CO212 - Networks and Communications

14th January 2020 — Week 1, Lecture 1

Evolution of the Internet

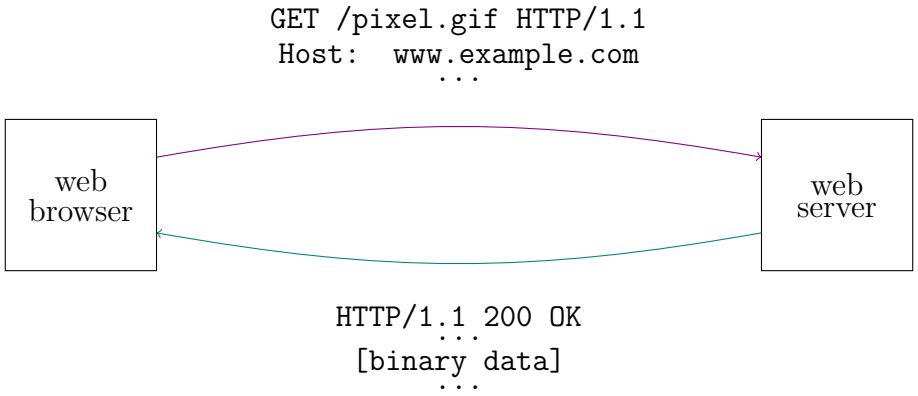
Literally only writing this part so I have something for the first lecture.

- (1969 - October) first message sent on ARPANET; "login", crashed after "l" and "o" were sent
- (1971) universities in West and East coast of USA connected
- (1980) London connected

14th January 2020 — Week 2, Lecture 1

World Wide Web (WWW)

This is an example of an **application** on the internet, based on HTTP (HyperText Transfer Protocol). A web browser (the client) sends a request to the web server over a pipe, which can be any form of connection between the two devices (can also be the same device), which in turn sends back a response.



Layers

- **application layer**

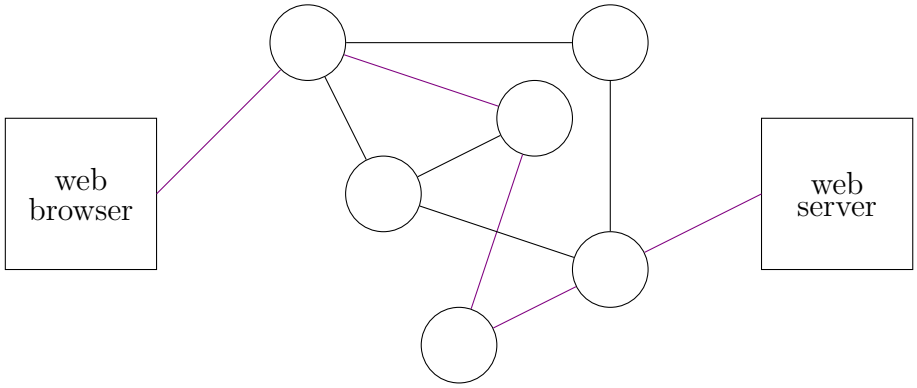
  Any software written for the internet is on the application layer.

- **transport layer**

  In the **transport layer**, packets leave your (client) machine to the server, and the server sends back packets to your client. This layer divides a (big) message into smaller chunks, and sends them to the other side (re-ordered) to be presented to the recipient.

- **network layer**

  The **route / path** (sequences of switches a packet goes through) each packet takes can be different from the others, and is often the most optimal route available. This is done on the **network layer**, which routers are a part of.



- **data link layer**

  Our devices are linked to the network on the **data link layer**, via network interface controllers (NICs). Examples of this include Ethernet, fiber optic network cards, as well as wireless devices such as WiFi access points, and USB dongles for 4G. A communication link is any connection between packet switches and / or end systems.

- **physical layer**

  Finally, on the **physical layer**, there are various forms of communication media, including fiber-optic cables, twisted-pair copper wire, coaxial cables, and wireless local-area links (802.11, Bluetooth, etc).