Open Systems Interconnection Model Cheat Sheet

by [deleted] via cheatography.com/2754/cs/18529/

Introduction

The Open Systems Interconnection reference model was developed by the International Organization for Standardization (ISO) to serve as a conceptual framework for understanding how data is transferred between two endpoints in a network. Specifically, it categorizes the communications process into seven distinct “layers” or “functions.” For example, whenever a computer forwards information to another computer, under the Open Systems Interconnection model, the data navigates through seven layers across the network to the receiving machine.. Each layer performs a specific function as data passes from one layer to the next. Most portrayals of the Open Systems Interconnection model take a top-down approach, descending from layer seven to layer one. Layers seven through five are regarded as the upper layers, while layers four through one are regarded as the lower layers. Let’s now explore each layer of the Open Systems Interconnection model in more detail.

Source: https://www.rcrwireless.com/20180402/the-seven-layers-of--the-open-systems-interconnection-model-tag27-tag99

Layer 1: the physical layer

The bulk of documentation takes place at the physical layer, which serves as an electrical and physical representation of the system. It consists of the hardware required for forwarding and switching data, including cables, cords and other physical necessities. Whenever a networking error occurs, the physical layer is frequently checked to see if the cables are connected properly or whether a power cord may have been unplugged.

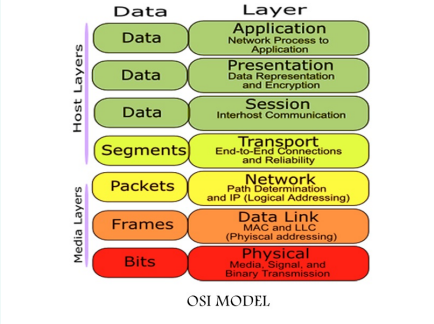
Layer 2: the data-link layer

The data-link layer provides node-to-node transfer and manages errors in the physical layer. This layer is actually split into two sub-layers, including the Media Access Control (MAC) layer and the Logical Link Control (LLC) layer. The former sub-layer determines how a network can access and transfer data, while the latter sub-layer manages traffic and checks for errors across the physical medium.

Layer 3: the network layer

The network layer consists of switching and routing technologies, and helps determine the optimal path to move data between nodes. Additionally, the network layer performs functions like sequencing packets, managing congestion, addressing, interworking and addressing errors.

OSI Model



OSI MODEL

Layer 4: the transport layer

The transport layer ensures an entire message is delivered without any inaccuracies. In particular, it helps determine how much data to send and when. It also ensures messages are error-free by looking for mistakes in the data upon arrival.

Layer 5: the session layer

The session layer is responsible for creating a “session’ so that two machines can communicate with each other. This typically involves setting up, coordinating, managing and terminating exchanges between applications on both ends during a session.

Layer 6: the presentation layer

The presentation layer is typically a feature of an operating system. It translates the application format to network format, or the other way around, such as encrypting and decrypting data. The purpose of the presentation layer is to convert data into a form the application layer can accept.

Layer 7: the application layer

As the name suggests, everything about the application layer centers around application services, specifically for file transfers. At this layer, a communications partner is identified, while network capacity is reviewed. Among all the layers, the application layer is the closest to the end-user. Users directly interact with applications running at layer seven. Examples include Google, Skype and Microsoft Office.