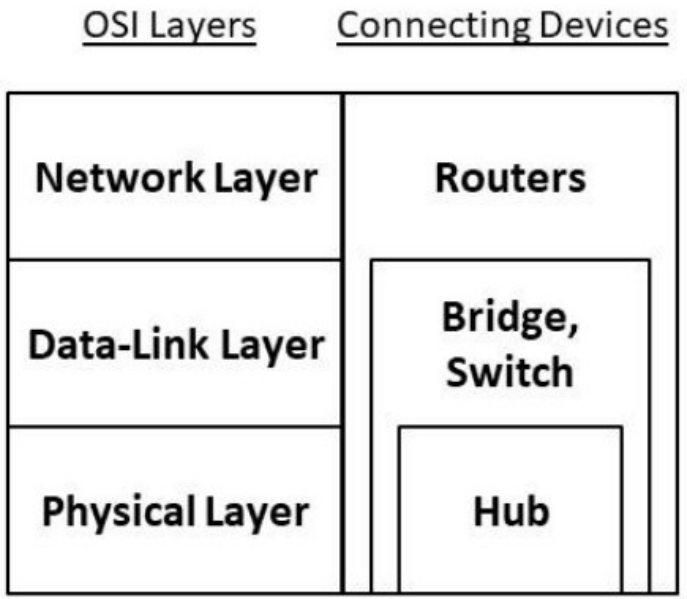
Networking Devices

Networking Devices

- Repeater
- Hub
- Bridge
- Switch
- Router



Repeater

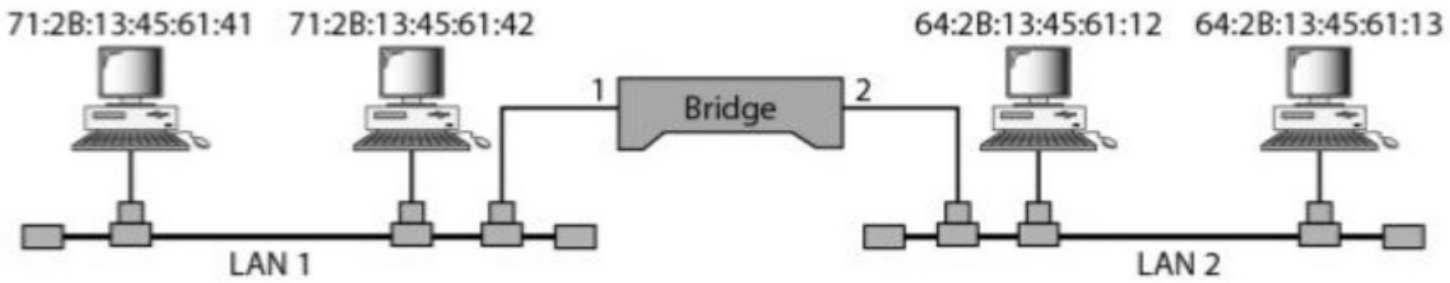
- A repeater operates at the physical layer.
- Repeater regenerate the signal over the same network before the signal becomes too weak or corrupted.
- so as to extend the length to which the signal can be transmitted over the same network.
- It is a 2 port device.

Hub

- It is also known as a **Multiport Repeater Device.**
- **A Hub is a layer-1 device and operates only in the physical network of the OSI Model.**
- It can connect devices of the same network only.
- A Hub is not an intelligent device.
- It does not maintain any address table for connected devices.
- a hub broadcasts the incoming data packets in the network
- It is less secure, as it broadcasts the data packet

Bridge

- A bridge is a layer-2 network connecting device, i.e., it works on the physical and data-link layer of the OSI model.
- A bridge connects the devices which are present in the same network. It is mainly used to segment a network to allow a large network size.
- It has two types of port - incoming and outgoing.
- A Bridge has filtering capacity.
- Improves security by limiting the scope of data frames.



Switch

- A switch acts as a multiport bridge in the network.
- **A switch is a layer-2 network connecting device, i.e., it works on the physical and data-link layer of the OSI model.**
- A switch maintains a Switch table which has the MAC addresses of all the devices connected to it.
- A Switch is an intelligent device with filtering capabilities

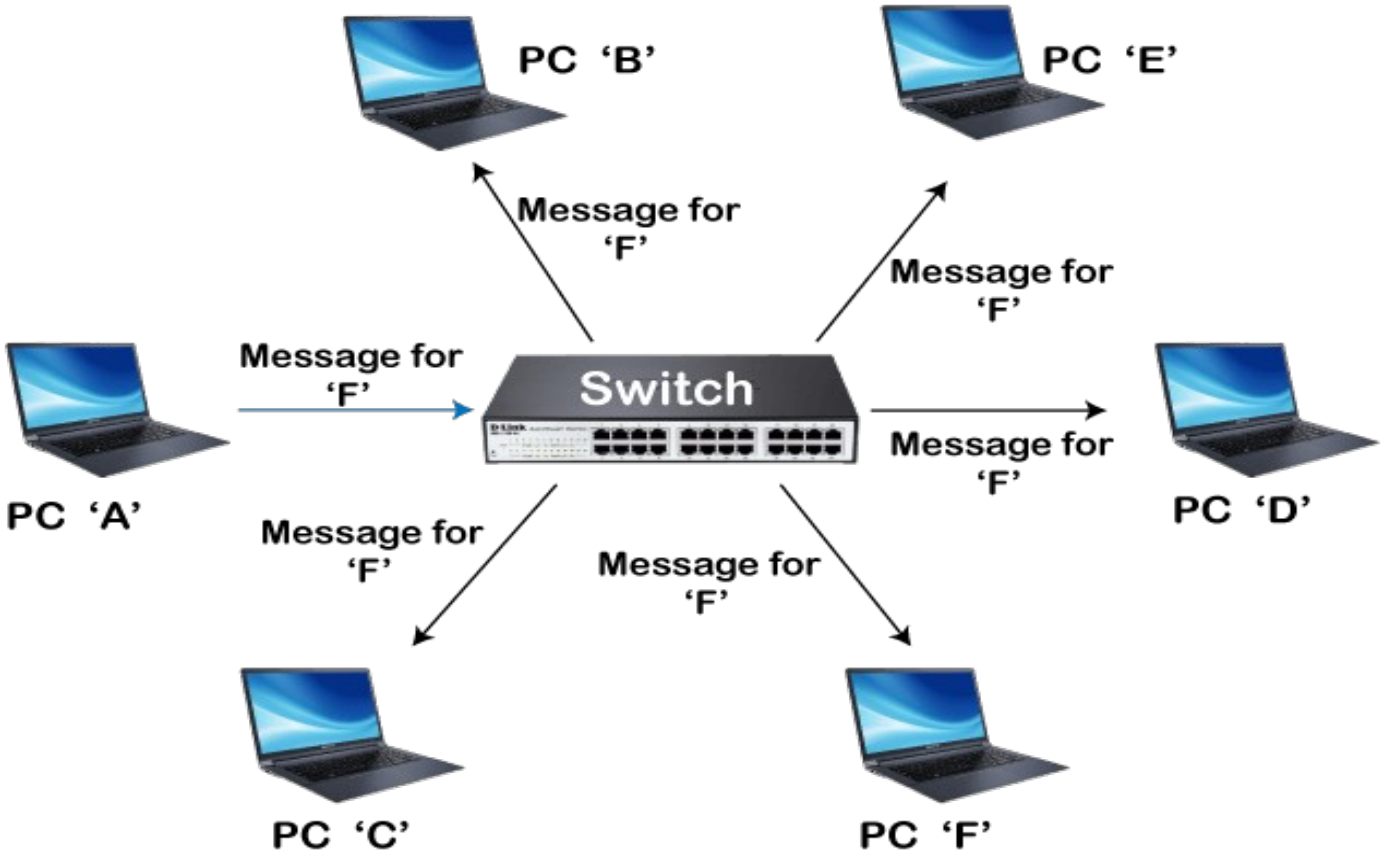
Switch

- A switch is a multicast networking device that works under the Datalink layer of the OSI model and connects a bunch of computers or devices in a network.

- a switch acts as the central interconnecting device that connects all the devices of a network in order to ensure proper resource sharing.

- Basically, in a network, all the end devices like a computer printer, servers, etc. are connected through the switch

Switch


PC 'B'
PC 'E'
Message for 'F'
Message for 'F'
Message for 'F'
Switch
Message for 'F'
PC 'A'
PC 'D'
Message for 'F'
Message for 'F'
PC 'C'
PC 'F'

Router

A Router is a networking device that operates under the network layer of the OSI model and is used to connect two or more networks.

A router is a device that is used to interconnect various switches of different networks to form even a wider network.

A Router is a layer-3 network connecting device, i.e., it works on the physical, data-link and network layer of the OSI model.

A router maintains a routing table using the routing algorithms

Switch & Router

Switch works on the data link layer of the OSI model.

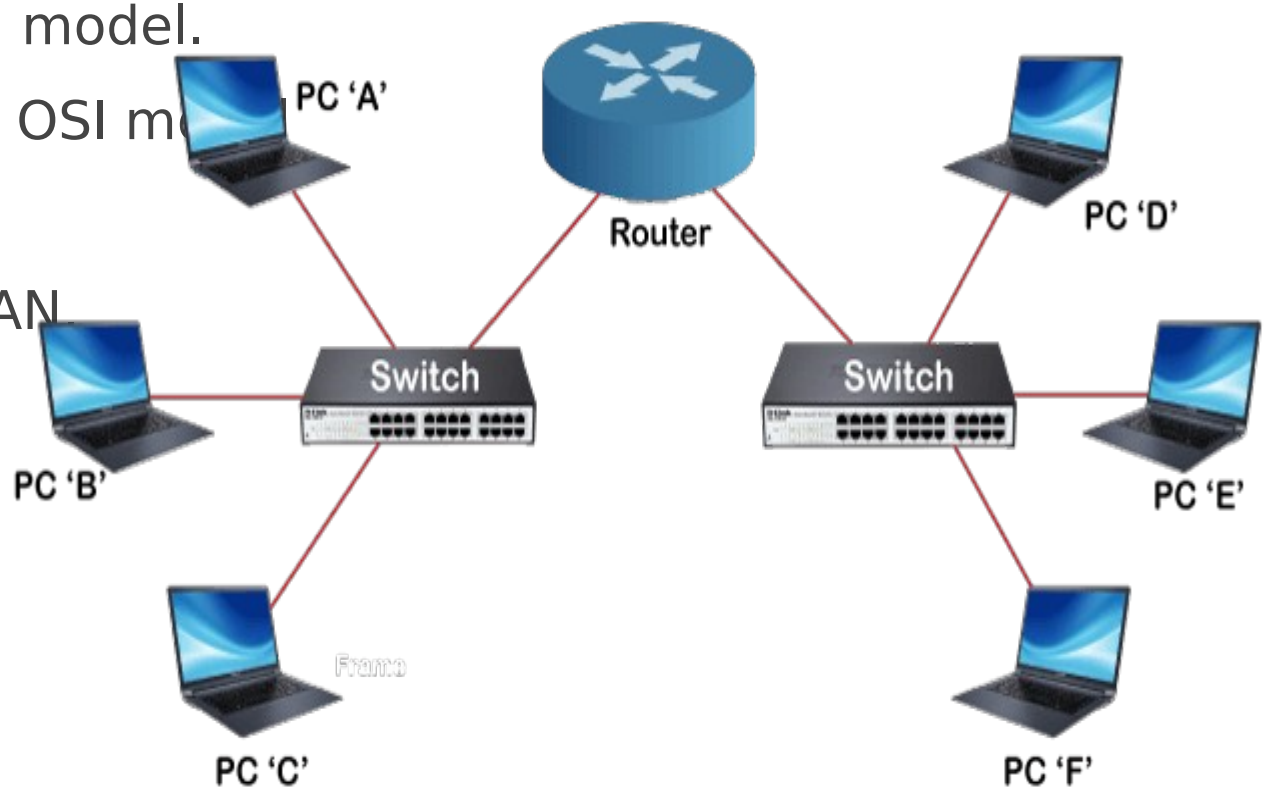
The Router works on the network layer of the OSI m

Switch can join multiple devices within one LAN

A Router can link both LAN as well as WAN.

Switch works based on the MAC address,

Router works based on IP address.



Connection of networks through Router