

CSE 333 Section 8 - Client-Side Networking

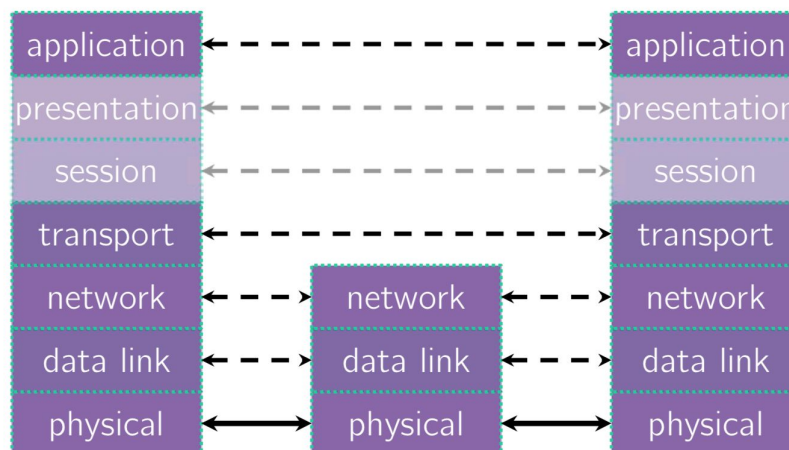
Welcome back to section! We're glad that you're here :)

Networking Quick Review

Exercise 1

a) What are the following protocols used for? (bonus: in which *layer* of the networking stack is it found?)

- DNS: **Translating between IP addresses and host names. (Application Layer)**
- IP: **Routing packets across the Internet. (Network Layer)**
- TCP: **Reliable, stream-based networking on top of IP. (Transport Layer)**
- UDP: **Unreliable, packet-based networking on top of IP. (Transport Layer)**
- HTTP: **Sending websites and data over the Internet. (Application Layer)**



b) Why would you want to use TCP over UDP?

TCP is reliable and has simpler semantics than UDP, so it's easier to use for a lot of applications.

c) Why would you want to use UDP over TCP?

Some applications can't tolerate delays from resending lost packets and/or don't mind losing a few packets, so UDP is a better choice for these.

Exercise 2

For each of the following, identify the layer in the network stack that performs the described operation. Be sure you identify the layer, not the protocol.

a) Use WiFi or Bluetooth to transmit data to other hosts.

Physical Layer

b) Use media access control (MAC) to figure out when and where to send the packet.

Link Layer

c) Forward a packet from the local wired or wireless network to a different local network if its destination address is not on the same local network.

Network Layer

d) If two packets that make up a message arrive out of order, rearrange them into the correct order before they are transmitted to the process reading the data.

Transport Layer (TCP)

e) Transmit an Ethernet packet on the local network from one host machine's NIC interface address to another's.

Link Layer

f) Resolve what IP address is www.youtube.com pointing to.

Application Layer (DNS)

Exercise 3

Fitting the Pieces Together. The following diagram depicts the basic skeleton of a C++ program for client-side networking, with arrows representing the flow of data between them. Fill in the names of the functions being called, and the arguments being passed. Then, for each arrow in the diagram, fill in the C++ type that it represents.

