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# Video Case 01

**Chapter 1: Introduction**

**Watch the video at:** https://youtu.be/kl0Gz8qq41c

**Summary:** This video walks us through the various layers of the OSI Reference Model and their purpose, comparison of the OSI model to the TCP/IP Model and Layer 2 & 3 devices.

**Video case Questions:**

1) What are the 7 Layers of OSI Reference Model and their purpose?
    a. Application – Applications call functions in the API to send network traffic.
    b. Presentation – Converts data from application into a form suitable for the network.
    c. Session – Controls communication between two Applications.
    d. Transport – Ensures the data arrives in the same order it was sent and is not duplicated.
    e. Network – Determines the path used to transport the data across the network.
    f. Data Link – Provides error checking and creates the packet to be sent over the network.
    g. Physical – Sends the data over the network media to the other party.
2) Briefly explain the process that takes place while passing the message from one host to another host?
    a. The computer communicates with the Application layer, the application layer communicates with the Presentation layer and so on till the end. As it goes down the layers more data is added such as packet headers and checksums. Then the data is sent to the Physical layer of the second computer. The Physical layer checks the check sum and passes it to the Data Link and so on till it reaches the application layer of the second computer. As the data goes up the layers in the second computer, packet headers and checksums are removed, and the data is presented.
3) Difference between OSI Model and TCP/IP Model?
    a. The differences between OSI and TCP/IP are the number of layers. TCP/IP has only 4 layers: Application, Transport, Internet, Network Interface. Even though it's less layers they can still roughly be mapped to the OSI model.
4) What are the various protocols/services in each layer of TCP/IP?
    a. Application – HTTP, SMTP, DNS, RIP
    b. Transport – TCP(Reliable), UDP(Unreliable)

c. Internet – IPv4, IPv6
d. Ethernet, Wireless, Frame Relay, ATM

5) What is the purpose of Layer 2 and Layer 3 devices?
    a. The purpose of Layer 3 and Layer 3 Devices are to have switches routing the data between devices. Layer 2 uses switches to for example make sure that a printer doesn't see packets going from the server to the computer and that the server doesn't see packets going from the computer to the printer. Layer 3 Devices are switches that allow data to be routed between other networks, such as multiple different Local Area Networks.