

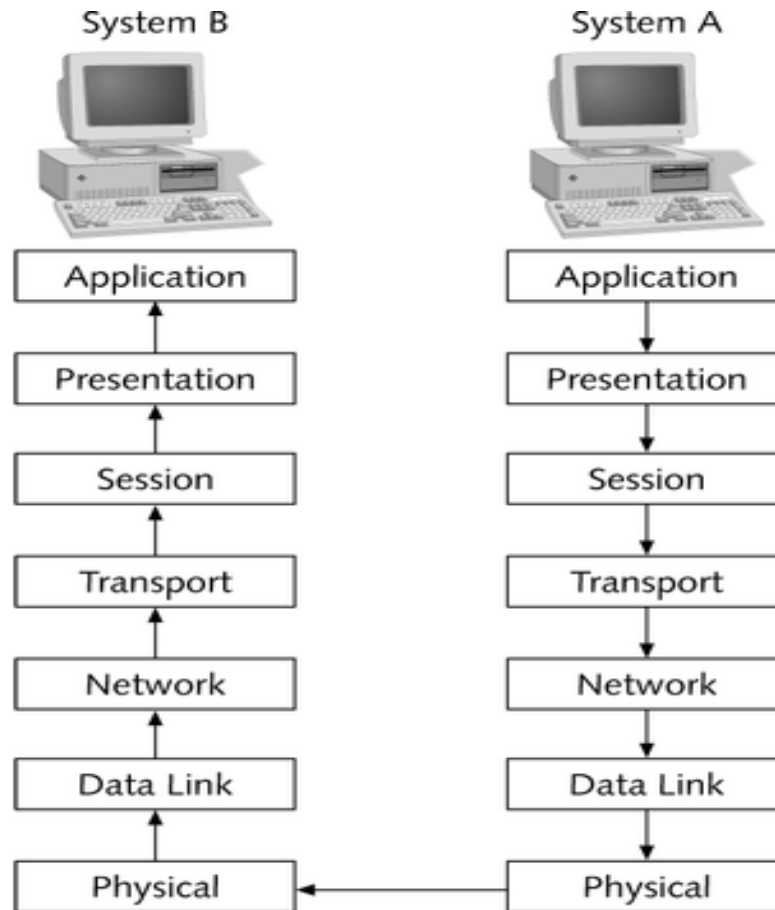
Open System Interconnection Model

Presented by Hung Ba Ngo

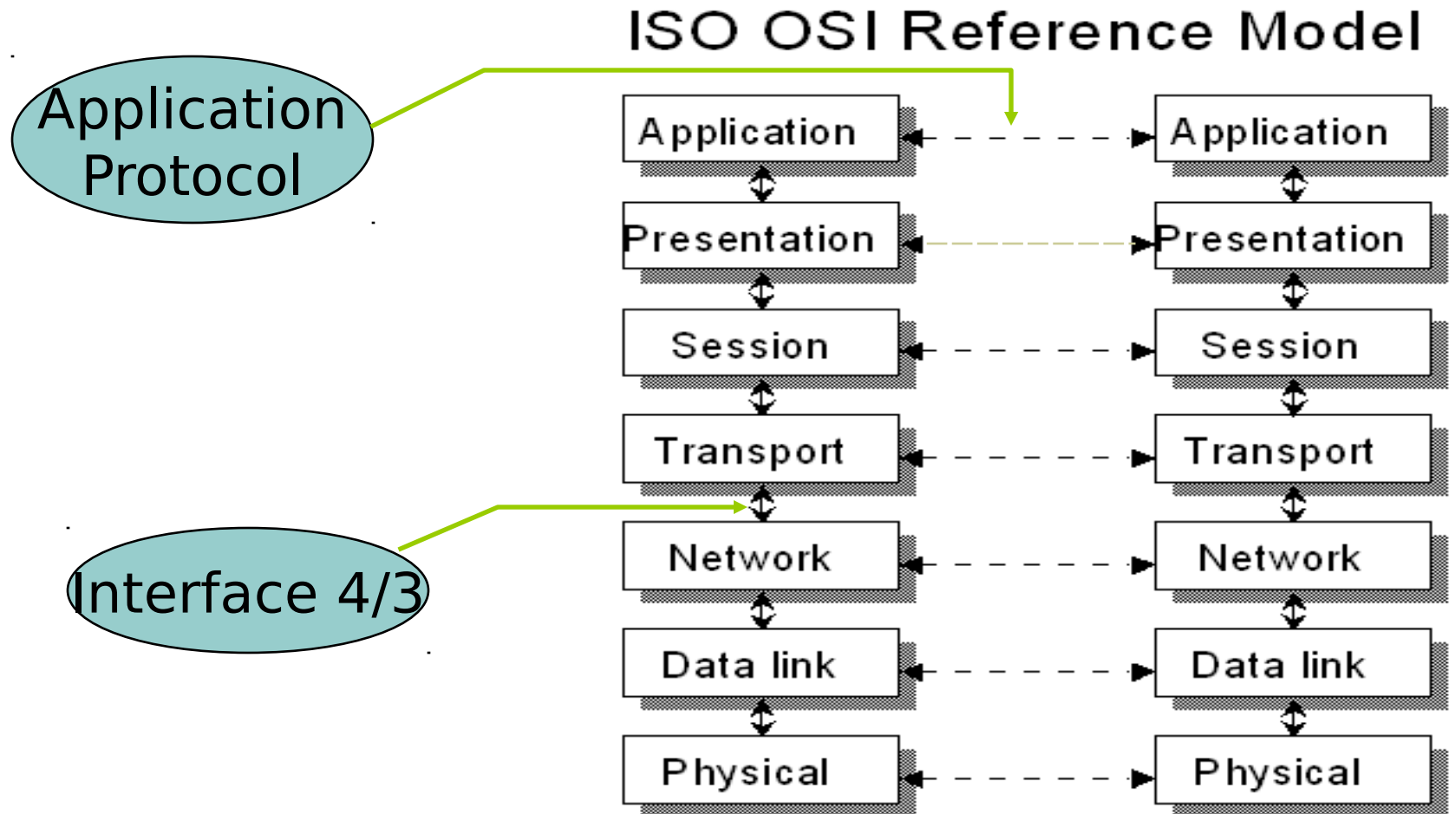
OSI - Open System Interconnection Model

- Standardized by ISO (International Standard Organization)
- Composed from seven layers:
 - Physical layer
 - Data link layer
 - Network layer
 - Transport layer
 - Session layer
 - Presentation
 - Application layer

OSI Model



OSI Model



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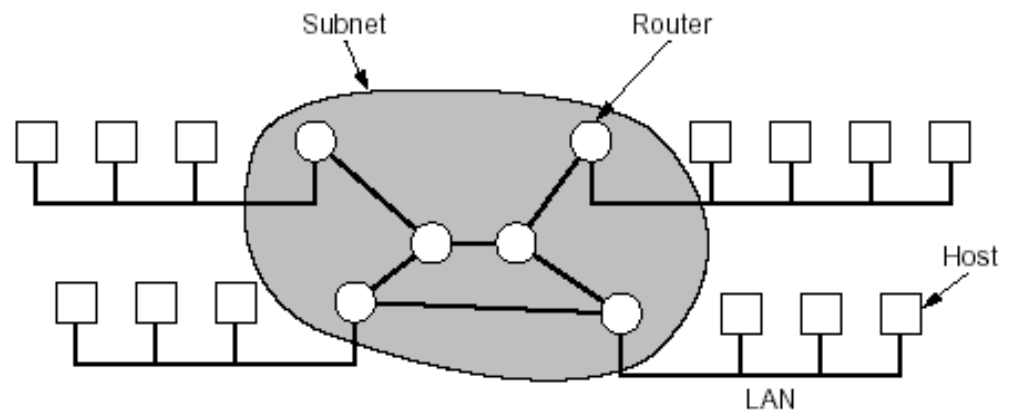
- Physical layer
 - Transmit raw bit on a physical link
 - Define the hardware equipment, cabling, wiring, frequencies, pulses used to represent binary signals, ...
 - Provide services to data link layer

OSI Model

- Data link layer
 - Data transmission unit — Frame
 - Establish mechanism for error detection and correction
 - Establish mechanism for flow control
 - Control access into shared medium
 - Require direct links between sending and receiving hosts
 - 0100**1** => 0100**1**
 - 0100**1** => 0101**1**

OSI Model

- Network layer
 - Data transmission unit - Packet
 - Routing and forwarding packets
 - Detecting and avoiding network congestion



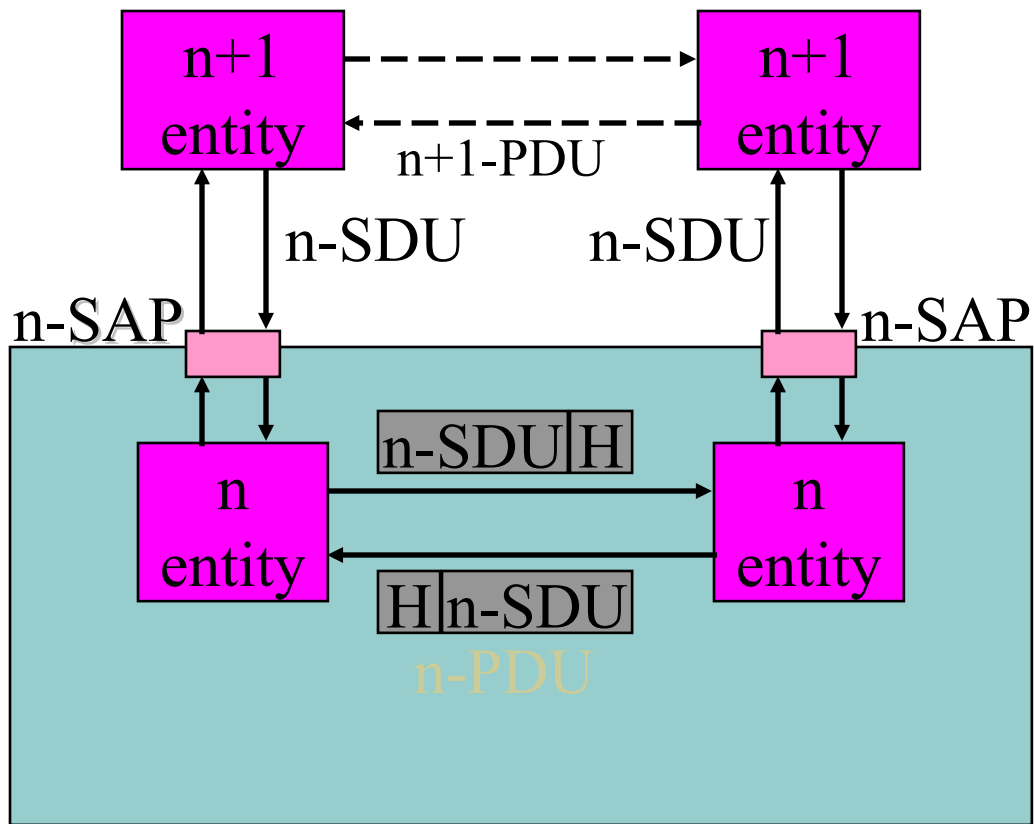
OSI Model

- Transport layer
 - Provide an end-to-end data transmission service
 - Control packets loss and duplication
 - Multiplexing / De-multiplexing
- Session layer
 - Session management
 - Synchronizing transmission data

OSI Model

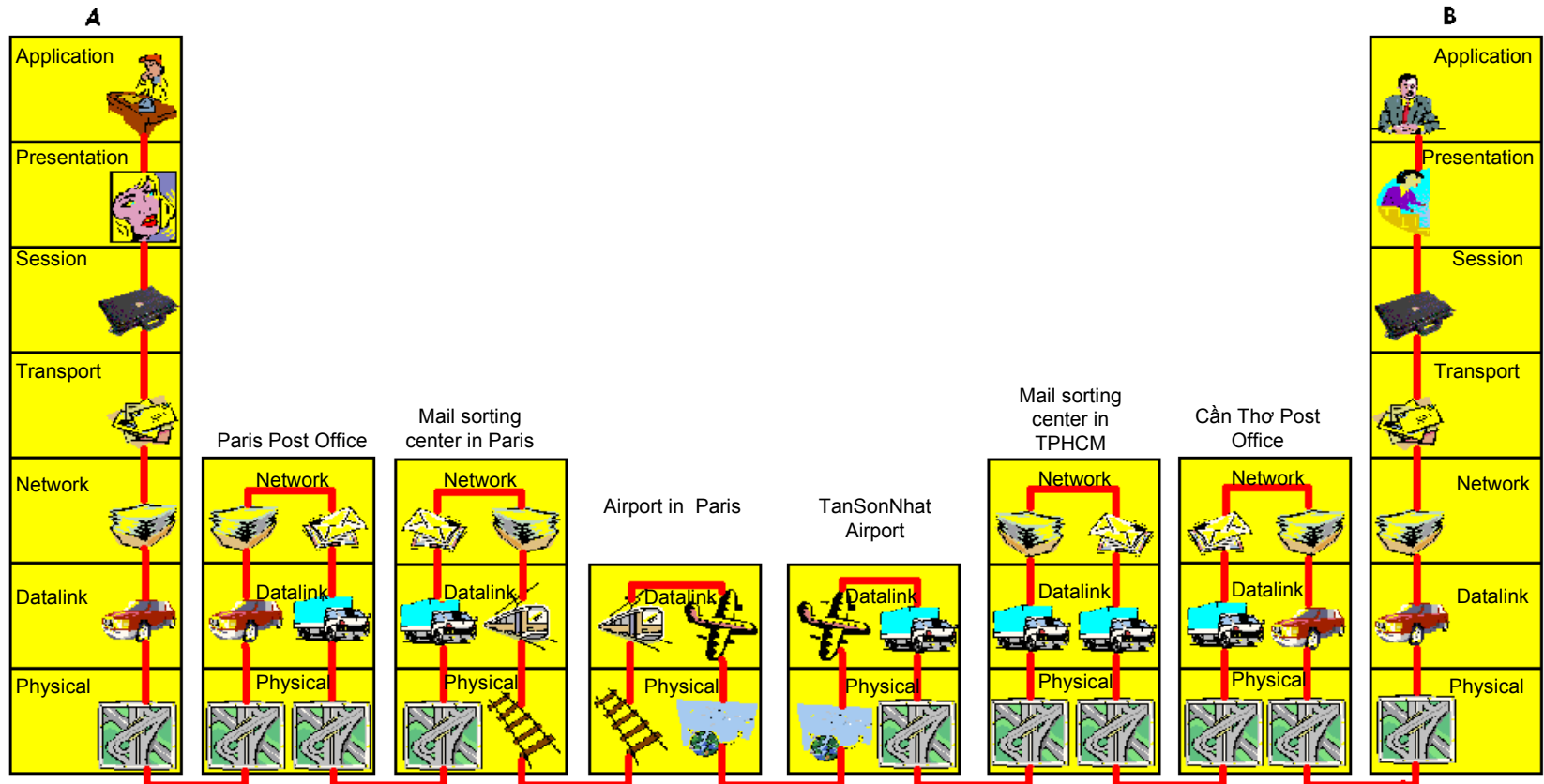
- Presentation layer
 - Standardizing data exchanged between different computer architectures: Little Endian với Big Endian, . .
 - Compressing, encoding transmission data
- Application layer
 - Network applications : Email, Web, FTP, . . .
 - Application protocols: HTTP, SMTP, POP,IMAP...

OSI Model



- n Entity: a process in layer N
- SAP = Service Access Point
- SDU = Service Data Unit
- PDU = Protocol Data Unit
- H=Header

Example of layer hierarchy



Example of layer hierarchy

- Application layer: Writing/reading letter
- Presentation layer: Translating, putting letter into an envelop, open an envelop
- Session layer: Collecting/Dispatching letters of different offices
- Transport layer: Role of office agent in a company.
- Network layer: Role of post office or Mail sorting center
- Data-link layer: Transport mail between two neighborhood post office.
- Physical: Transportation methods (by car, by train, by airplane).

Computer Network Operating Systems

