

Department of Artificial Intelligence and Data Science

23ITT204 – Computer Networks

II B.Tech – AI&DS / IV SEMESTER

UNIT I :INTRODUCTION AND APPLICATION LAYER

Topic 4: OSI Layer Architecture

Session's Agenda:

- Empathize
- Define
- Ideate
- Prototype
- Test
- Real-world Scenario
- Challenges
- Conclusion



Recap

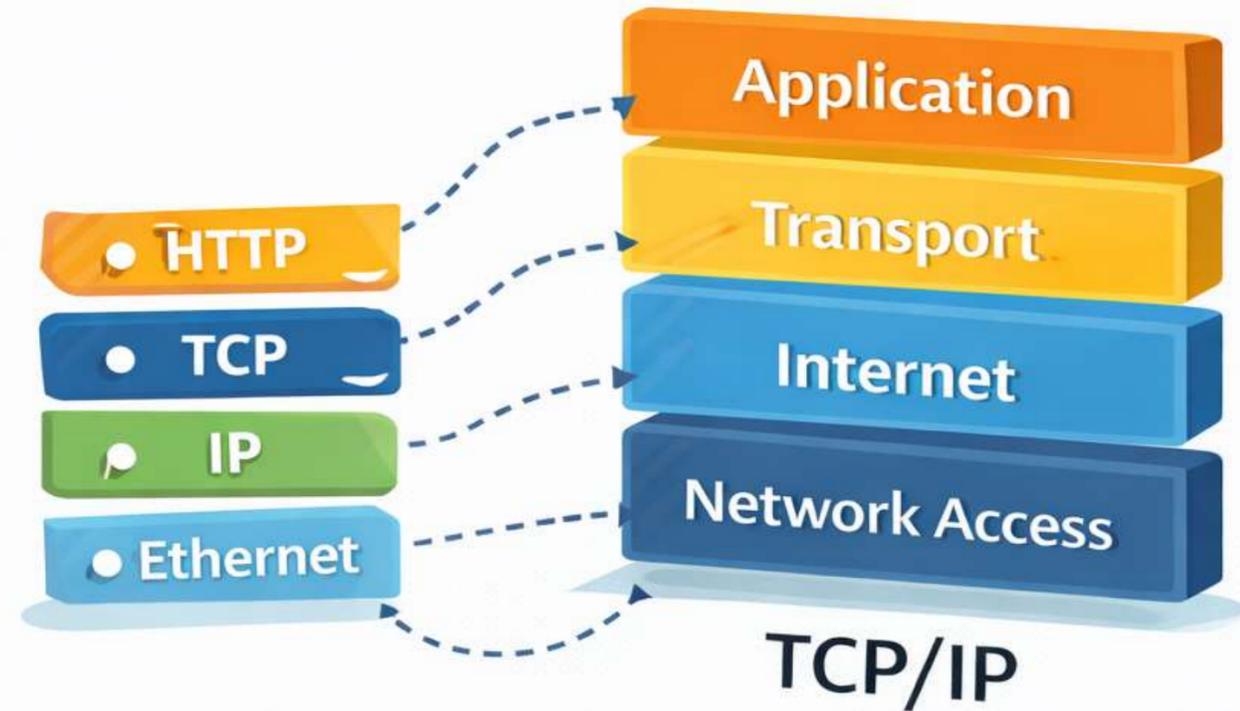
 Divide into Layers

 Assign Specific Roles

 Use Different Protocols



 Flexibility & Scalability

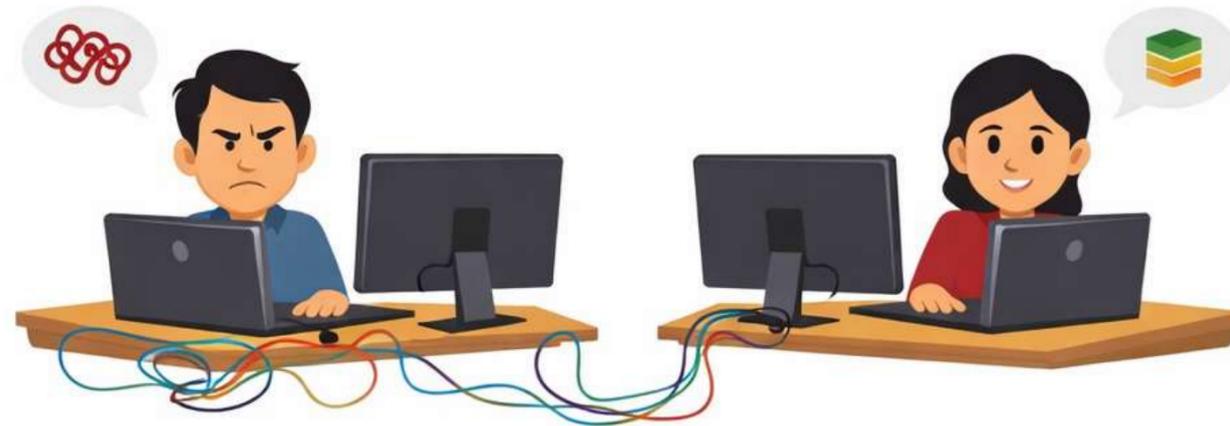


Layers + Specific Roles + Protocols = Solution: **TCP/IP**

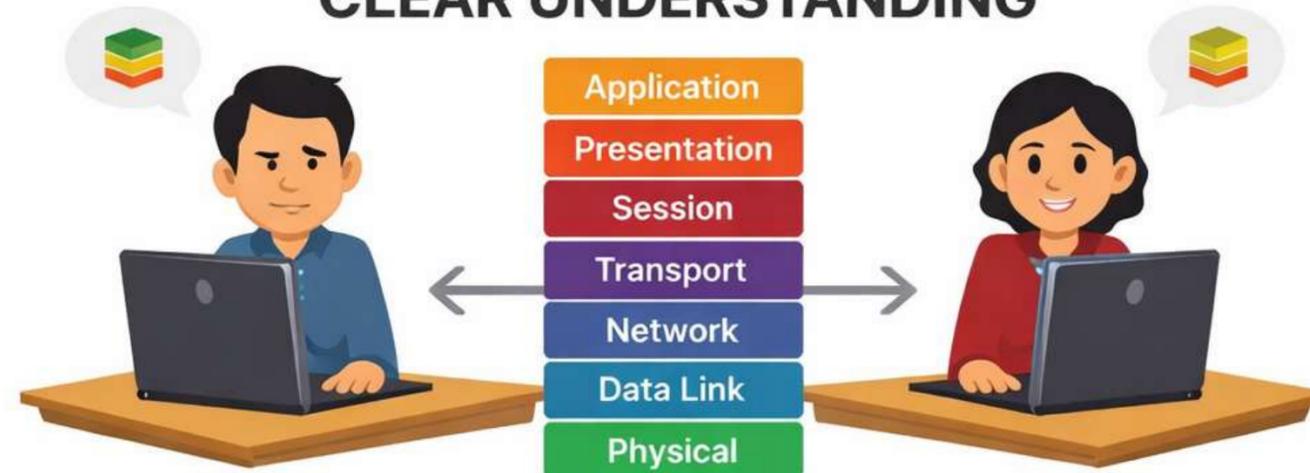
Empathize – Why OSI Layers?

Why do we need OSI layers to avoid confusion and ensure clear communication between networked devices?

POOR COMMUNICATION



CLEAR UNDERSTANDING



Define – Problems in Communication

What communication problems arise when data transmission lacks a clear layered structure, like the **OSI**?



CONFUSION

Unorganized data



MISINTERPRETATION

Incorrect data format

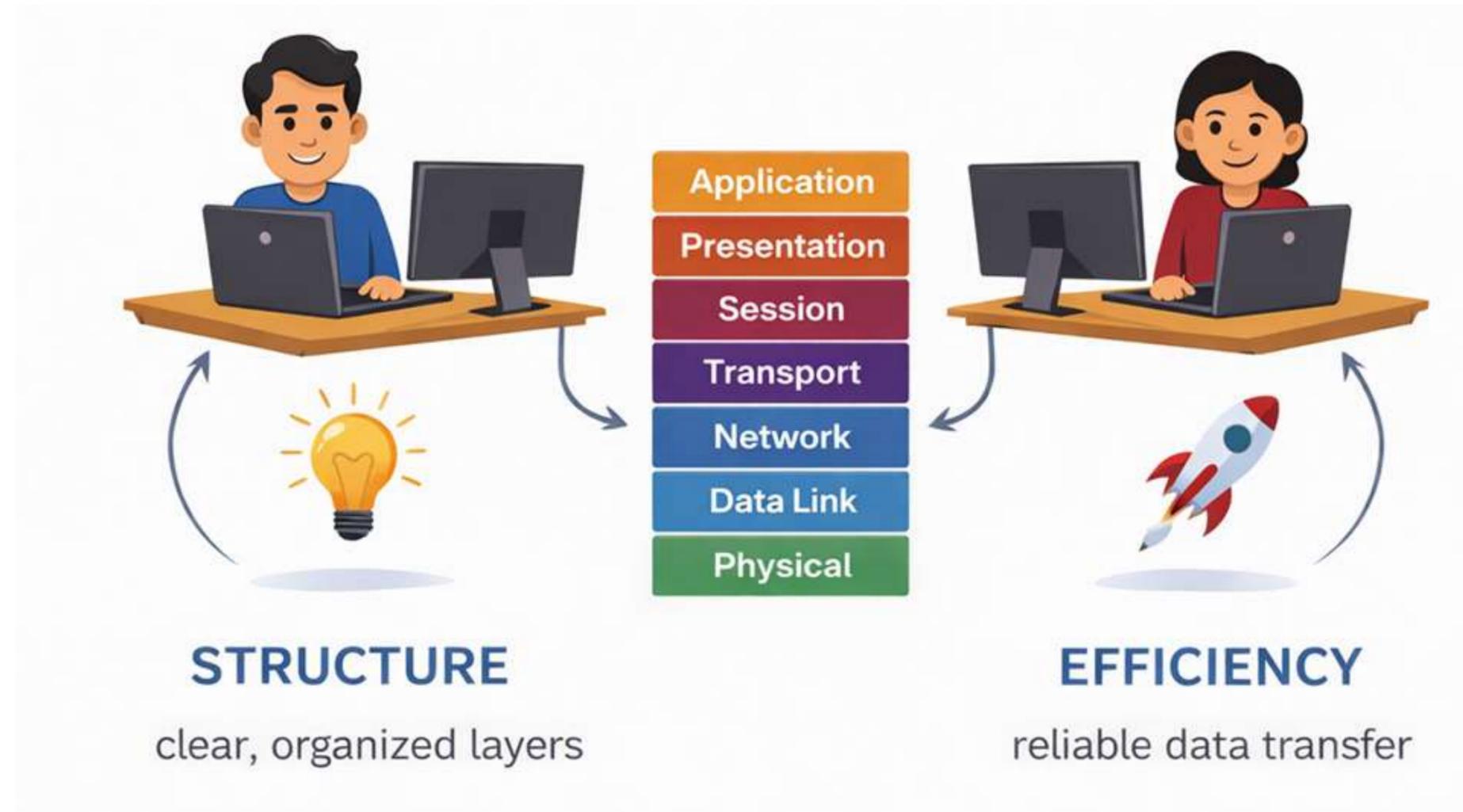


ERRORS

Transmission failure

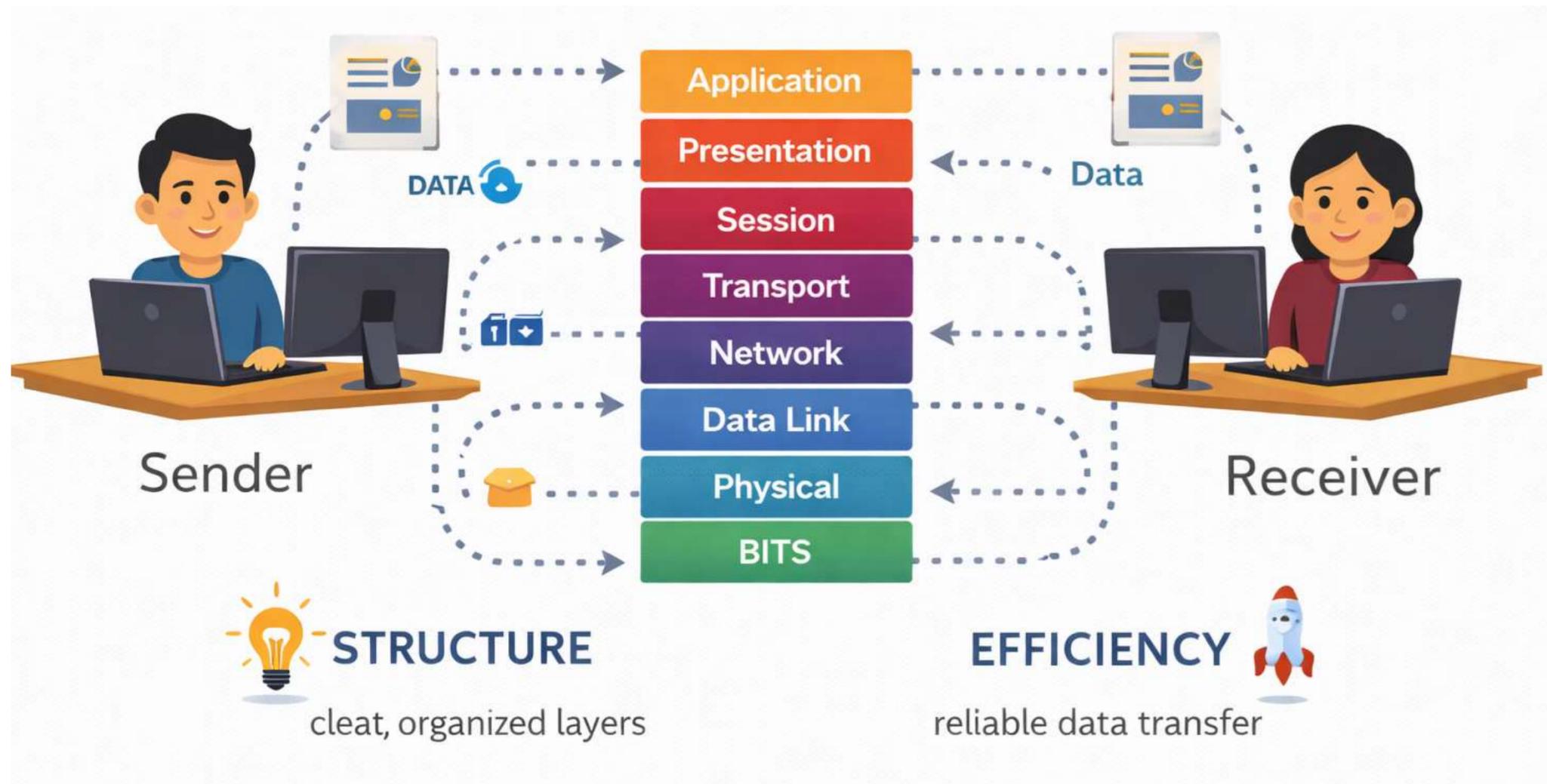
Ideate – Designing OSI Layer

How can the OSI layer model solve communication problems and enhance network efficiency?



Prototype – OSI Layers

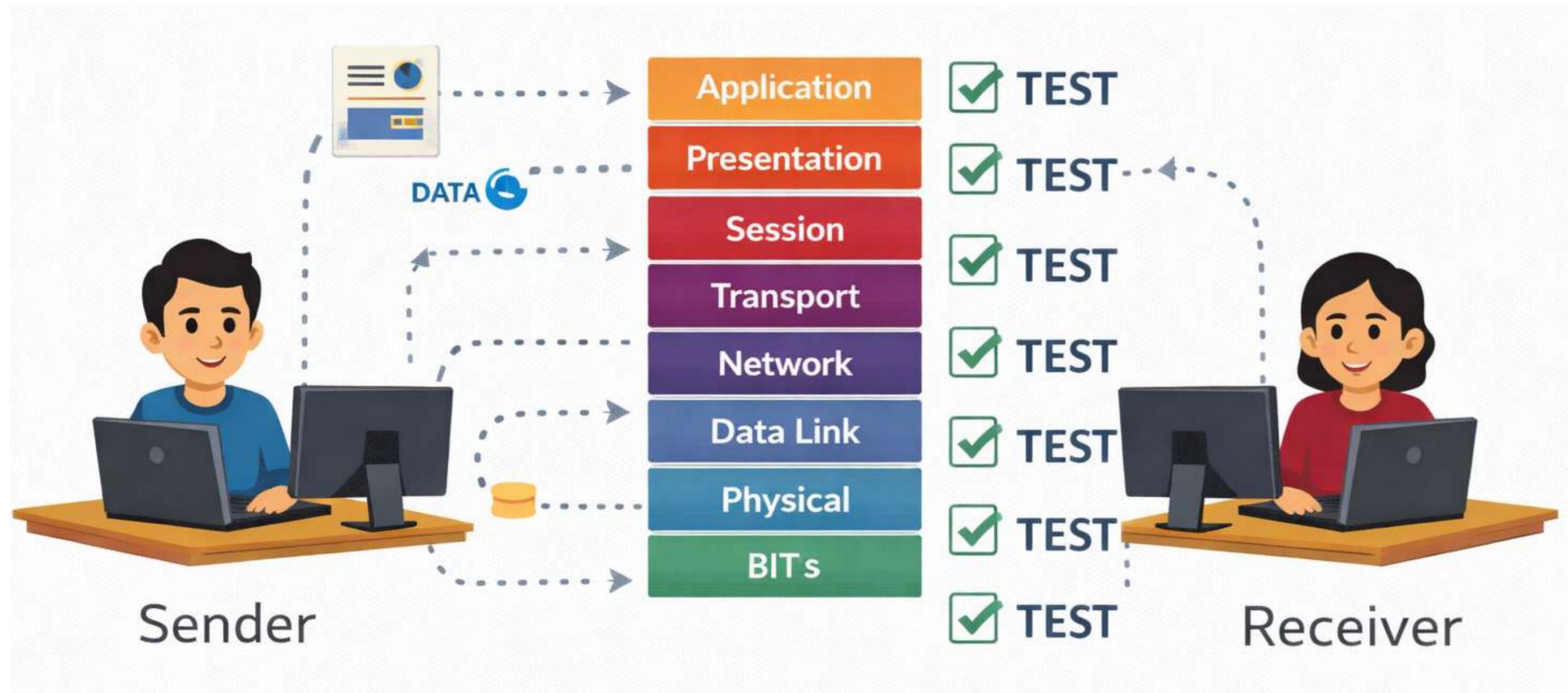
How can the OSI layer model be prototyped to demonstrate step-by-step data flow from sender to receiver?



Test – How Data Travels

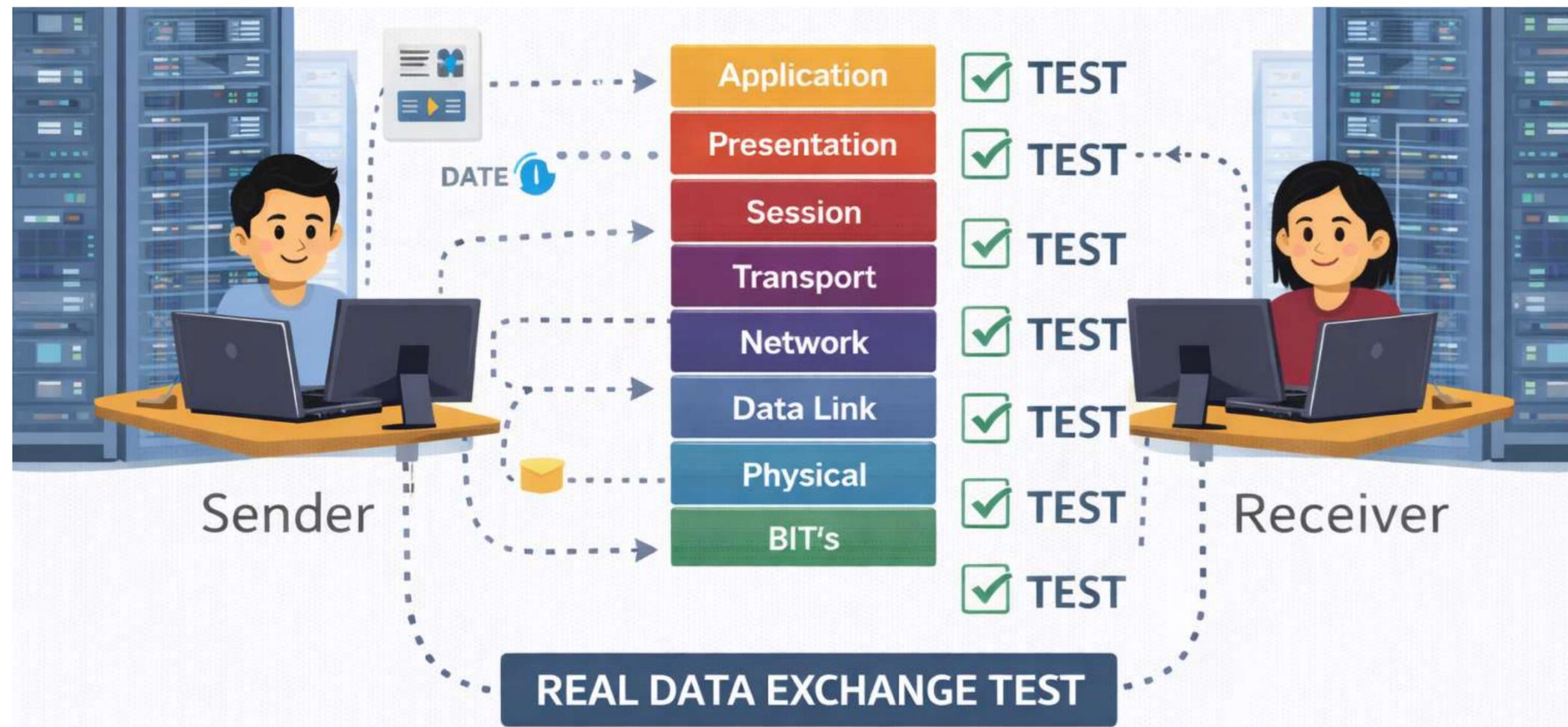
How does a message reach another device?

Data is broken into packets, travels through each layer, and reassembled at the destination.



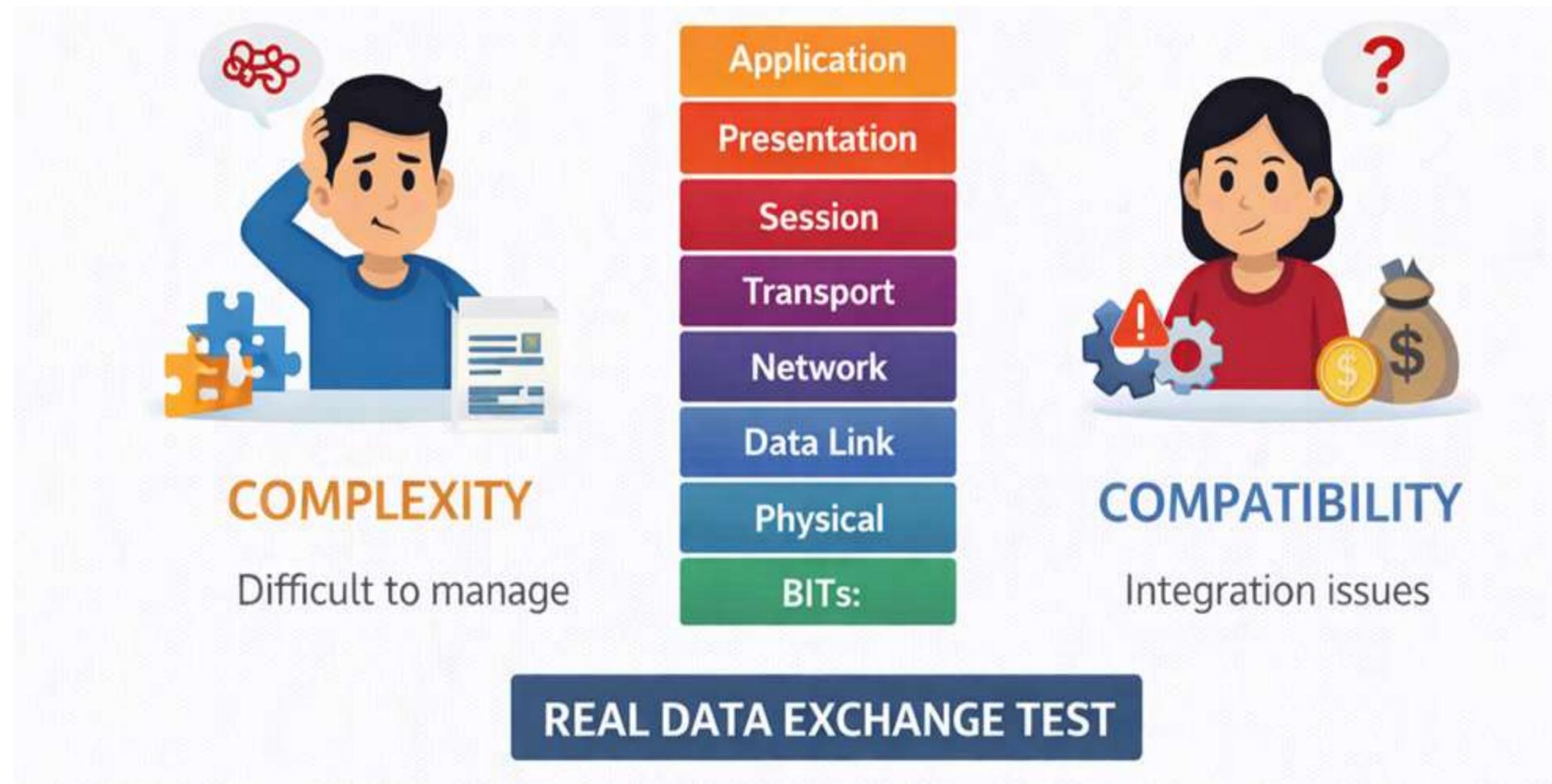
Real-world Scenario

How can data transmission be tested to verify that information travels correctly through each OSI layer from sender to receiver?



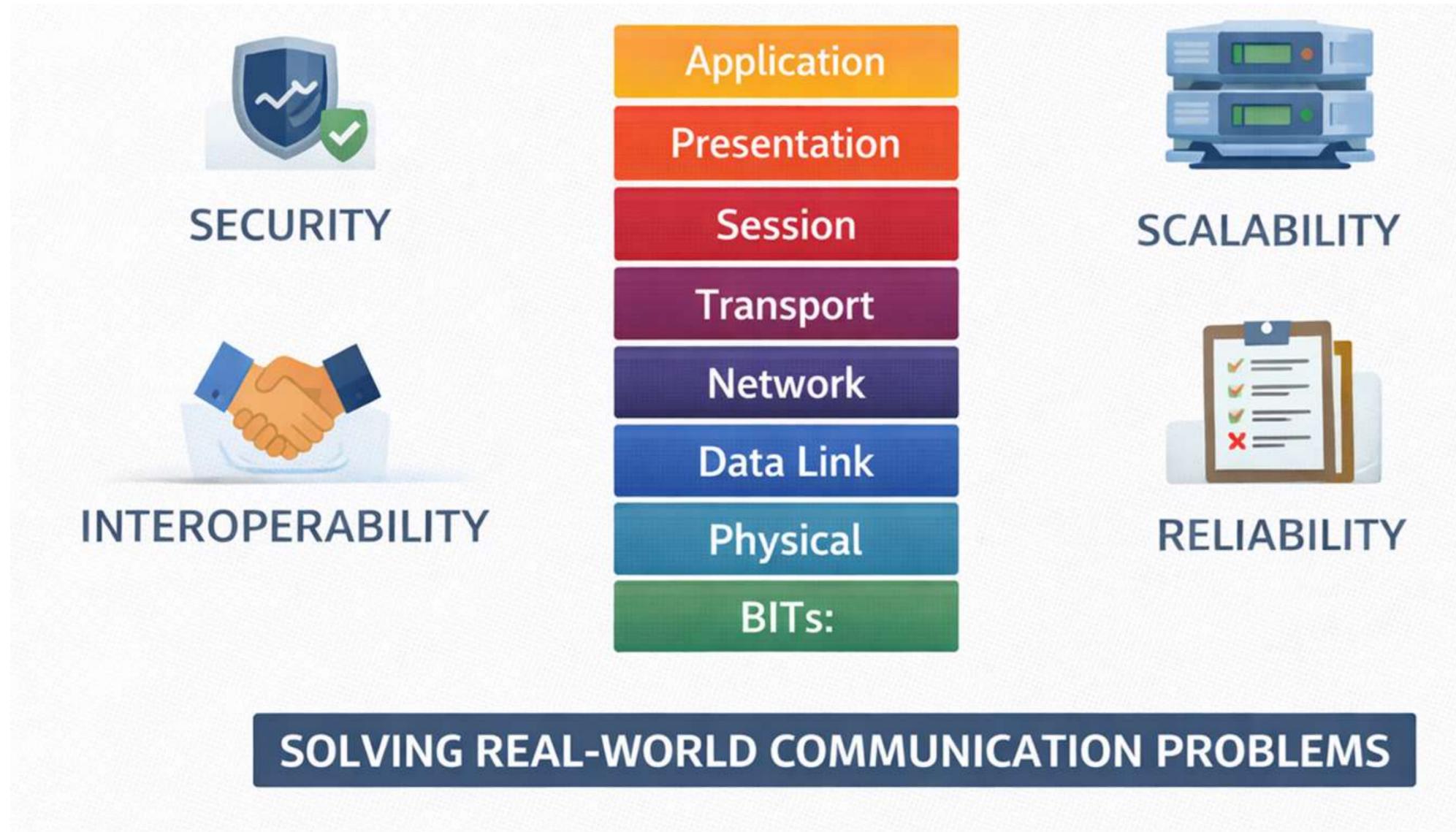
Challenges of OSI Layers

What are the key challenges faced while implementing and managing communication using the OSI layer architecture?

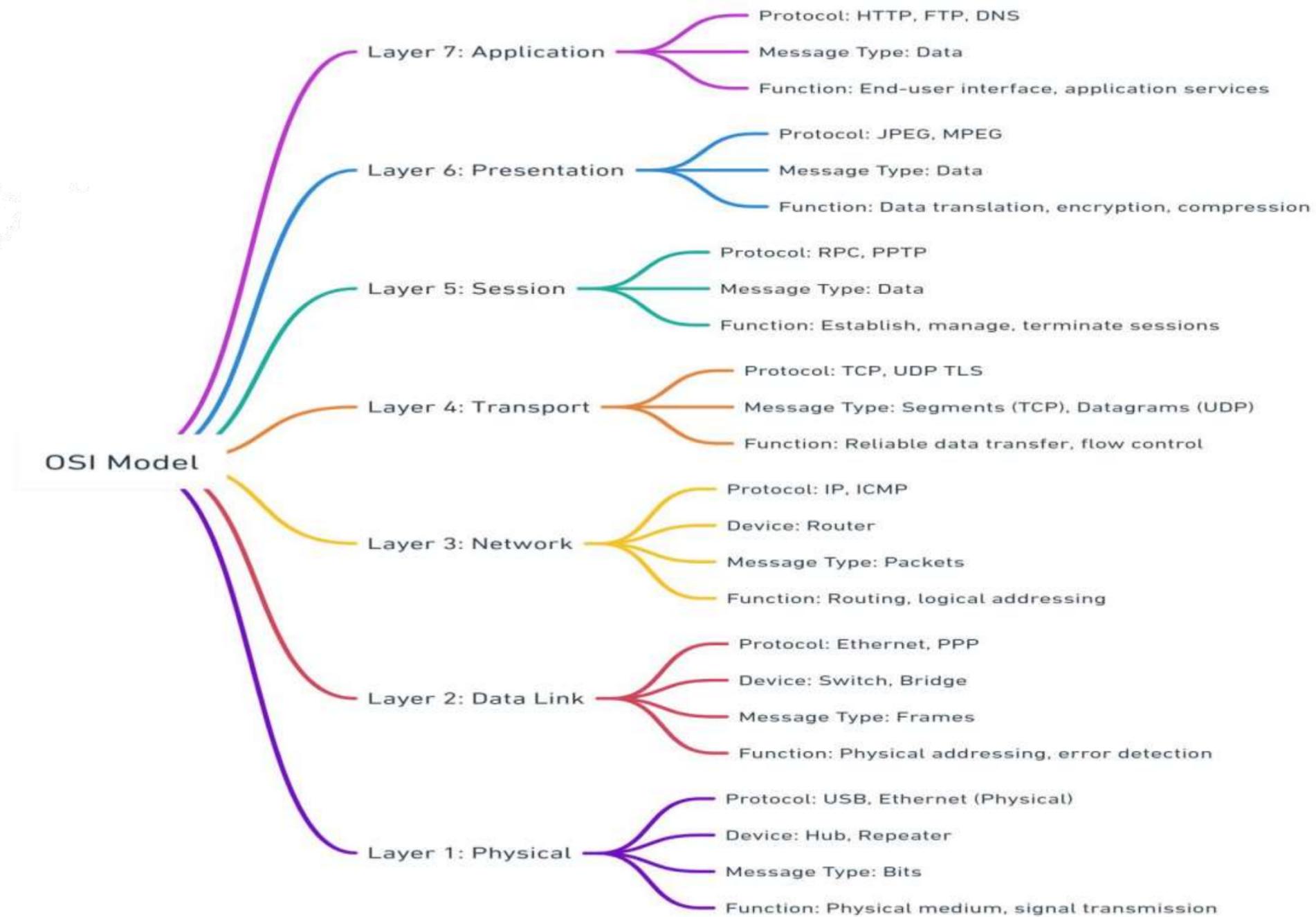


Conclusion – OSI solves Real Problems

Why is OSI Layer essential?



Mindmap



Thank You