

Principle: Layering

File Transfer



- Data format
- Packetization
- Reliability, error checking
- Congestion and flow control
- Packet delivery and routing
- Link delivery
- Signal modulation and framing

Layering

- Decompose communication into a set of smaller, well-defined components
- Components build on top of one another: they layer
- Each layer has a well-defined interface and clear responsibilities
 - ▶ Routing layer does not worry about application
 - ▶ Application layer does not worry about how signals represented
- Each layer can evolve independently

Layering

Transport

- TCP

reliability,
congestion control, flow control



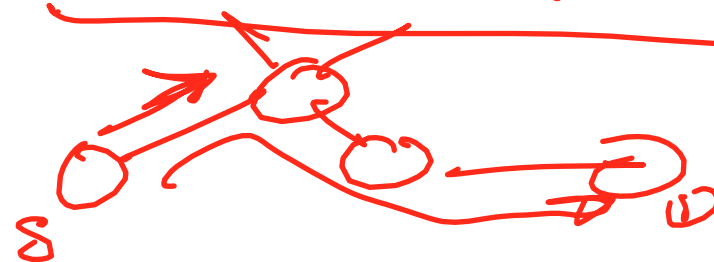
deliver packet
across network

Network

- routes packets destination address



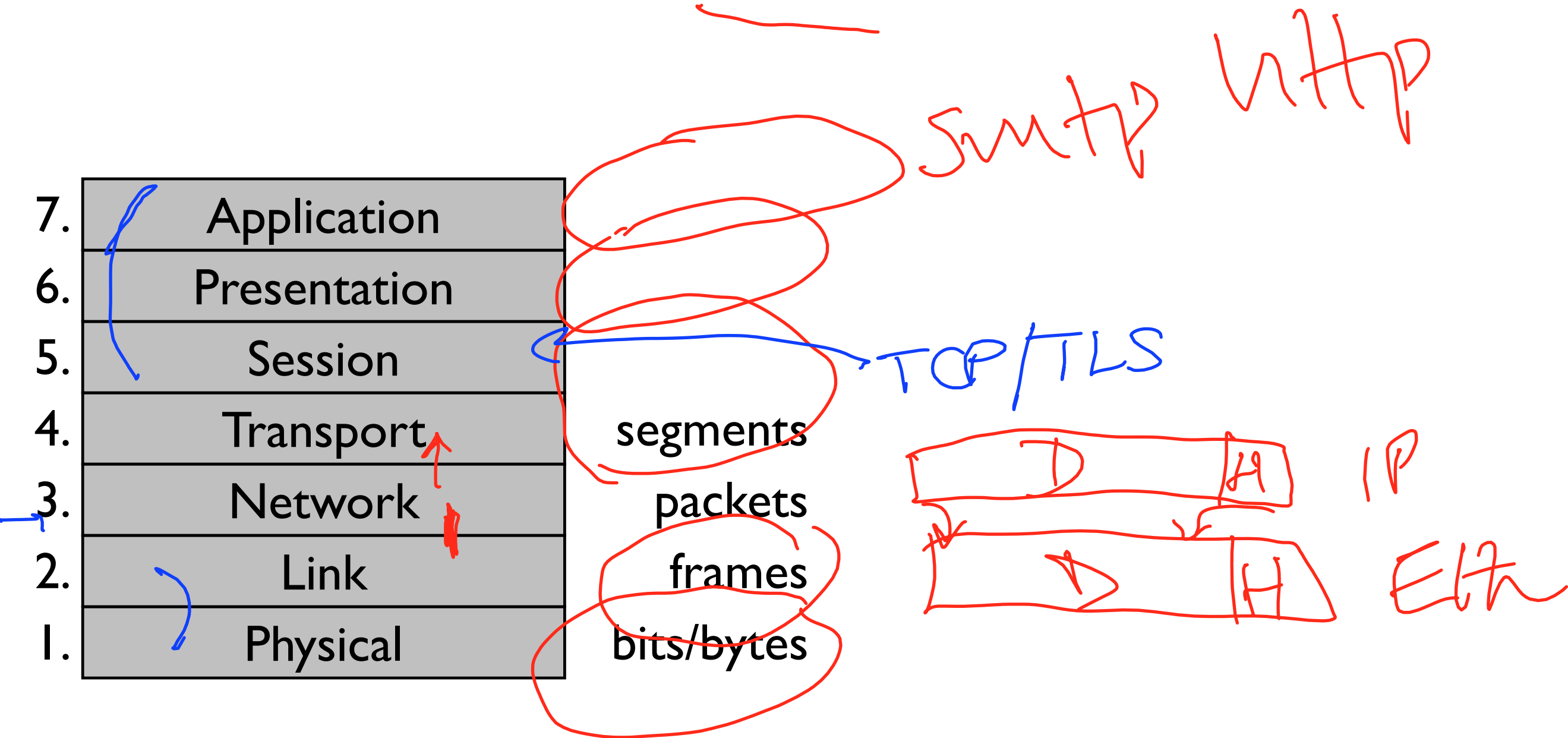
deliver
packet



across link

Link

OSI Model



Layering Principle

- Decompose communication into layers of abstraction
- Separation of concerns
- Each layer can evolve independently

