

Module-1: Data Communication Components - 3

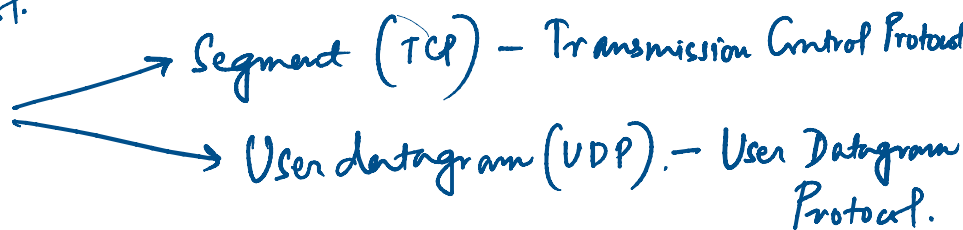
Monday, January 17, 2022 3:23 PM

IP address — required for routing the packet outside the network perimeter.

TCP & IP — main protocols to carry data across the networks. (they are the main vehicles for carrying the data).

Encapsulation/Decapsulation: one of the important concepts in protocol layering in the Internet.

✓ Transport layer header: identifies source and destination applications processes, information needed for flow control, error control or Congestion Control.

TL packet 
→ Segment (TCP) — Transmission Control Protocol.
→ User datagram (UDP). — User Datagram Protocol.

✓ Network layer header: IP/Logical address of the source and the destination hosts, fragmentation information, information for error checking of the header, and so on.

N/W Layer packet — datagram.

✓ Data link layer header: physical/link layer addresses of the host or the next hop (router)

DL layer header - Frame

↳ passed on the physical layer for transmission.

OSI Model.

Open system: set of protocols that allows two different systems to communicate regardless of their underlying hardware and software.

|| OSI - not a protocol but a model for understanding and designing a network architecture that is flexible, robust, and interoperable.

OSI model - a layered framework for the design of network systems that allows communication between all types of computers.

Presentation layer:

① Responsible for delivery and formatting of information to the application for further processing and display.
↳ different computer architectures have different data

to the application for further processing ...
(different computer architectures have different data representations). — BIG ENDIAN SYSTEM
SMALL ENDIAN SYSTEM }

- ② handles all issues related to data presentation and transport, including translation, encryption, and compression.

Session Layer.

- ① Uses the services provided by the TL, enables applications to establish and maintain sessions and to synchronize sessions.
- ② the use of checkpoints by the session layer enables the communication session to resume communication from the point at which failure occurred. (useful for sending large files).

* Although services provided by the PL and SL were listed in the OSI model documentation, but actual protocols for these two layers were not fully defined/described and the corresponding SW was not fully developed.