# OSI Model

OSI

- OSI stands for **Open Systems Interconnection**.

- It has been developed by ISO – '**International Organization for Standardization**'.

- It is a 7 layer architecture with each layer having specific functionality to perform.

  - Outlines **WHAT** needs to be done to send data from one computer to another.

  - Not **HOW** it should be done.

  - Protocols stacks handle how data is prepared for transmittal (to be transmitted)

Seven Layers of the OSI model

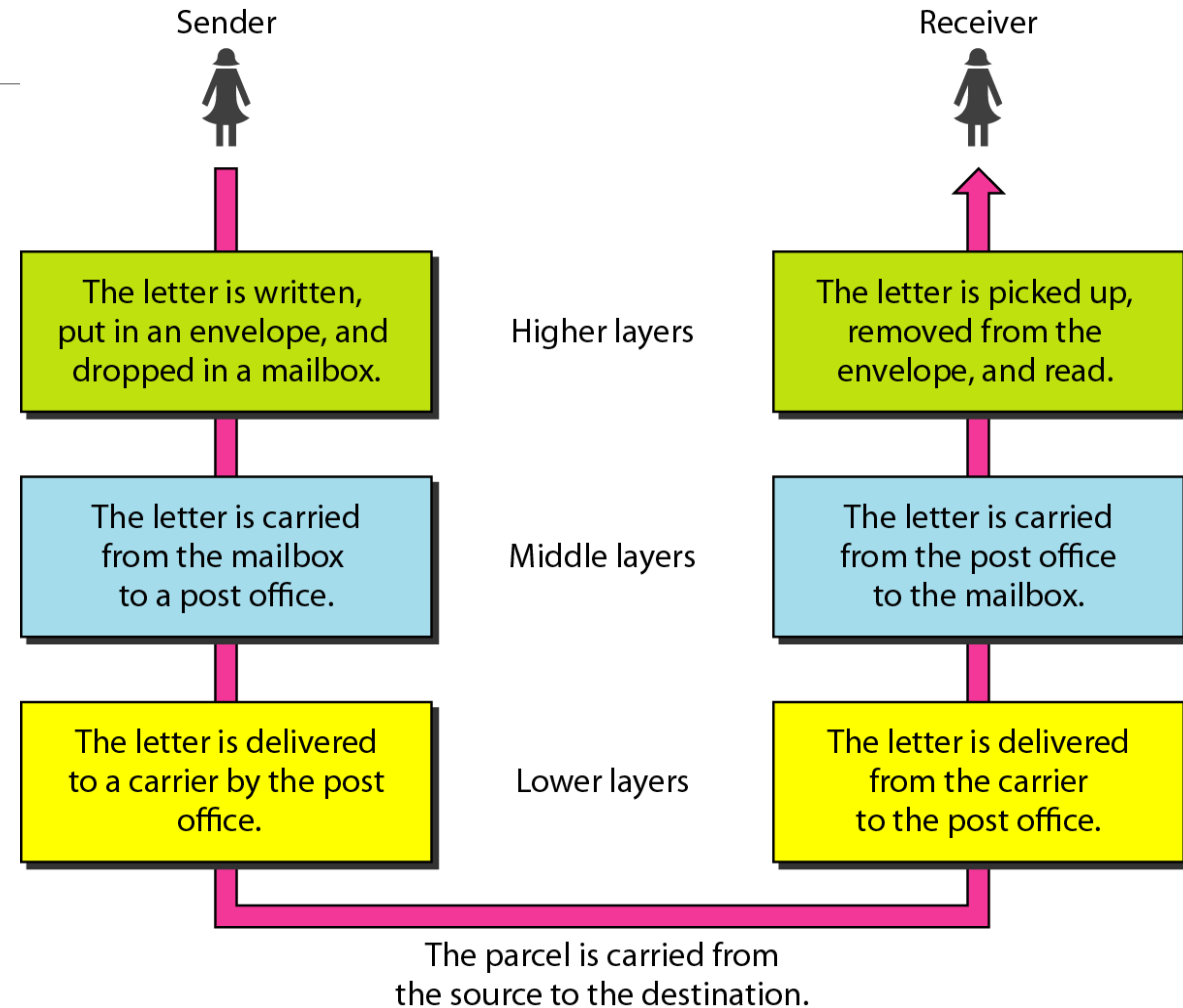|	
7	Application
6	Presentation
5	Session
4	Transport
3	Network
2	Data link
1	Physical
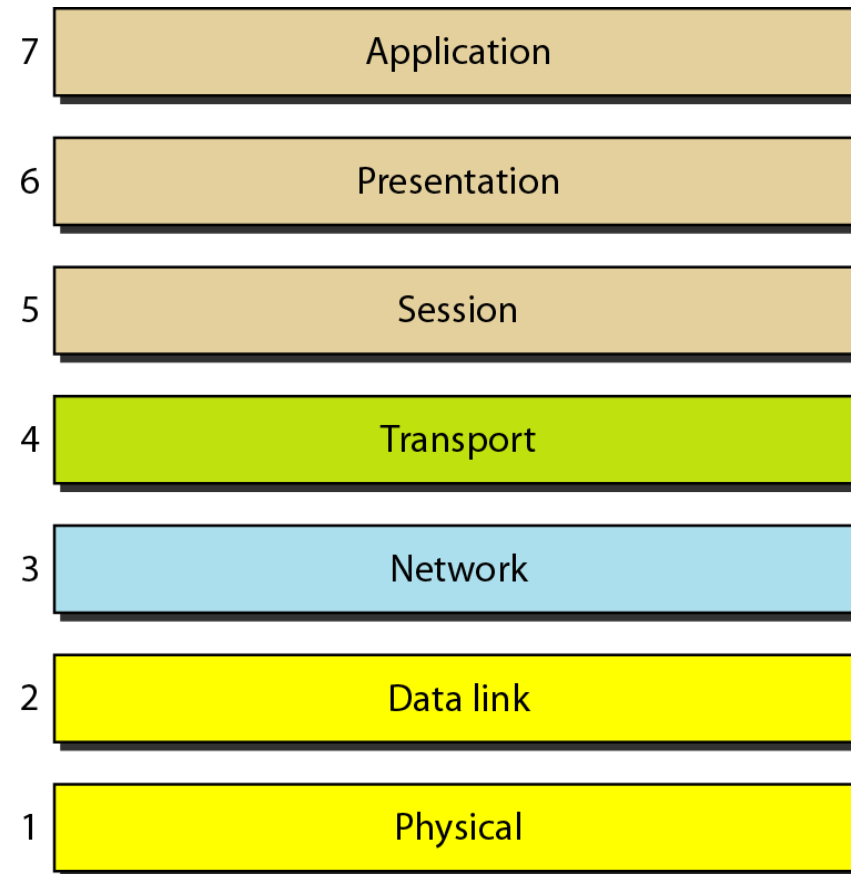
Why a layered model?

- Easier to teach communication process.
- Speeds development, changes in one layer does not affect how the other levels works.
- Standardization across manufactures.
- Allows different hardware and software to work together.
- Reduces complexity

LAYERED TASKS

Tasks involved in sending a letter

Sender

Receiver

The letter is written, put in an envelope, and dropped in a mailbox.	Higher layers	The letter is picked up, removed from the envelope, and read.
The letter is carried from the mailbox to a post office.	Middle layers	The letter is carried from the post office to the mailbox.
The letter is delivered to a carrier by the post office.	Lower layers	The letter is delivered from the carrier to the post office.

The parcel is carried from the source to the destination.

What is "THE MODEL?"

- Commonly referred to as the OSI reference model.

- The OSI model
  - is a theoretical blueprint that helps us understand how data gets from one user's computer to another.

  - It is also a model that helps develop standards so that all of our hardware and software talks nicely to each other.
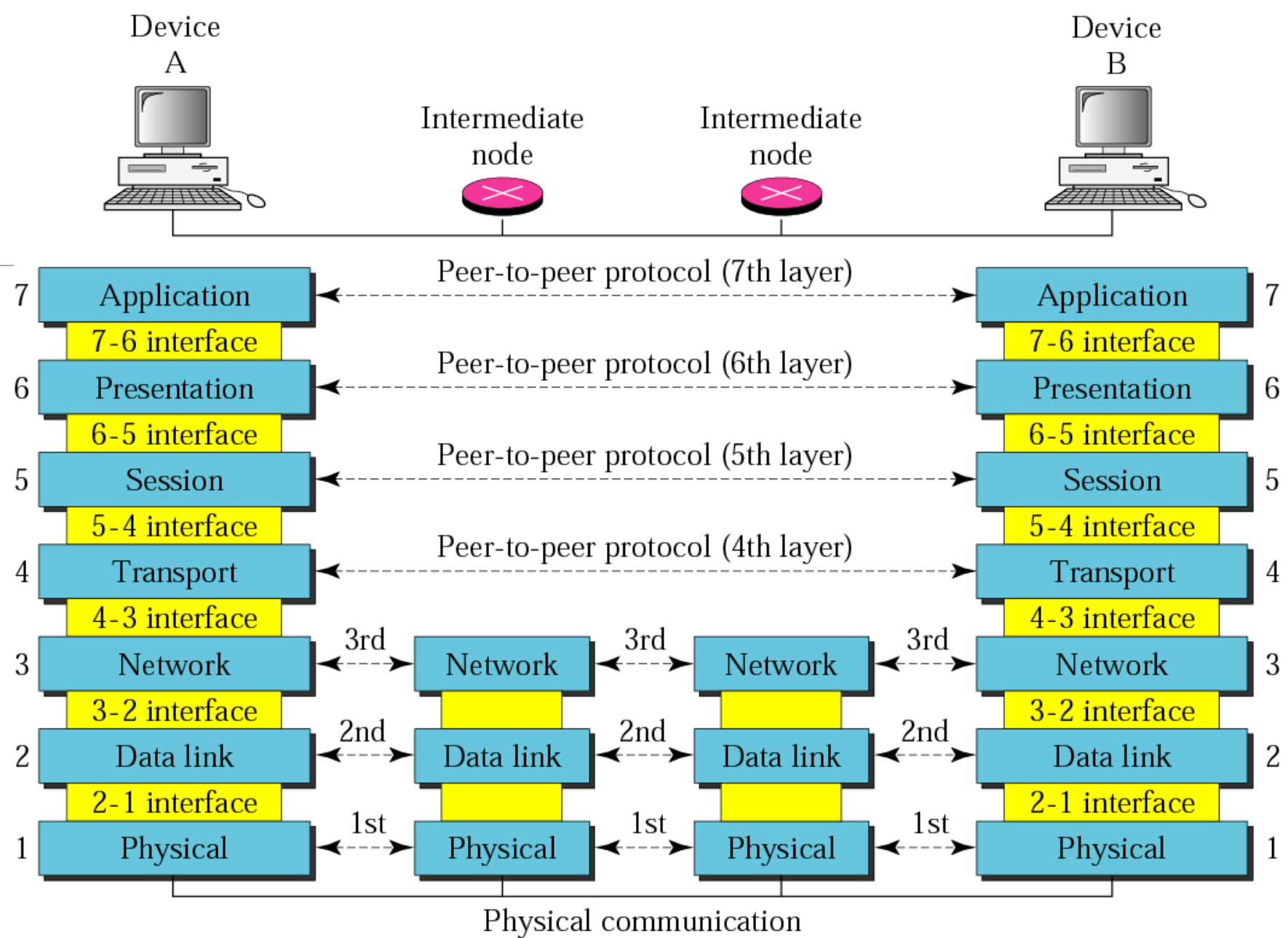
Why use a reference model?

- Serves as an outline of rules for how protocols can be used to allow communication between computers.

- Each layer has its own function and provides support to other layers.

PHILOSOPHER TRANSLATOR SECRETARY ARCHITECTURE
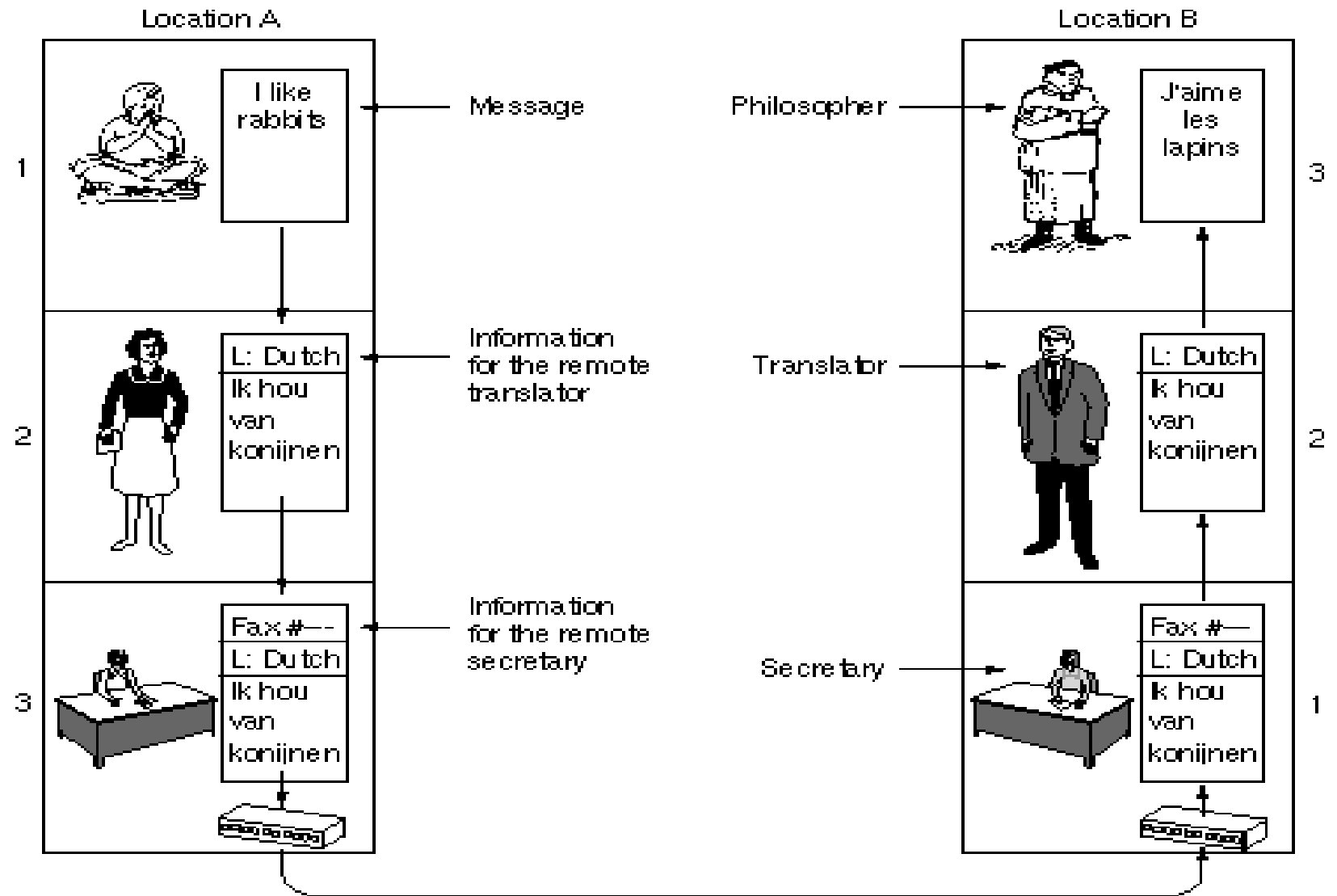
OSI Model

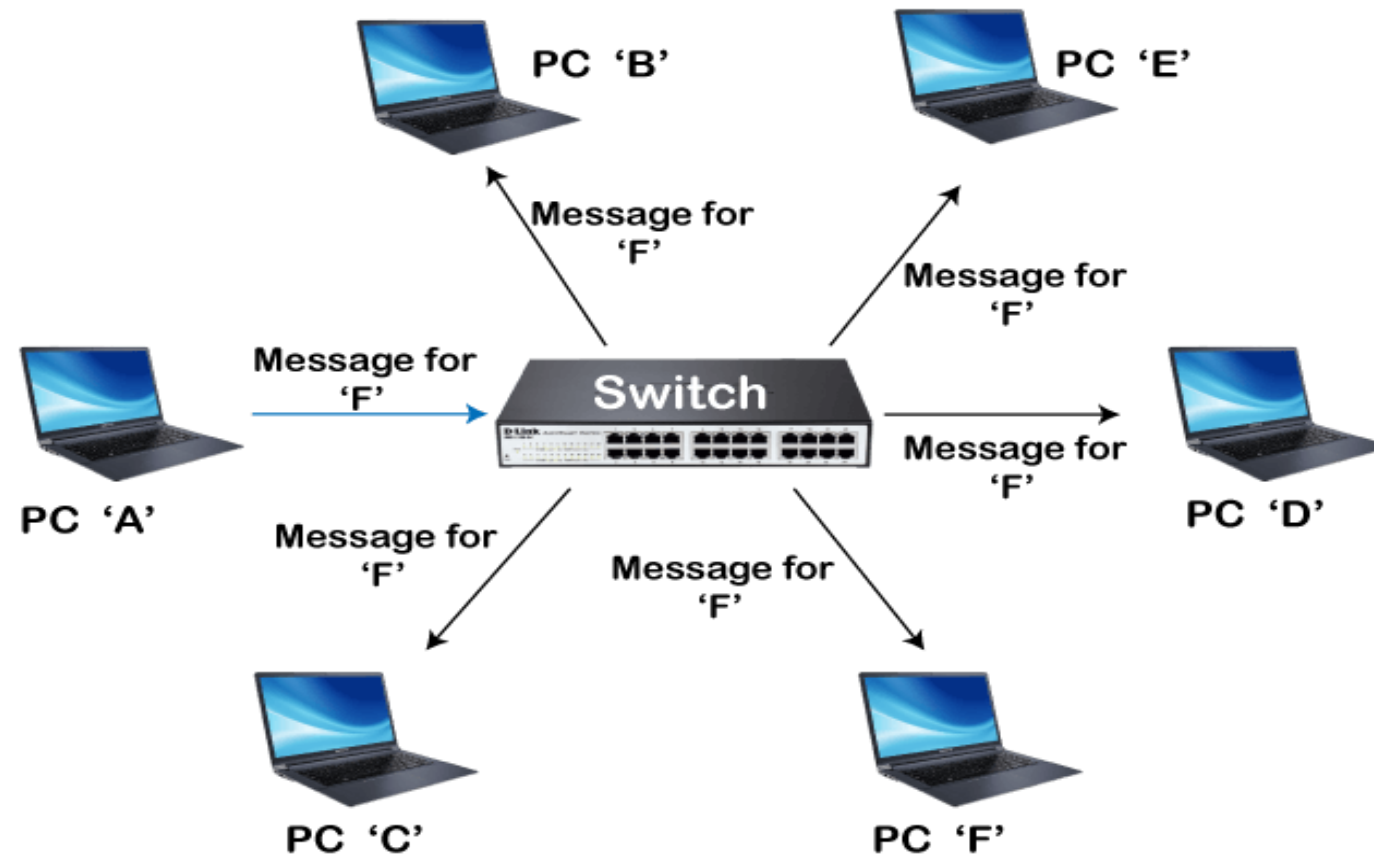# Networking Devices

Networking Devices

- Hub

- Repeater

- Switch

- Router

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

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

Switch & Router

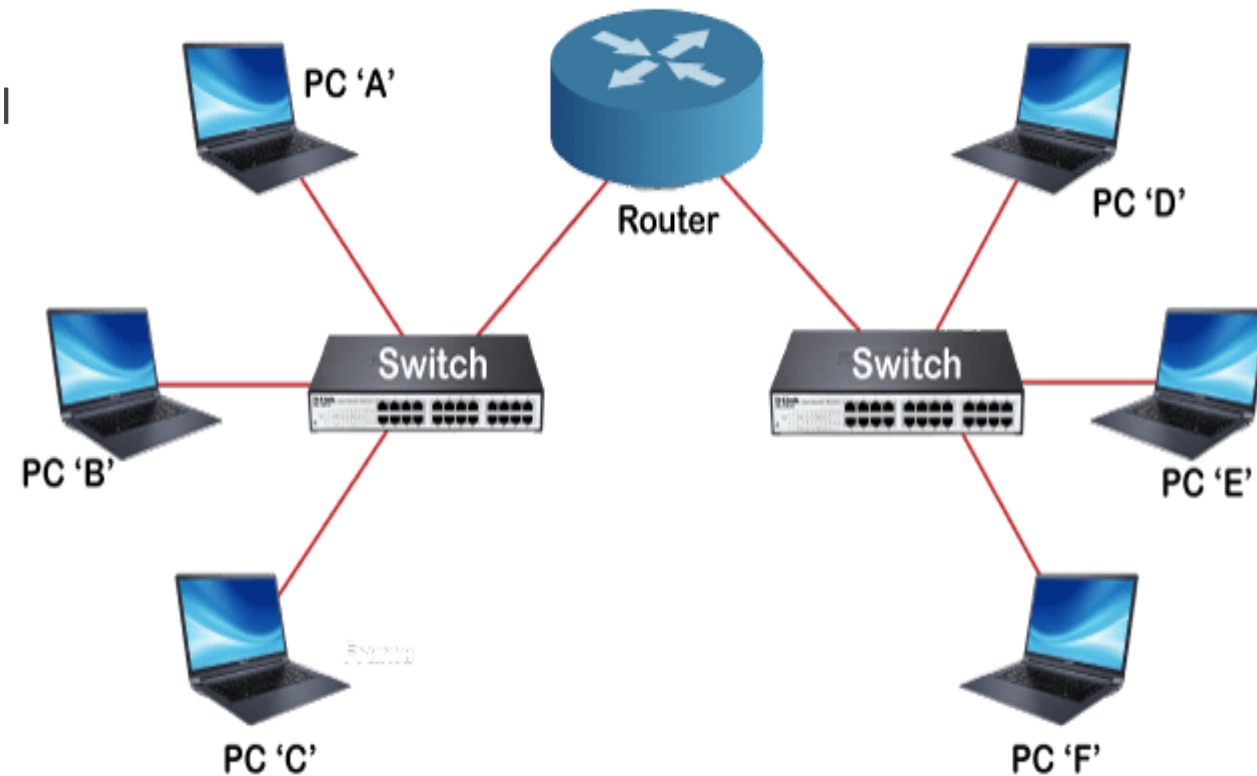Switch works on the data link layer of the OSI model.

The Router works on the network layer of the OSI model

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