CSCI 460
Networks and Communications

Network Protocols and Reference Models

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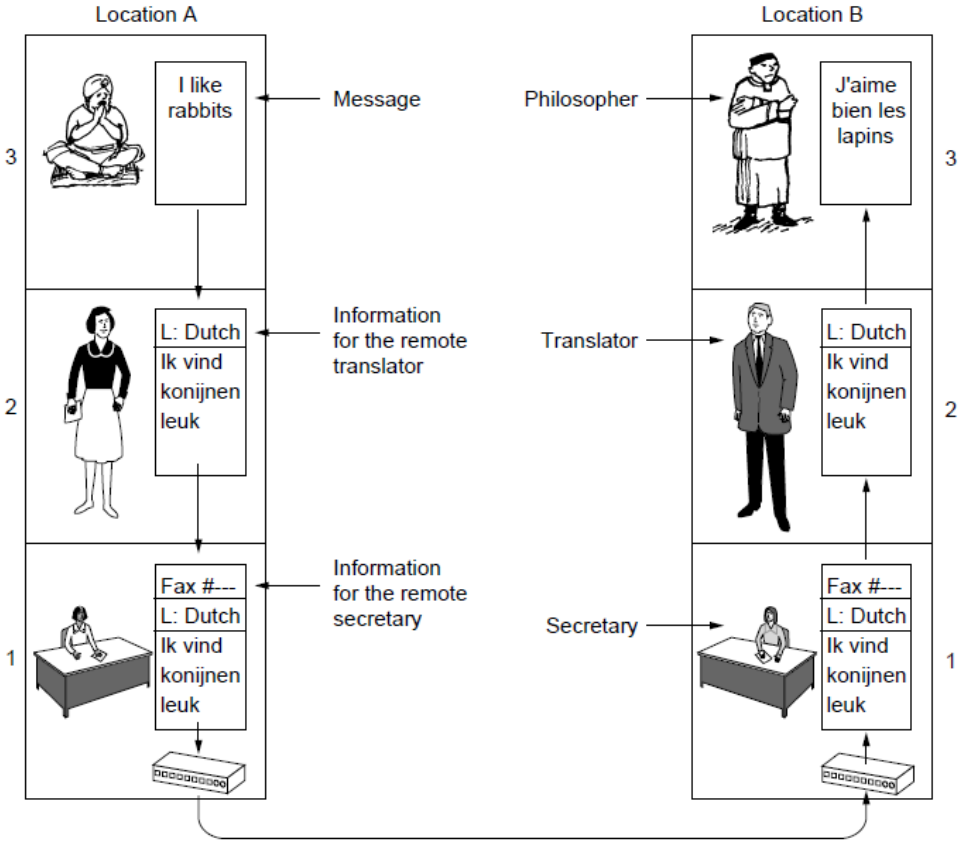
Outline

- Network Protocols and Layers
- Network Reference Models
  - OSI Reference Model
  - TCP/IP Reference Model

Protocol Layers

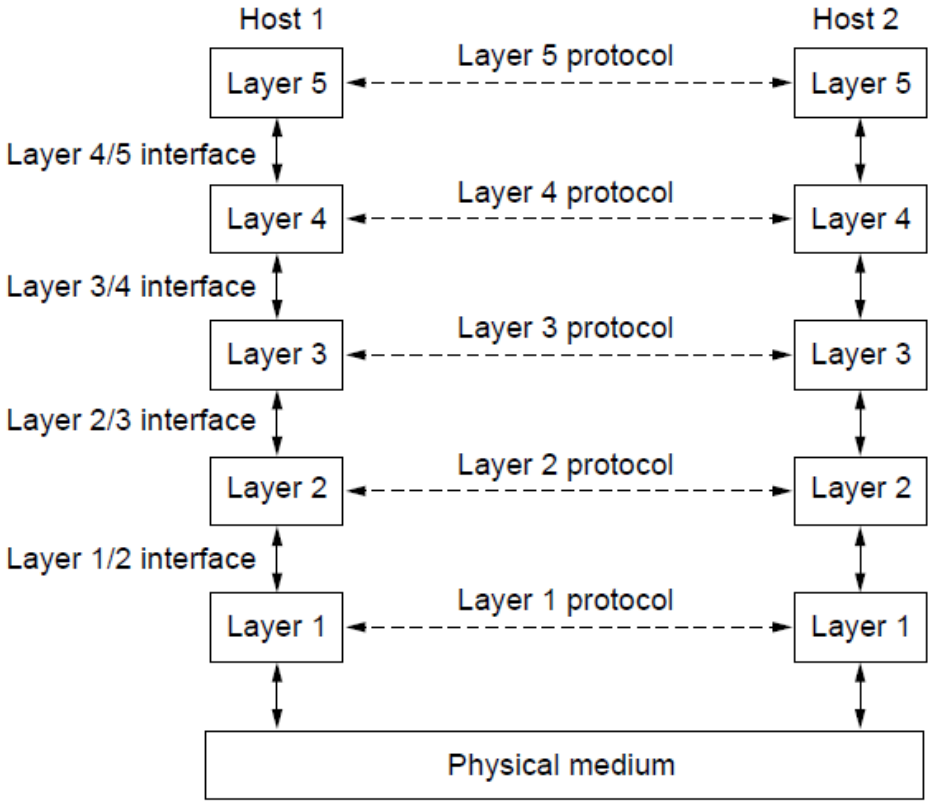
- Example: the philosopher-translator-secretary architecture
- Each protocol at different layers serves a different purpose



Protocol Layers

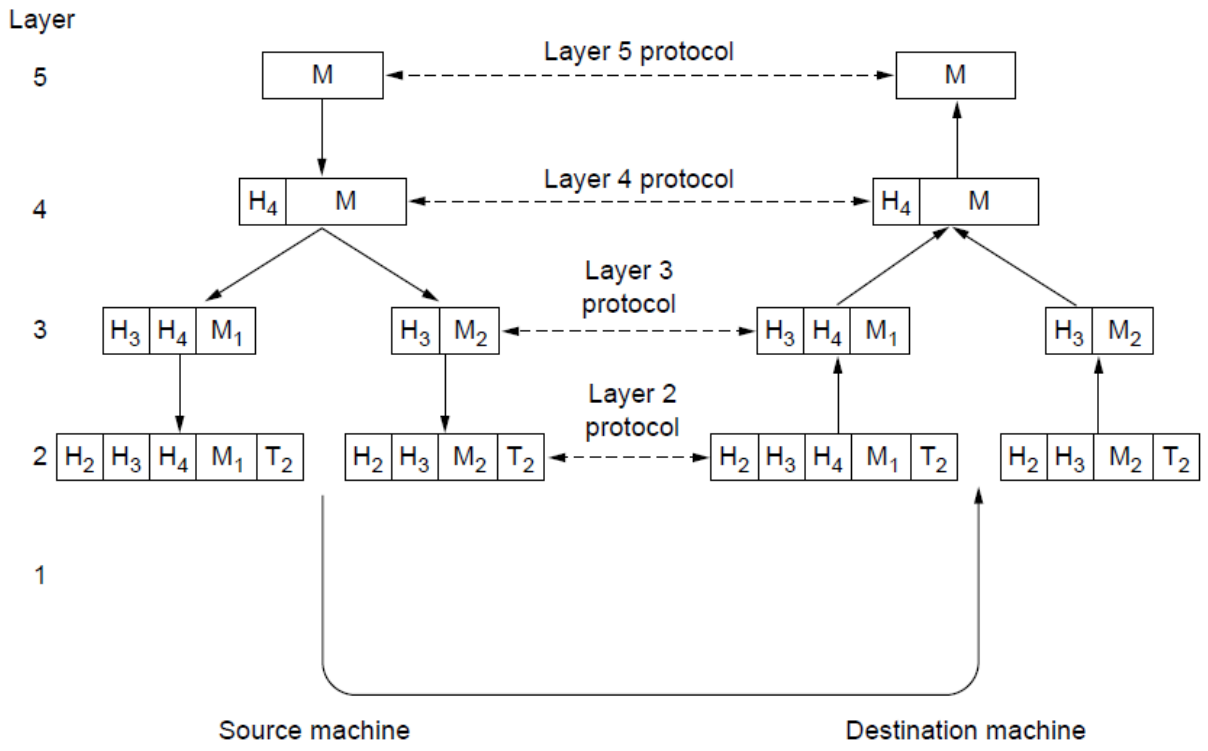
Protocol layering is the main structuring method used to divide up network functionality.

- Each protocol instance talks virtually to its peer
- Each layer communicates only by using the one below
- Lower layer services are accessed by an interface
- At bottom, messages are carried by the medium



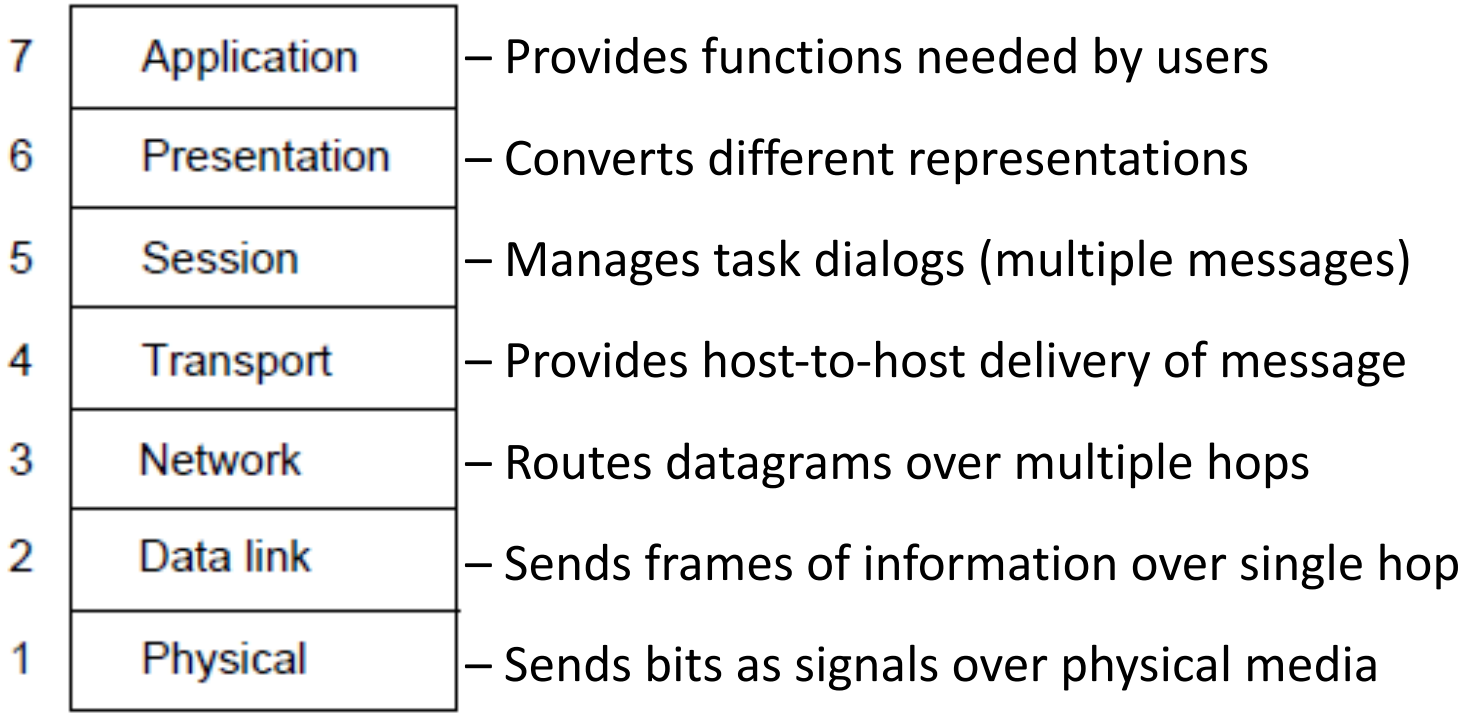
Protocol Layers

- Each layer adds its own header (with control information) to the message to transmit and removes it on receive
- Layers may also split and join messages, etc.

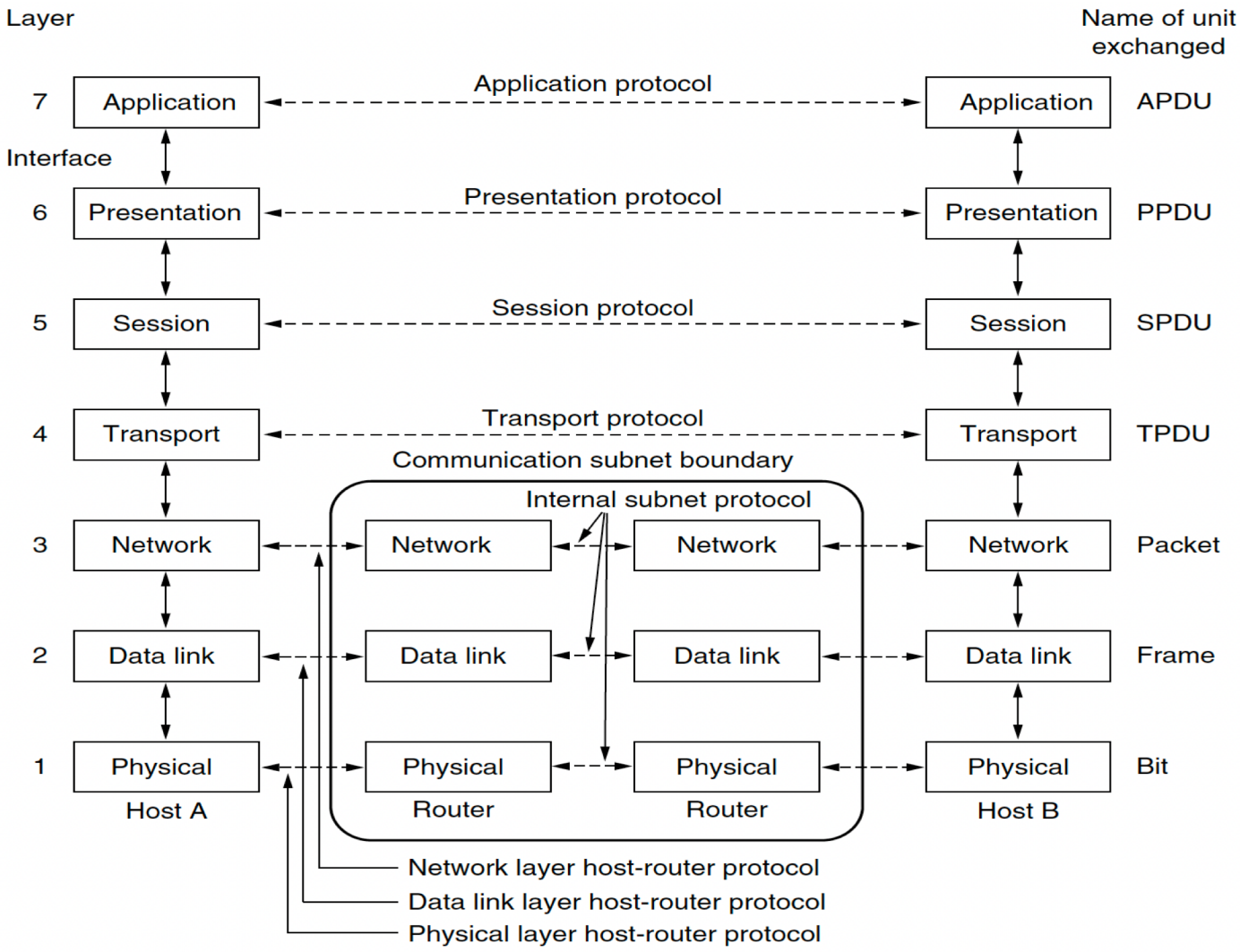


OSI Reference Model

A principled, international standard, seven layer model to connect different systems

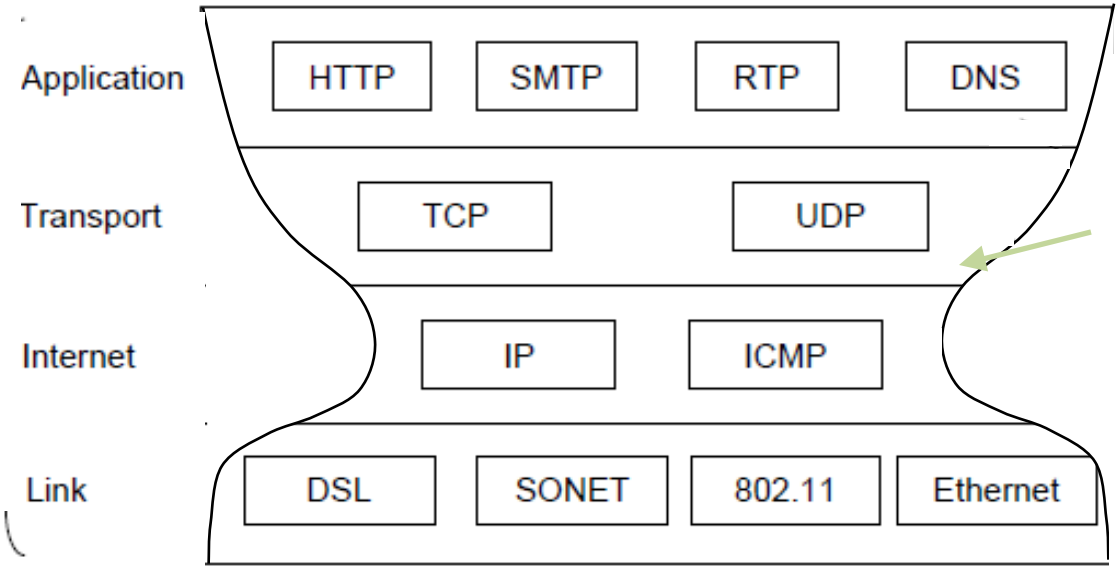


OSI Reference Model



TCP/IP Reference Model

A four layer model derived from experimentation; omits some OSI layers and uses the IP as the network layer.



Protocols are shown in their respective layers

Summary

- Network Protocols and Layers
- Network Reference Models
  - OSI Reference Model
  - TCP/IP Reference Model