



Open System Interconnection (OSI) Specifications



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What is OSI Reference Model?



What is OSI Reference Model?

The **OSI** provides a standard for different computer systems to be able to communicate with each other

Developed by ISO in 1984



OSI Model

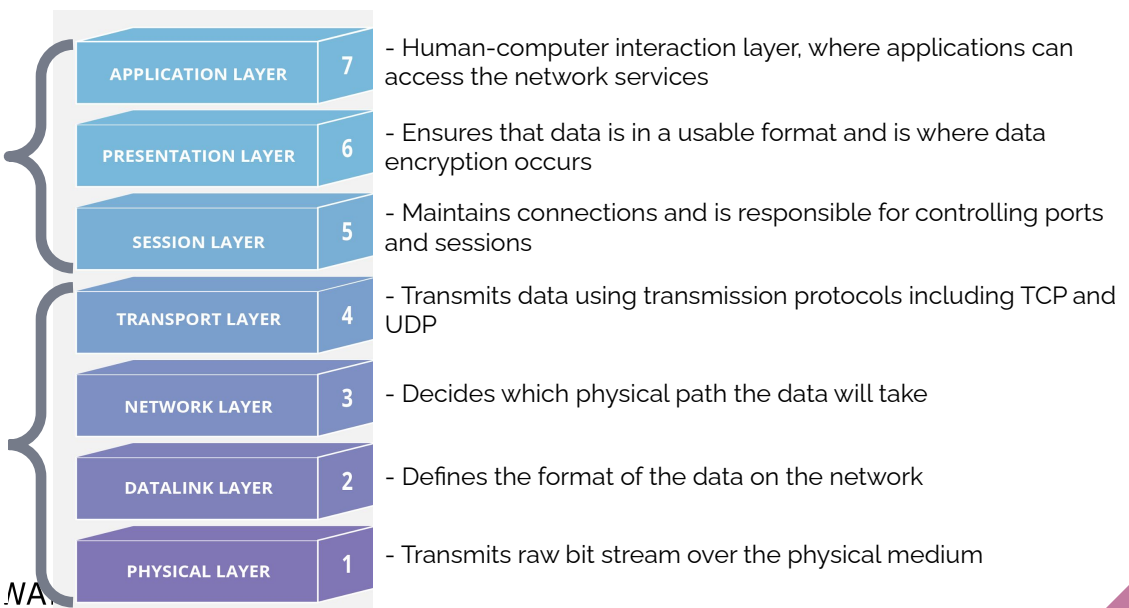
- Rules for networking are divided into 7 layers (OSI Model)

7	Application
6	Presentation
5	Session
4	Transport
3	Network
2	Data Link
1	Physical



What is OSI Reference Model?

Upper Layers (OS)
Lower Layers (Network)





2

Data Encapsulation

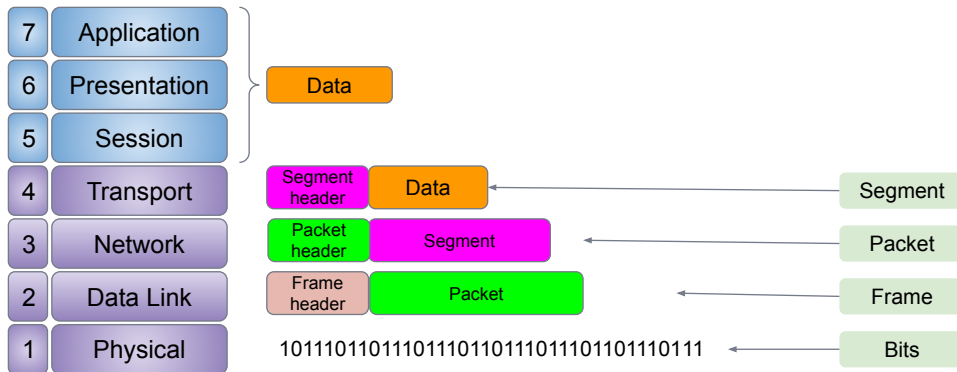


Data Encapsulation

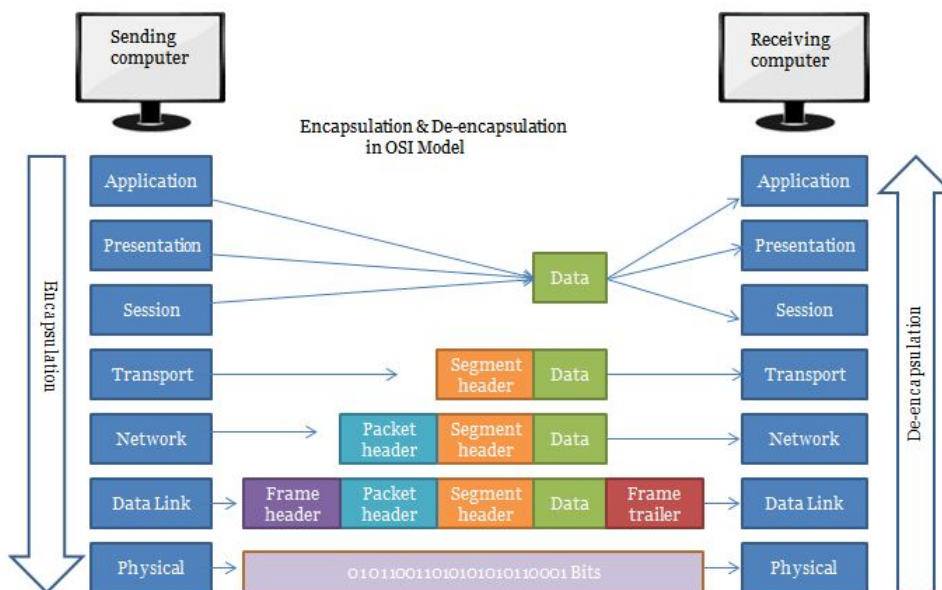
- For two nodes communicate they must use the same protocol
- Each layer communicates with its equivalent layer on the other node via the lower layers of the model
- Each layer provides services for the layer above and uses the services of the layer below



Encapsulation

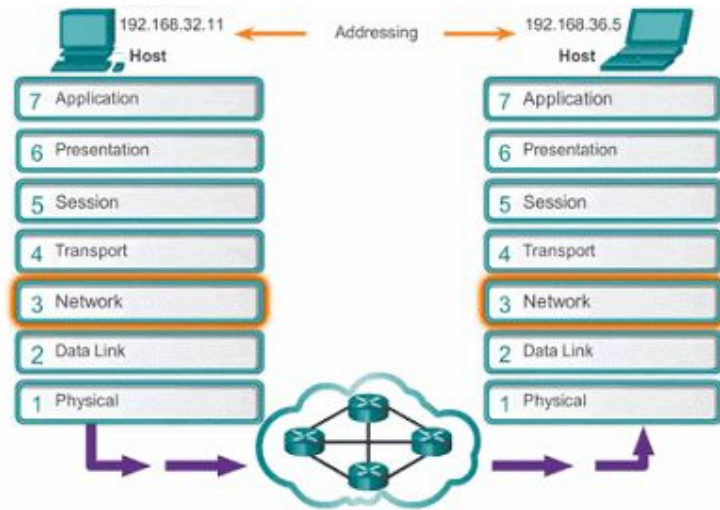


Data Encapsulation





Data Encapsulation



3

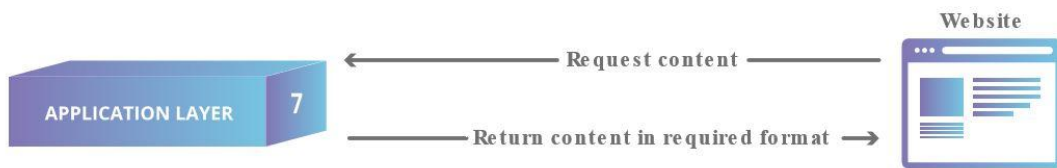
Layers of the OSI Model

Physical Layer
Data Link Layer
Network Layer
Transport Layer
Session Layer
Presentation Layer
Application Layer



► Application Layer (Layer 7)

- Directly interacts with data from the user
- Software applications (web browsers, email clients, etc.) rely on the application layer to initiate communications



► Presentation Layer (Layer 6)

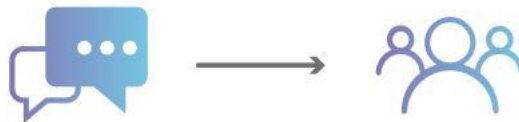
- Primarily responsible for preparing data
- Translates, encrypts, and compresses data





▶ Session Layer (Layer 5)

- Responsible for opening and closing communication between the two devices
- The time between when the communication is opened and closed is known as the session
- Synchronizes data transfer



Session of communication



▶ Transport Layer (Layer 4)

- Responsible for end-to-end communication between the two devices
- Takes data (from upper layer) and breaks into segments
- Responsible for flow control and error control





► Network Layer (Layer 3)

- Facilitates data transfer between two different networks
- Takes data segments (from upper layer) and breaks into packets



► Data Link Layer (Layer 2)

- Facilitates data transfer between two devices on the same network
- Takes data packets (from upper layer) and breaks into frames
- Responsible for flow control and error control





Physical Layer (Layer 1)

- Includes physical equipment

cables

repeaters

modems

transceivers

media converters

hubs

etc.

- Data is converted into bit streams



THANKS!

Any questions?

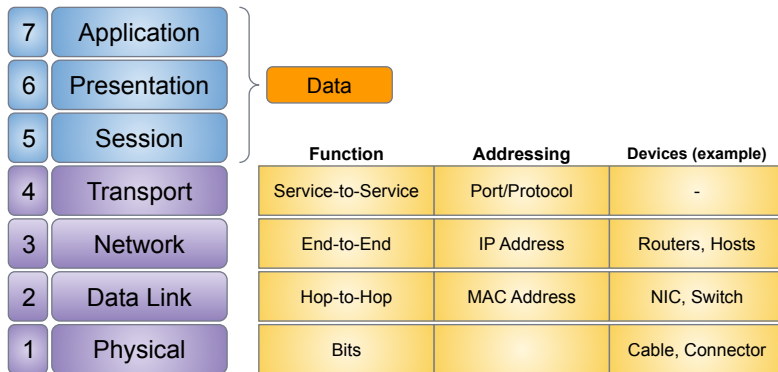
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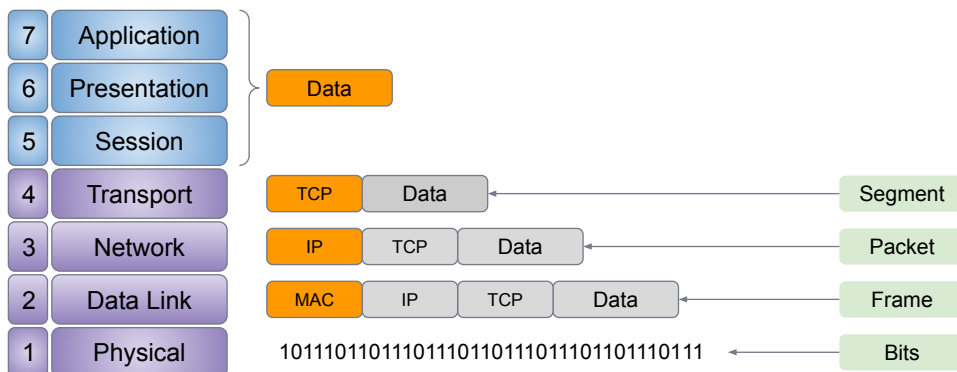




Summary



Encapsulation





Encapsulation

