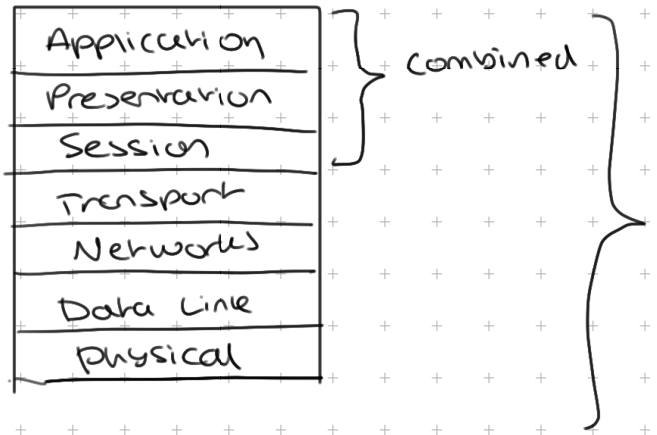
Networking OSI model

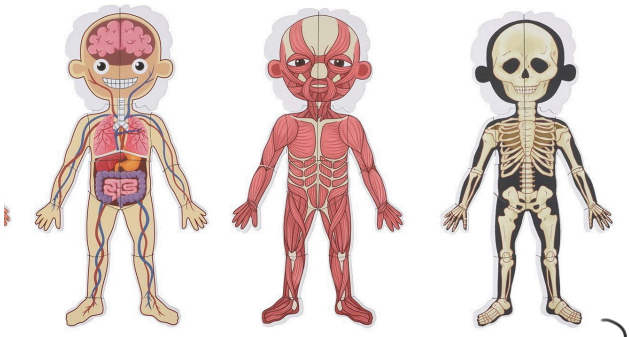
1

OSI model

purpose: Allow data to be shared

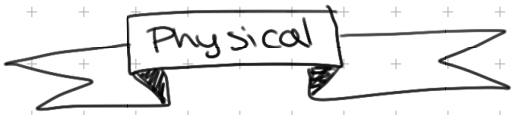
→ Rule: Hosts have rules to follow similarly to how languages have their own rules





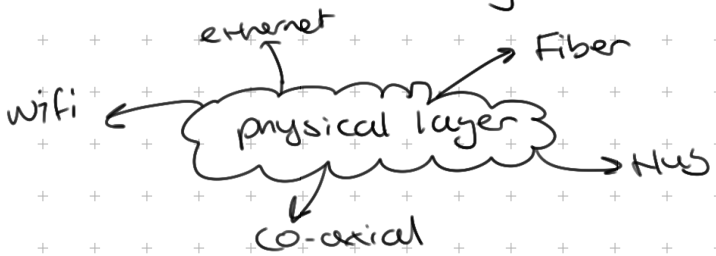
OSI model is similar to human body systems e.g → nervous system, hormonal system, etc etc system

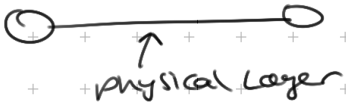
2



Layer 1: computer Data = Bits (1's & 0's)

Physical Layer = Responsible for transferring bits between hosts





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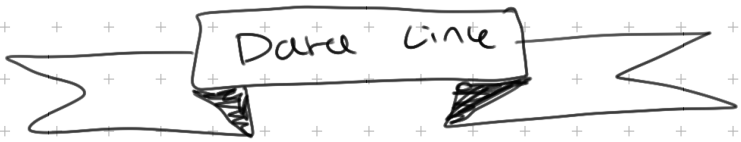
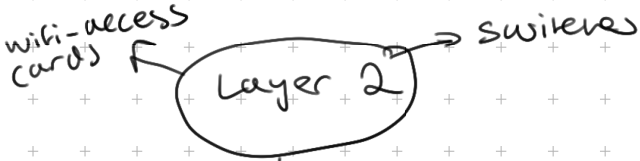


Data Link: Interacts with physical layer. Puts bits on the wire and retrieves those bits on the wire

Layer 2: Takes bits from one NIC and give to another NIC

How.??

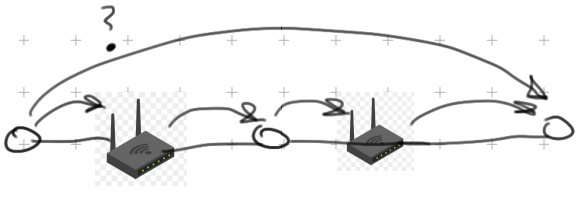


Addressing Scheme ~ MAC address (48 bits / 12 hex digits)

↳ every NIC has a unique MAC.

↳ Hint: so does routers but their not level 2.

NIC (network Interface cards)



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Network = End to End

L3 → Routers
→ Hosts
→ Anything with an IP address

IP: End to End
MAC: Hop to hop
} ARP: Address Resolution Protocol: Links these addresses together

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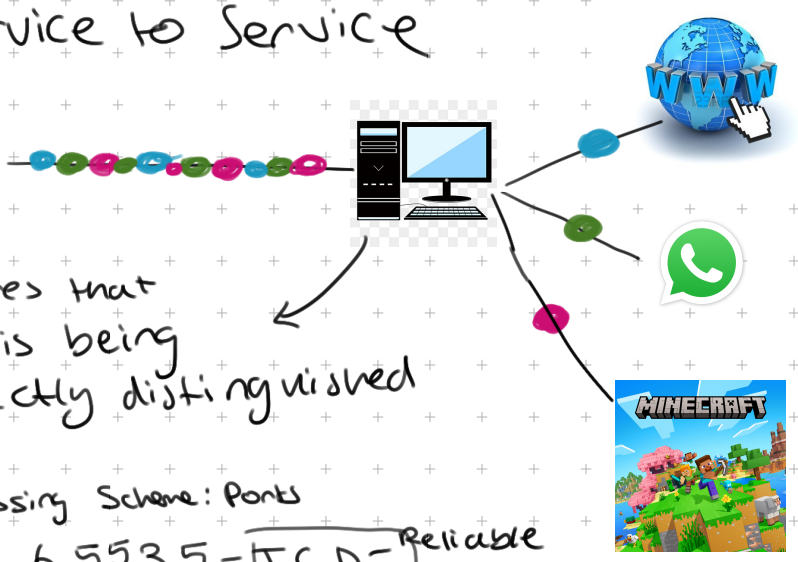
5

Transport

Service to Service



P: 80

P: 6667

P: 22565

Ensures that data is being correctly distinguished

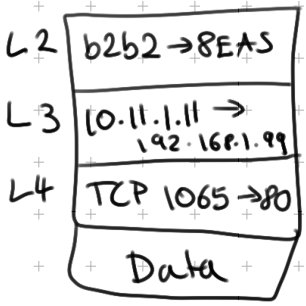
Addressing Scheme: Ports

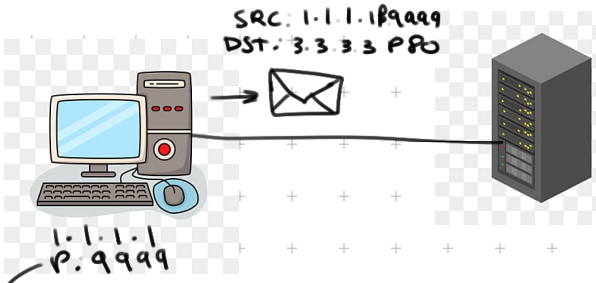
0 – 65535 – TCP – Reliable

0 – 65535 – UDP – Efficient

strategies used to distinguish data streams

Ports: Ensures that right data goes too the right program





Servers listen for predefined ports; host will make request too port #.

→ Random ports so you don't get some of another tab