**OSI Model**

The OSI Model (Open Systems Interconnection Model) is a conceptual framework used to describe the functions of a networking system. The OSI model characterizes computing functions into a universal set of rules and requirements to support interoperability between various products and software. In the OSI reference model, the communications between a computing system are split into seven different layers.

**Layers:**

* Physical,
* Data Link,
* Network,
* Transport,
* Session,
* Presentation,
* Application.

**Physical Layer:**

The lowest layer of the OSI Model is concerned with electrically or optically transmitting raw unstructured data bits across the network from the physical layer of the sending device to the physical layer of the receiving device.

At the physical layer, one might find “physical” resources such as network hubs, cabling, repeaters, network adapters or modems.

**Data Link Layer:**

At the data link layer, directly connected nodes are used to perform node-to-node data transfer where data is packaged into frames. The data link layer also corrects errors that may have occurred at the physical layer. The data link layer encompasses two sub-layers of its own. The first, media access control, provides flow control and multiplexing for device transmissions over a network. The second, the logical link control, provides flow and error control over the physical medium as well as identifies line protocols.

**Network Layer**

The network layer is concerned with concepts such as routing, forwarding, and addressing across a dispersed network or multiple connected networks of nodes or machines. The network layer may also manage flow control. Across the internet, the Internet Protocol v4 (IPv4) and IPv6 are used as the main network layer protocols.

**Transport Layer:**

The transport layer manages the delivery and error checking of data packets. It regulates the size, sequencing, and the transfer of data between systems and hosts. One of the most common examples of the transport layer is TCP or the Transmission Control Protocol.

**Session Layer:**

The session layer controls the conversations between different computers. A session or connection between machines is set up, managed, and terminated at layer five. Session layer services also include authentication and reconnections.

The session layer is responsible for network coordination between two separate applications in a session. A session manages the beginning and ending of a one-to-one application connection and synchronization conflicts.

**Presentation Layer:**

The presentation layer formats or translates data for the application layer based on the syntax or semantics that the application accepts. Because of this, it times also called the syntax layer. This layer can also handle the encryption and decryption required by the application layer.

**Application Layer:**

At this layer, both the end user and the application layer interact directly with the software application. This layer sees network services provided to end-user applications such as a web browser or Office 365. The application layer identifies communication partners, resource availability, and synchronizes communication.

**Difference between OSI Model and TCP/IP**

* OSI has 7 layers, where TCP/IP has 4 layers.
* The OSI Model is a logical and conceptual model that defines network communication used by systems open to interconnection and communication with other systems. On the other hand, TCP/IP helps you to determine how a specific computer should be connected to the internet and how you can be transmitted between them.
* OSI header is 5 bytes, whereas TCP/IP header size is 20 bytes.
* OSI refers to Open Systems Interconnection, whereas TCP/IP refers to Transmission Control Protocol.
* OSI model helps you to standardize router, switch, motherboard, and other hardware, whereas TCP/IP helps you to establish a connection between different types of computers.