

NETWORKING BASIC

OSI MODEL

CHANCHAL DEY

What is OSI model?

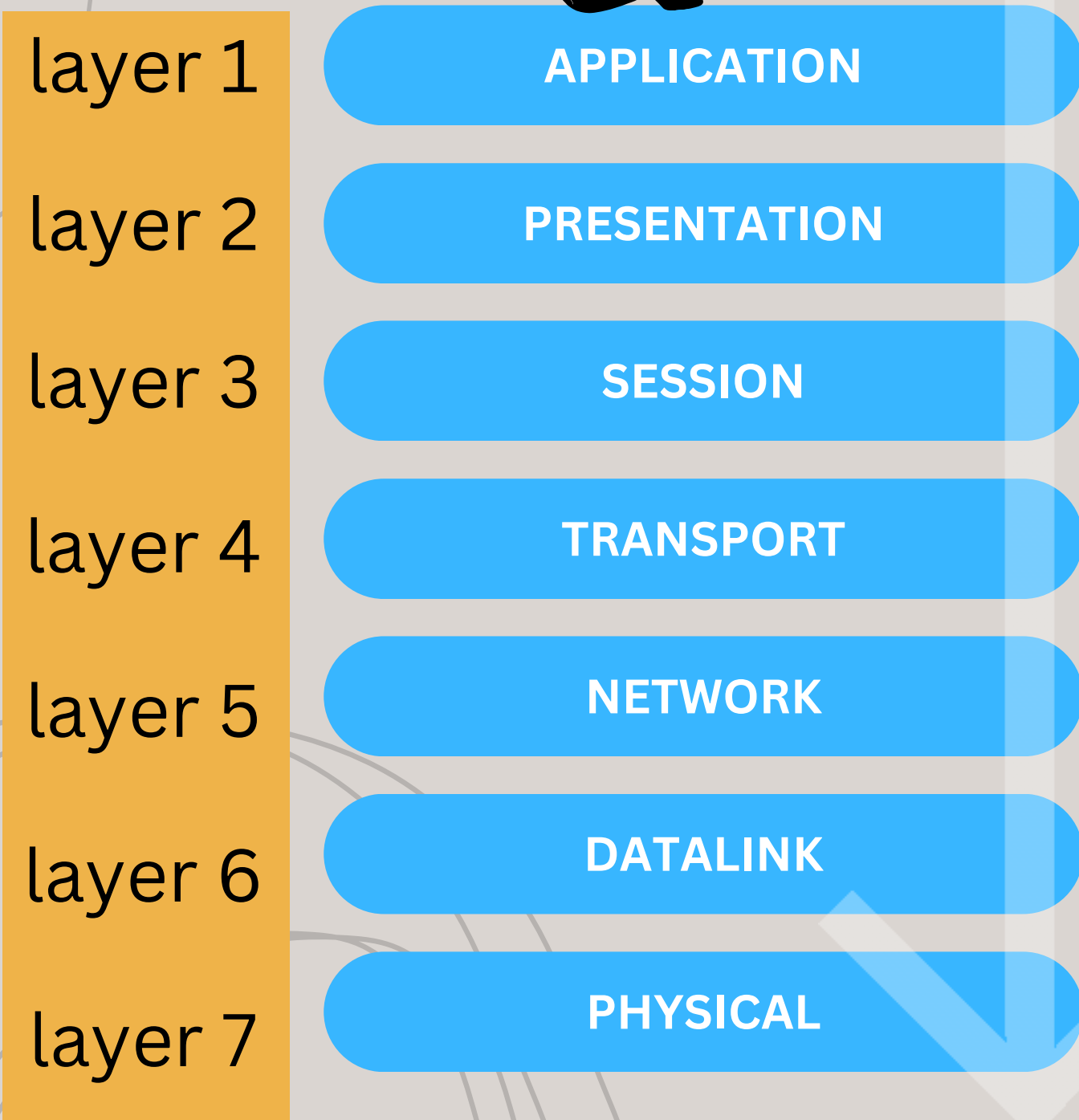
The OSI (Open Systems Interconnection) is a reference model that describes how information travels between devices in a network.

why networking models like OSI are important.

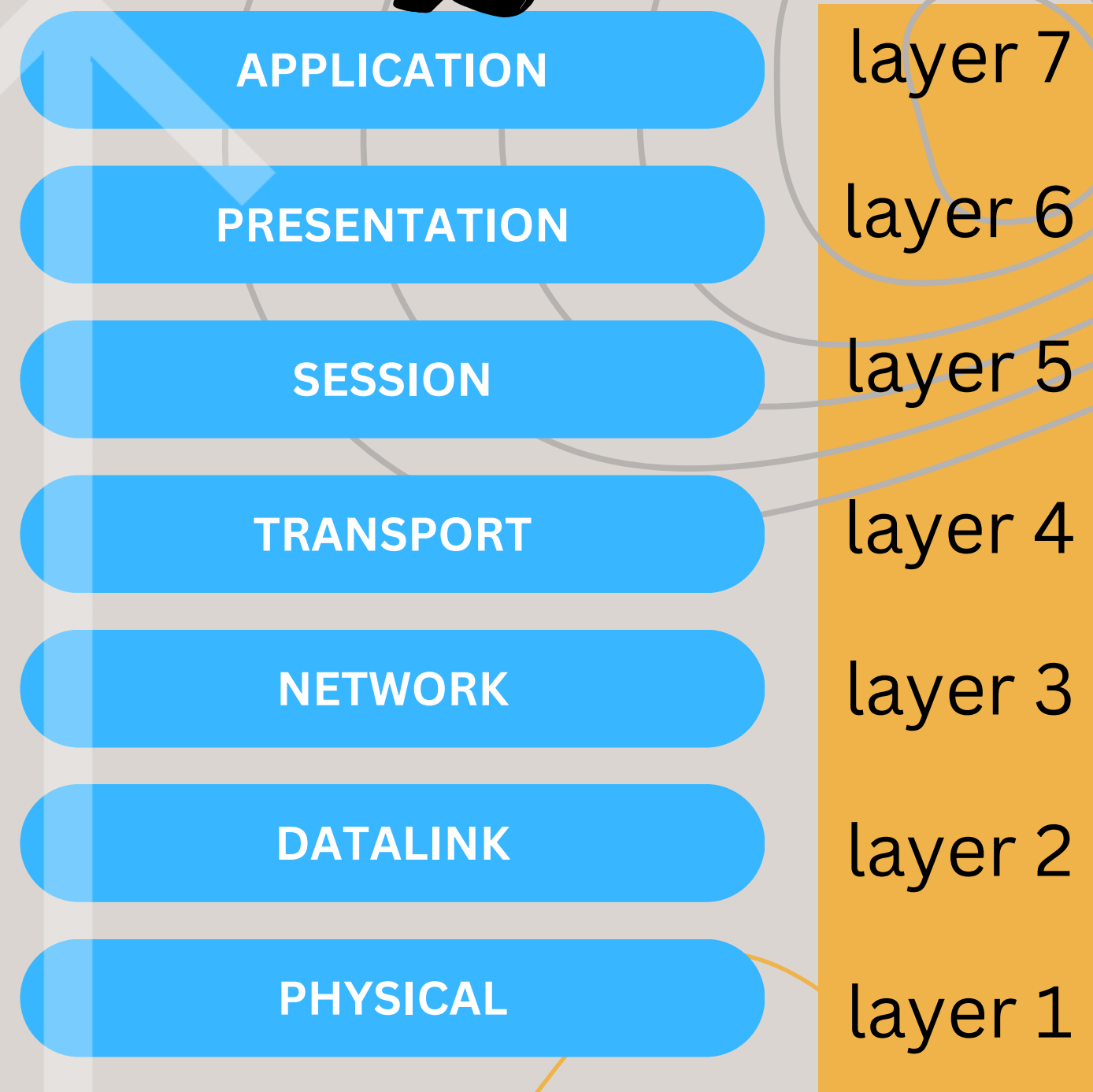
- Break down network tasks into simpler layers, making it easier to understand and manage how devices communicate.
- Provide a structured approach to pinpoint and fix network problems more effectively by isolating issues to specific layers.
- establish a common language for IT professionals to discuss and learn about networking, ensuring everyone understands protocols and best practices.



sending data



receiving data



APPLICATION

messenger, Web Browser, http://, ftp

PRESENTATION

What is the format of data?, Encryption, Decyption, compression, Decompression

SESSION

sets up, manages, and ends the connections (sessions) via port number between applications.

TRANSPORT

breaks down data into smaller pieces (called packets) , transfar through them protocols like TCP or UDP

NETWORK

It finds the best path for data to travel from the sender to the receiver, use source IP destination IP

DATALINK

It organizes data into frames, It uses unique hardware addresses (MAC addresses) to identify devices on the same network,

PHYSICAL

Manages the actual physical connection between devices, like cables, switches, and network interface cards.

Application Layer:

This is where users interact with the network. It includes applications like web browsers and email programs.

Presentation Layer:

It translates data into a format the application layer can understand. It handles encryption, decryption, compression, and data translation.

Session layer

It manages the sessions or connections between computers. It keeps track of whose turn it is to send data and makes sure connections are properly established and terminated.

Transport Layer

breaks down data into smaller pieces (called packets), It ensures data is delivered accurately and in the right order. It uses port numbers to direct data to the right application

Network Layer:

It figures out the best path for data to travel between different networks. It uses IP addresses to identify devices.

Data Link Layer:

It ensures data is sent without errors within the same network. It uses MAC addresses and organizes data into frames.

Physical Layer:

This is the hardware part, like cables and switches. It handles the actual physical connection between devices.

TCP (Transmission Control Protocol)

- **TCP ensures that all data sent is received correctly and in the right order. If data is lost, it is resent.**
- **A connection is established between the sender and receiver before data is sent.**
- **TCP performs error-checking and error-recovery. If any data is corrupted, it is resent.**
- **Used for applications where reliability is important, like web browsing (HTTP/HTTPS), email (SMTP), and file transfer (FTP)**

UDP (User Datagram Protocol)

- **UDP does not guarantee that all data sent will be received or received in the correct order. Lost data is not resent.**
- **No connection is established between the sender and receiver. Data is sent as individual packets.**
- **UDP performs basic error-checking but does not correct errors. Corrupted data is discarded.**
- **UDP sends data as fast as the sender can deliver and the receiver can accept.**
- **Used for applications where speed is more important than reliability, such as video streaming, online gaming, and voice calls (VoIP).**

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THANK YOU

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