Essay on osi model and transport layers

Sociology, Communication

OSI Model and Transport Layers

The Open System Interconnection (OSI) Reference Model is composed of seven layers defining the stages in which a specific data needs to undergo on a network. It is a standard developed by the International Organization for Standardization (ISO) in 1984. The layers includes the physical, data, a network and transport for the lower layers specifically call the media layer or transport set. The upper layer more commonly referred to as the application set or hosts layers includes the session, presentation and application layers.

The lower layers of the OSI model is responsible for low level functions like routing the data, addressing and control the flow of operations. The nature of how these functions work depends on the specifications of the network used. On the other hand, the upper layers are responsible for the how data is formatted, sent or used. Basically, the upper layer involves application specific functions like connection management and encryption. It involves the use of specific software to carry out its tasks.

The third layer in the OSI model is the network layer. This layer is responsible for determination of path of data or packets of data and its logical addressing. It is concern with how the data will be delivered best to its identified destination without alterations on the message it carries. It communicates messages between the local device and the remote device where the data will be sent. It also ensures that the data is delivered at the correct address. The network layer also conducts error-handling diagnostics fragmentation and reassembly of the data packets. Some of the devices use

on the network layer is routers and the technologies used are IP4, IPv6, ICMP, and ARP. (How2Pass, 2012)

The fourth layer is the transport layer which is the last layer among the transport set. This layer is responsible for protector of the upper layers from issues concerning transportation and reliability of connections. It ensures that the data transmitted is in its correct ordering without losing anything or duplication and its transmission is error-free. If errors occur during transmission, this layer is responsible for passing the error of to correct them. Communication in this layer is basically made possible through gateways and routers. Technologies used in this layer includes the TCP and SPX which ensures error-free delivery of data and UDP which is a connectionless type of communication but does not guarantee that packets are correctly delivered from one point to another

Aside from the OSI model, another networking model exists which is the TCP/IP model consisting of four layers. The OSI model describes how network works while the TCP/IP model is composed of only four layers which define how the Internet works. The four layers includes the application layer which is the combination of the upper layers of the OSI model which is responsible for the display of the data and its utilization. Web browsers, ftp and telnet are just some of the services used in this layer. The transport and network layers of the Internet model have almost the same function as that of the OSI model. The bottom two layers (physical and data layers) of the OSI model are combined in the TCP/IP model which is called the network access layer.

The standards used and technology used in these layer is the same as that of the OSI model.

With regards to the functionalities of the two models, defined before the internet boomed so internet working is not supported and it is independent of the underlying protocol. Its interfaces and protocols are clearly distinguished and it ensures that packets are delivered correctly. On the other hand, the TCP/IP model is loosely modeled but it already supports Internet working since it was defined after the internet boom. However, although the TCP delivers packets reliably, IP does not and its functionality is dependent of the existing protocol standard.

References:

How2pass (2012). “ OSI Reference Model. Retrieved 22 February 2012 from http://www. how2pass. com/CCNA/study_material/osilayers. htm

Network Dictionary (2012). “ TCP/IP Architecture Model: 4-Layers vs. OSI 7 Layers

“. Retrieved 22 February 2012 from http://www. networkdictionary. com/networking/am. php

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