## OSI Model

The Open Systems Interconnection model (OSI Model) is a conceptual model that characterizes and standardizes the communication functions of a telecommunication or computing system without regard of their underlying internal structure and technology. Its goal is the interoperability of diverse communication systems with standard protocols. The model partitions a communication system into abstraction layers. The original version of the model defined seven layers. A layer serves the layer above it and is served by the layer below it..

## 7. APPLICATION Layer

High-level APIs, including resource sharing, remote file access, directory services and virtual terminals

## 6. PRESENTATION Layer

Translation of data between a networking service and an application; including character encoding, data compression and encryption/decryption

## 5. SESSION Layer

Managing communication sessions, i.e. continuous exchange of information in the form of multiple back-and-forth transmissions between two nodes

## 4. TRANSPORT Layer

Reliable transmission of data segments between points on a network, including segmentation, acknowledgement and multiplexing

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## 3. NETWORK Layer

Structuring and managing a multi-node network, including addressing, routing and traffic control

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## 2. DATA LINK Layer

Reliable transmission of data frames between two nodes connected by a physical layer

## 1. PHYSICAL Layer

Transmission and reception of raw bit streams over a physical medium

## TCP/IP Model

## 4. APPLICATION Layer

Application layer includes all the higher-level protocols:
Telnet
X Windows
SSH (Secure SHell)
FTP (File Transfer Protocol)
DNS (Domain Naming System)
RDP (Remote Desktop Protocol)
HTTP (Hypertext Transfer Protocol)
SMTP (Simple Mail Transfer Protocol)
DHCP (Dynamic Host Configuration Protocol)
SNMP (Simple Network Management Protocol)

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## 3. TRANSPORT Layer

Provides communication session management between computers. Defines the level of service and status of the connection.The main protocols included at Transport layer are: TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).

## 2. NETWORK/INTERNET Layer

Packages data into IP datagrams, containing source and destination address information used to forward datagrams between hosts and across networks. Protocols are: IP (Internet Protocol), ICMP(Internet Control Message Protocol), ARP (Address Resolution Protocol), RARP (Reverse Address Resolution Protocol)

## 1. NETWORK INTERFACE Layer

Specifies how data is physically sent through the network, including how bits are electrically signaled by hardware devices that interface directly with a network medium, such as: Coaxial cable, Optical fiber, Twisted-pair copper wire,, Ethernet, RS-232

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TCP/IP provides end-to-end connectivity specifying how data should be packetized, addressed, transmitted, routed and received at the destination. This functionality is organized into four abstraction layers which are used to sort all related protocols according to the scope of networking involved.

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