Lecture 2

OSI Model

OSI (open Systems Interconnection) is a framework used to understand how different networking protocols Interconnect.

Layers:

It has 7 layers:

(i) Physical layer:

→ Lowest layer of model.
→ Deals with physical connection between devices
Transfer data in the form of bits.
→ Provides a physical medium for communication.

2. Data Link layer:

It receives

packets from Network layer and converts those packets to frames. It also adds the Mac address for local delivery.

Network layer:

It receives data in the form of segments or UPD header. or encapsulate

It converts this data in packes.

It also adds an IP header (IP address of Source and destination)

Transport layer.

It follows Application layer's instruction for selecting Protocol to transfer data (i

Data at this layer is

Transport layer looks at what the Application layer needs speed or reliability.

called segment (for TCP) or datagram (for UDP)

Session layer:

Establishes and maintain a connection between sender and receiver (like Browser and server).

Presentation layer:

This layer formats the data so the recepient can understand it.

It uses encryption, compression.

Application layer:

This is where Application (browser, email client) interact with the network.

DNS operates at Application layer

TCP :

It is Transmission control Protocol.

It is reliable . Because there is not chance of any loss of data packets.

It transfer all data packets in correct order.

TCP 3 way handshake

First Client sends a SYN packet to connect to Server

Then Server sends a SYN-ACK packet.

Then Client sends an ACK packet

Working of how Browser gets IP address:

When we type www.google.com in browser

1. Browser check the IP address in its own local cache.
2. If Not found, the OS checks its cache for IP address.
3. If still not found, it request the ISP's Recursive resolver. If the resolver has IP in its cacher, then returns it.
4. If not found then (ask) send query to ~~TLD~~ Root server server of .com. It replies "I do not know, ask the .com TLD server.

Then Browser queries the .com TLD server. It replies "I do not know, ask the ANS server"

The ANS server provides (ask) the IP address.