Panel 1

OSI - Open Systems Interconnection Model

An ISO standard to abstractly model all networks

OSI has 7 layers:

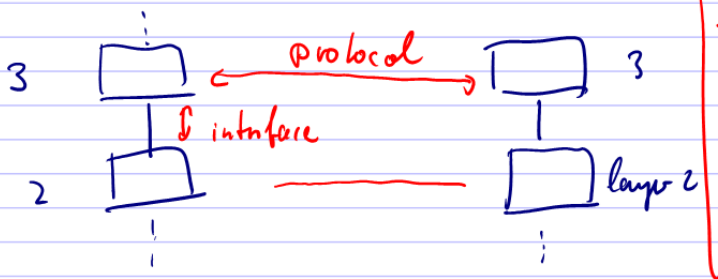
7 Application
6 Presentation
5 Session
4 Transport
3 Network
2 Data Link
1 Physical

1

Panel 2

Interface: each layer provides services to upper layer and uses services of lower layer. The interface defines how to access these services

Peer-to-Peer Protocol: Each layer N on machine A talks virtually to layer N on machine B using the same protocol!



Key: As long as interface & protocol remain same, implement. does not matter

2

Panel 3

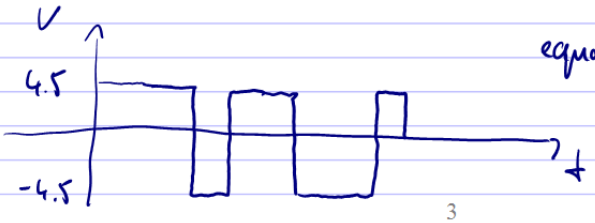
The Physical Layer

Transmitting bit streams between directly connected nodes

Worries about:

-> what is a 1 (how many volts) what is a 0 (+4.5 V = 1, -4.5 V = 0)

-> how long does a 1 or 0 last => transmission rate



equals 11101001

3

Panel 4

The Data Link Layer

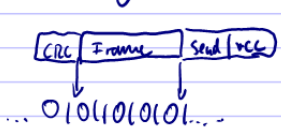
Transforms physical layer into a reliable link between nodes on one network.

Framing: divides bits into groups called frames

Physical address: e.g. MAC address of sender + receiver

Flow control: mechanism to throttle transm. speed so not to overwhelm node

Error control: must detect + retransmit incorrect frames (CRC checksums)



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Panel 5

The Network Layer

Source to destination delivery of packets accross networks. (vs. data link - sends frames between 2 nodes)

Responsibilities:

Addressing (logical)

Routing: determine the path accross the network of packets.

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Panel 6

The Transport Layer

Source to destination delivery of entire message. (a sequence of packets that belong together)

Data Link: frames between nodes

Network: packets between source/dest.

Transport: messages between source/destin.

Service point addressing (port): allows multiple progs. to use one connection on one computer

Segmentation + Reassembly:

Connection Control: connectionless or connection-oriented

Flow + Error control:

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