Open Systems Interconnect (OSI) Reference Model

Established in 1947, the International Standards Organization (ISO) is a multinational body dedicated to worldwide agreement on international standards. In late seventies & early eighties ISO developed a network architecture and reference model called OSI model. OSI implies that 2 entirely different systems can be interconnected in a manner so that they can communicate with each other.

Objective of OSI model is to understand, create, design & implement network standards & schemes for communication among multiple N/Ws. OSI allows systems of different manufacturers to communicate with each other w/o requiring any logical changes in the hardware or the S/W of the system.

This model which has become the foundation for N/W standards activities, is based on the concept of layered architecture that uses seven well-defined, distinctive yet related layers.

OSI LAYERS

Layer	FUNCTIONS
Application	Provides end-users with an interface to the network. Protocols at this layer provides user-oriented applications such as electronic mail, file transfer, directory services, remote login etc
Presentation	Translation of data, data compression, data encryption
Session	Allows two systems to enter into a dialog. It allows the communication b/w 2 processes to take place in either half-duplex or full duplex mode. Synchonizing the flow of data, providing periodic checkpoints into the data for data recovery in event of failure. Ensuring completion of data exchange before the session terminates.
Transport	End-to-end delievery (process to process) Reliable or unreliable data transfer Segmentation & reassembly Flow control of data Multiplexing and demultiplexing of data streams
Network	Defines addressing methodology Provides routing mechanisms for path determinate

Data link

Combines bits into bytes and bytes into frames

Supports error detection that occur during transmission of data

Provides flow control of data

Provides access to media using MAC protocols

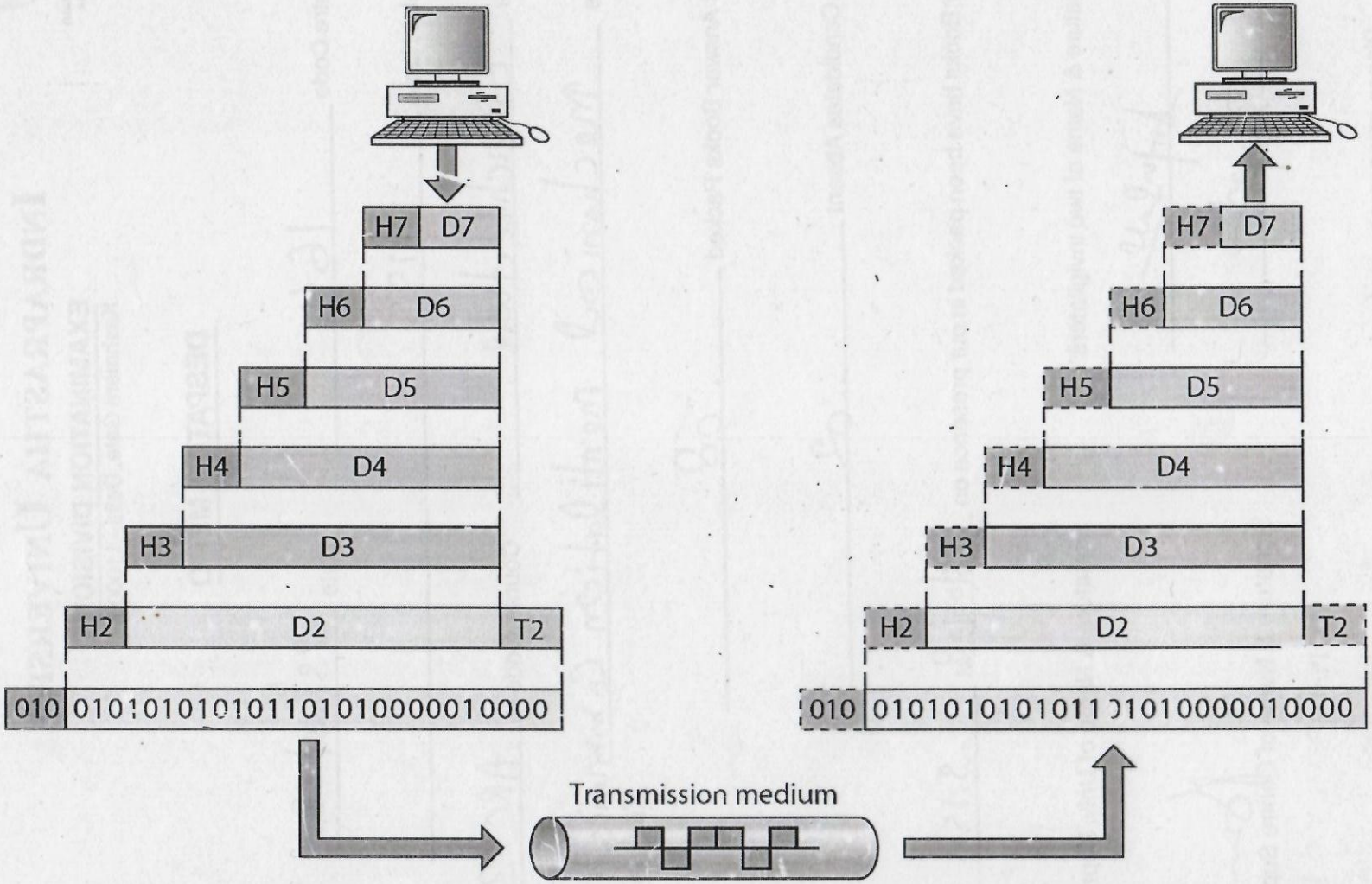
Interface b/w S/W on the host & the physical layer.

Physical

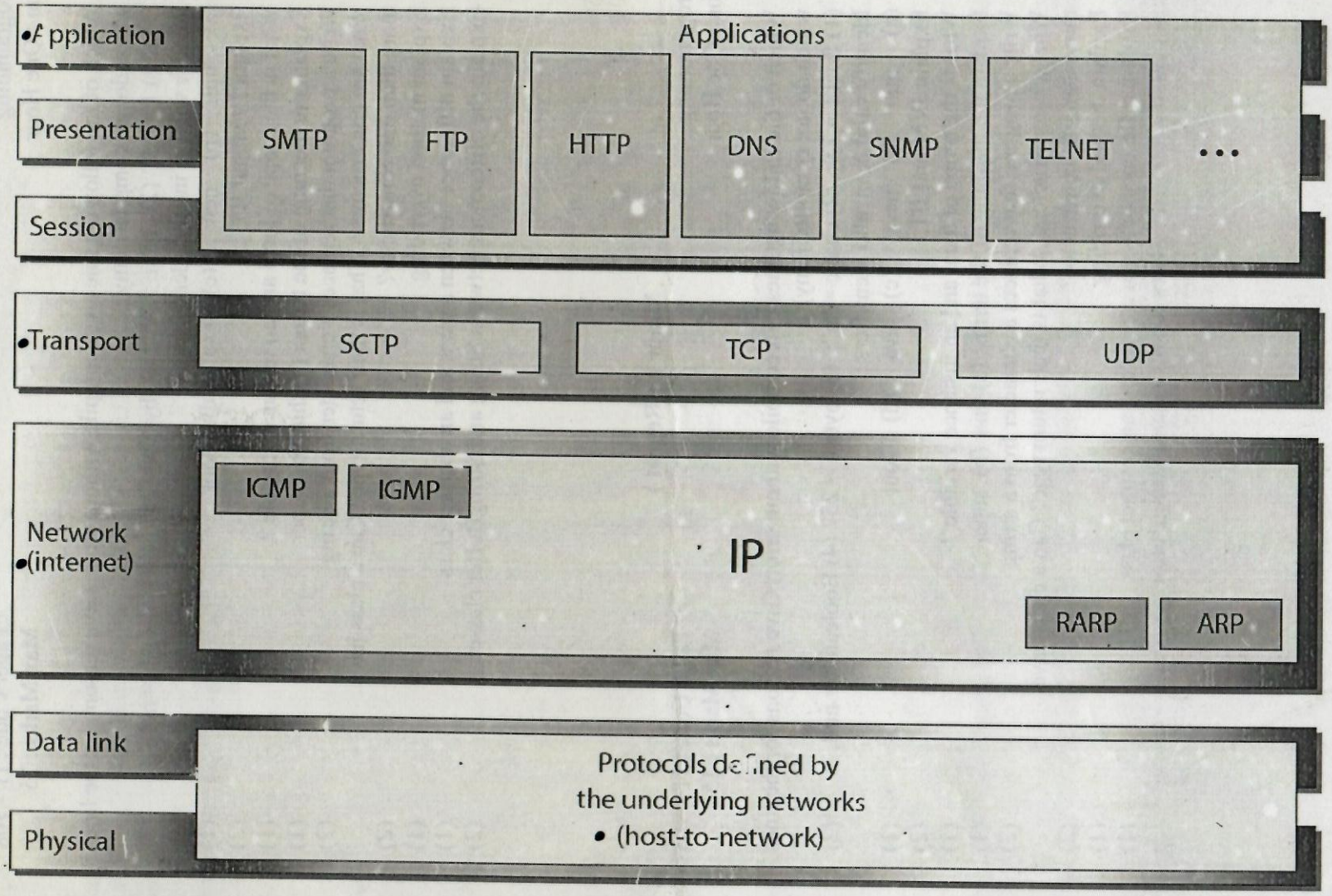
Transfers bits b/w network devices across media

Specifies functional, physical and electrical properties of connectors, media (voltage levels, pin assignments, speed etc)

An exchange using the OSI model



TCP/IP and OSI model



Relationship of layers and addresses in TCP/IP