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DIFFERENCE BETWEEN THE 7 LAYER OSI MODEL AND THE TCP/IP MODEL

- The OSI model refers to the open systems interconnection which is used to describe the functions of a networking system while TCP/IP refers to the transmission control protocol and internet protocol which is used to define how devices should transmit data between them and enables communication over networks and large distances.

1. Number of Layers:

- OSI Model: The OSI model consists of seven layers. These layers, from the bottom up, are: Physical, Data Link, Network, Transport, Session, Presentation, and Application.

- TCP/IP Model: The TCP/IP model, also known as the Internet protocol suite, is often simplified into four layers: Link, Internet, Transport, and Application. Some variations of the model may further break down the Internet layer into two separate layers, Network and Data Link, resulting in five layers.

2. Origin and Development:

- OSI Model: The OSI model was developed by the International Organization for Standardization (ISO) in the late 1970s and early 1980s. It was an attempt to create a universal framework for networking that could be used as a reference model for understanding and standardizing network protocols.

- TCP/IP Model: The TCP/IP model, on the other hand, was developed by the U.S. Department of Defense in the 1960s and 1970s. It was designed specifically to address the needs of the ARPANET, the precursor to the modern Internet. Over time, it became the de facto standard for networking, especially in the context of the Internet.

3. Layers and Protocols:

- OSI Model: The OSI model is more abstract and serves as a guideline for understanding networking concepts. It is not directly tied to specific protocols, although many network protocols can be mapped to OSI layers. For example, TCP/IP's TCP protocol corresponds roughly to the Transport layer in the OSI model.

- TCP/IP Model: The TCP/IP model is more closely aligned with the actual protocols used on the Internet. Each layer of the TCP/IP model is associated with specific protocols. For example, the Internet layer is primarily associated with the IP (Internet Protocol), and the Transport layer includes TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).

-Also the in the OSI model has a separate session and presentation layer while TCP/IP model has merged both of this layers into one layer.

4. Adoption:

- OSI Model: While the OSI model is a useful theoretical framework, it is not as commonly used for practical network design and troubleshooting as the TCP/IP model. Most real-world networking discussions and implementations are based on the TCP/IP model.

- TCP/IP Model: The TCP/IP model is widely used in practice and is the foundation for the Internet and most modern networking technologies. It is the model that network administrators and engineers typically reference when designing and troubleshooting networks.