2.1

Definitions of Networking

* Network
  1. Any arrangement of fabric of parallel wires, threads, etc. crossed at regular intervals by others fastened to them so as to leave open spaces; netting; mesh.
  2. A system of roads, canals, veins, etc. that connect with or cross one another

History of Networking

* Beginning of the Internet: ARPANET
  1. Funded by ARPA (DARPA) which works for Defense
  2. Internet was not designed to be public
     + Created public and private ip addresses for the public
     + Running out of ip addresses there pushing the release of IPv6

Connectivity

* Computers connected with a wire is called a “Node”
* A node that hosts a computer application is called a “host”
* 2 Types of Network Links
  1. Point-to-Point (or store-and-forward) links connect only two nodes
  2. Multiple Access (or broadcast or shared) links allow more than two nodes to share a single physical medium
     + Example 1 – ethernet busses & hubs
     + Example 2 – WiFi
     + Drawbacks – collisions can occur

2.2

Switched Networks

* 2 Types of Switched Networks
  1. Over point-to-point links. Circuit-switched network provide service by setting hp a total path of connected links from the origin to the destination host.
     + A control message is first sent to setup a path from the origin to the destination. (A return signal informs the origin that data transmission may proceed)
     + Once a data transmission starts, all channels in the path are used simultaneously,
  2. Packet-switched networks, decompose messages into small pieces called packets

Cost-Effective Resource Sharing

* Bandwidth utilization is the wise use of available bandwidth to achieve specific goals
* Whenever the bandwidth of a medium…
* **Multiplexing** is the set of techniques that allows the simultaneously transmission of multiple signals across a single data link. (2 Types)
  1. Time-Division MUX
  2. Frequency-division MUX
* De-multiplexing is the putting together back the info on the other end (the receiver)

\*TEST\*

If you don’t use multiplexing, it dedicated to one user only because resources are not shared on a single data link.