Session 4 - OSI MODEL

Let's make things simple.(Please Do Not Throw Sausage Pizza Away - this word will help you to remember the layers in order. It will be useful to start our learning.)

Story: You are sending a message to your friend. This message travels through 13 layers to reach and be understood by your friend. These layers represent both the sending and receiving processes, with the Physical Layer acting as a shared path.

Message Communication Flow:

You Think of a Message

↓

Application Layer   (Message is typed in an app like WhatsApp)

↓

Presentation Layer   (Message is formatted or encrypted)

↓

Session Layer   (A connection between you and your friend is established)

↓

Transport Layer   (Message is divided into chunks and numbered)

↓

Network Layer   (IP address of the receiver is added)

↓

Data Link Layer   (Sender and receiver MAC addresses are added)

↓

Physical Layer (Shared)   (Message is converted to signals and transmitted)

↓

Data Link Layer   (Receiver checks MAC address and accepts the message)

↓

Network Layer   (Receiver's IP is verified)

↓

Transport Layer   (Chunks are reassembled and checked for errors)

↓

Session Layer   (Connection is maintained during transfer)

↓

Presentation Layer   (Message is decrypted and prepared for display)

↓

Application Layer   (Friend reads the message in the app)

↓

Friend Understands the Message

Summary: OSI model is a piece of cake when you see it from both sides and it seems a bit longer but believe me the entire process we discussed will happen in a fraction of seconds. I highlighted the sending process in blue and receive in green and the interlink in yellow for easy understanding and this is all osi model about.

TCP/IP Model - Cyber Security Fundamentals

Story: You are sending a message to your friend. Instead of using the 13-layer OSI model, this version simplifies the communication process into 9 distinct steps based on the TCP/IP model. There are 4 layers on the sender's side, 1 shared layer, and 4 layers on the receiver's side.

Message Communication Flow:

You Think of a Message

↓

Application Layer

(Message is typed, formatted, and session is established — all functions are combined here.)

↓

Transport Layer

(Message is divided into segments, numbered, and prepared for delivery.)

↓

Internet Layer

(Each segment is assigned the IP address of the destination.)

↓

Network Access Layer

(MAC addresses are added, and the frame is finalized for transmission.)

↓

Physical Layer (Shared)

(Data is transmitted as electrical/optical signals or wireless pulses.)

↓

Network Access Layer

(Receiver's MAC address is validated; frame is accepted.)

↓

Internet Layer

(IP address is verified and routing is confirmed.)

↓

Transport Layer

(Segments are reassembled and errors are checked.)

↓

Application Layer

(Message is presented, the session concludes, and your friend reads it.)

↓

Friend Understands the Message

Summary:The TCP/IP model simplifies end-to-end communication by merging similar OSI layer functions. It moves a message through 9 logical steps: 4 from sender, 1 shared transmission layer, and 4 from the receiver. This streamlined model boosts efficiency while maintaining reliable delivery. And you already know about the colour format!