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**CASE STUDY ON OSI MODEL**

Open Systems Interconnection (OSI is a reference tool for understanding data communications between any two networked systems. It divides the communications processes into seven layers. Each layer both performs specific functions to support the layers above it and offers services to the layers below it. The three lowest layers focus on passing traffic through the network to an end system. In the OSI reference model, the communications between a computing system are split into seven different abstraction layers: Physical, Data Link, Network, Transport, Session, Presentation, and Application.

## Physical Layer

## The physical layer defines the means of transmitting raw bits rather than logical data packets over a physical link connecting network nodes. The bit stream may be grouped into code words or symbols and converted to a physical signal that is transmitted over a lathe and milling transmission medium. The physical layer provides an electrical, mechanical, and procedural interface to the transmission medium. The shapes and properties of the electrical connectors, the frequencies to broadcast on, the modulation scheme to use and similar low-level parameters, are specified here. Within the semantics of the OSI network architecture, the physical layer translates logical communications requests from the data link layer into hardware-specific operations to affect transmission or reception of electronic signals.

## Data Link Layer

## The Data Link Layer is the second layer in the OSI (open systems interconnection) seven-layer reference model. The data link layer has a number of specific functions to carry out.

## The three main functions of the Data Link layer are:

## 1. Providing a well-defined service interface to the network layer.

## 2. Dealing with transmission errors.

## 3. Regulating the flow of data so that slow receivers are not swamped by fast senders

## Network Layer

The Network Layer is the layer that provides data routing paths for network communication. Data is transferred in the form of packets via network logical paths in an ordered format controlled by the network layer. The network layer is considered as the backbone of OSI model. It selects and manages the best logical path for data transfer between nodes. This layer contains hardware devices such as routers, bridges, firewalls and switches but it actually creates logical images of the most efficient communication route and implements it with a physical medium. Network layer protocols exist in every host or router. The router examines the header fields of all the IP packets that pass through it.

## Transport Layer

This layer provides transparent transfer of data between end systems, or host and is responsible for end – to – end error recovery and flow control. It ensures complete data transfer. The transporter layer responsible as it offers end – to – end communication between end devices through a network. Depending on the application, the transport layer either offer reliable, connection – oriented or connectionless, best effort communications.

## Session Layer

The session layer controls the conversations between different computers. A session or connection between machines is set up, managed, and determined at layer 5. Session layer services also include authentication and reconnections.

## 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 at times also called the syntax layer. This layer can also handle the encryption and decryption required by the application layer.

## Application Layer

The application layer is to provide protocols for exchange of information between application processes and provided all services directly comprehensible to application programs. The application layer identifies communication partners, resource availability, and synchronizes communication. Transferring of files disturbing the results to the user is also done in this layer. Mail services, directory services, network resource etc are services provided by application layer.