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NETWORK SYSTEMS AND ADMINISTRATION

**In 300 words, write a write-up on the difference between the 7-layer OSI reference model and the TCP/IP model**

Two important networking frameworks, the OSI (Open Systems Interconnection) reference model and the TCP/IP model, were created to standardize and understand the many layers involved in data exchange. They have clear differences even if they have comparable functions.

Seven separate layers, each with a unique set of responsibilities, make up the OSI model. *The Physical, Data Link, Network, Transport, Session, Presentation, and Application* layers make up this hierarchy, starting from the bottom up. The TCP/IP model, in contrast, has four layers: Network Interface, Internet, Transport, and Application. The TCP/IP model is more streamlined and appropriate for the modern internet, but the OSI model provides an increased understanding of the networking process.

The main benefit of the OSI model is its accurate and thorough description of network functions, which makes it a useful tool for discussions about theory and complex network design. The TCP/IP model, in contrast, is frequently used for real-world application since it closely resembles the internet's protocol set. Aspects of the Physical and Data Link levels of the OSI model are included in the Network Interface layer of the TCP/IP model.

The TCP/IP model was developed by ARPANET within the Department of Defense in the United States and later became the foundation of the modern internet, while the OSI model is a creation of the ISO, representing an international effort to standardize networking protocols. Also OSI is vertically approached while TCP/IP is horizontally approached. Moreover, delivery of a packet is guaranteed in the OSI model but not in the TCP/IP model.

Despite these differences, both models are helpful starting places for comprehending networking ideas. Both models are frequently used by network administrators, with the TCP/IP model remaining applicable and practical for actual network implementation while the OSI model is more academic and instructive. The decision between the two approaches ultimately comes down to the situation and level of information needed to solve certain networking problems.