SCT212-0717/2022

NETWORK SYSTEM AND ADMINISTRATION

The OSI (Open Systems Interconnection) model and the TCP/IP (Transmission Control Protocol/Internet Protocol) model are both frameworks that describe networking protocols and their functions, but they have key differences and some similarities.

The OSI model consists of seven layers, each with a specific role:

Physical Layer, Deals with the physical transmission of data over a medium.Data Link Layer, Manages the flow of data between two directly connected nodes.Network Layer,Handles routing and forwarding of data packets across different networks.Transport Layer, Ensures end-to-end communication, providing reliability and error detection.Session Layer, Manages sessions and connections between applications.Presentation Layer, Translates data into a format that applications can understand.Application Layer, Provides network services to application processes.

The TCP/IP model, on the other hand, consists of four layers:

Network Interface Layer. Similar to OSI's Physical and Data Link layers, it manages the physical transmission and link-layer functions.

Internet Layer. Comparable to the OSI Network Layer, it handles routing and packet forwarding.

Transport Layer.This closely aligns with OSI's Transport Layer, focusing on end-to-end data delivery and reliability.

Application Layer. A combination of the upper layers in the OSI model (Session, Presentation, and Application), providing application-specific functionality.

Differences.

Number of Layers: OSI has seven layers, while TCP/IP has four layers, merging some of OSI's functions into fewer layers.

Development Origins: OSI was developed as a theoretical framework, while TCP/IP was created for the practical needs of the early internet.

Similarities.

Both Models Describe Networking Protocols Both models aim to explain how different network protocols work together to facilitate communication.

Layered Approach Both models employ a layered approach to simplify the understanding of network processes.

Transport Layer: Both models have a layer dedicated to ensuring reliable end-to-end communication (Transport Layer in OSI and Transport Layer in TCP/IP).

Both the OSI and TCP/IP models describe network protocols, the key difference lies in the number of layers and their origins.