OSI MODEL (open system interconnection)

* OSI Created by ISO(International standard organization) in the year 1984
* The OSI model classifies and organization the tasks that host perform to prepare data for transport across the network
* It is the most widely used method for understanding and talking about network communication
* Which defines how communication will take place between devices from source to destination
* It provide a common standard for developing all n/w devices
* It helps in different vendor device yo interoperate with each other
* It helps in easy troubleshooting
* OSI is divided into seven layers
* 7 Application layer
* 6 Presentation layer
* 5 Session layer
* 4 Transport layer
* 3 network layer
* 2 Date link layer

##### 7 Application layer- Layer defines the services that user has requested for and the protocol that will be used to services fulfill those

# Services Protocol

## Web HTTP,HTTPS

## Remote Telnet,SSH

## Mail POP,IMAP

## File FTP, TFTP

## Domain DHCP,DNS

Software are just the medium/platform to fulfill that services

### Presentation layer- To identify the format of the data.received or sent between network devices

#### Filetype Formats

Audio MP3

Video MP4,AVI

Picture JPEG

Text PDF

### The receiving presentation layer requires thses formats so that the data can be presented to the user in a readable or visible manner

#### Compression, decompression, encryption,decryption

#### 5- Session layer-session layer is used to create,maintain,or terminate sessions between client and server

#### No. of sessions depends upon no of ports

#### 4- Transport layer- The Transport layer provides a transition between the upper and lower layers of the OSI model, making the upper and lower layers transparent from each other.

#### Upper layers format and process data without regard for delivery

#### Lower layers prepare the data for delivery by fragmenting and attaching transport required information

#### The Transport layer provides many end-to-end flow control functions as described in the following table.

# Network layer-The Network layer describes how data is routed across networks and on to the destination. Network layer functions include:

# Logical Addressing: Maintaining addresses of neighboring routers and maintaining a list of known networks.

# Path Determination & Forwarding: Determining the next network point to which data should be sent. Segments forwarded from the Transport to the Network layer become Datagrams/Packets and network-specific (routing) information is added. Network layer protocols then ensure that the data arrives at the intended destinations.

# Routers use a routing protocol such as RIP, EIGRP, OSPF to take into account various factors such as the number of hopsg Protocols are used for path determinations.

# Hardware devices related to the Network layer include:

# Routers

# Layer 3 switches

## Data link layer-

#### While the Network layer deals with data moving across networks using logical addresses, Data Link layer deals with data moving within a local network using physical addresses. Each host has a logical address and a physical address.

#### The physical address is only locally significant and is not used beyond the network boundaries (across a router). This layer also defines protocols that are used to send and receive data across the transmission media.

#### Responsible for converting packets received from Network Layer into Frames.

#### The following network devices perform functions associated with the Data Link layer.

#### Network Interface Card (NIC) with external transceivers

## Physical layer -The Physical layer of the OSI model sets standards for sending and receiving electrical signals between devices. It describes how digital data (bits/bytes) are converted to electric pulses, radio waves, or pulses of lights and transmitting them over transmission media (Cables).

## Hardware associated with the Physical layer includes: