CSC 4350 – Computer Networks

Fall 2024 Semester

Lecture 1 – August 22, 2024

Course Introduction

Agenda

- Syllabus and policies
- Start Ch. 1…

Note

- Material used in this lecture is heavily borrowed from Kurose & Ross' "Computer Networking: A Top Down Approach, 8th Edition"
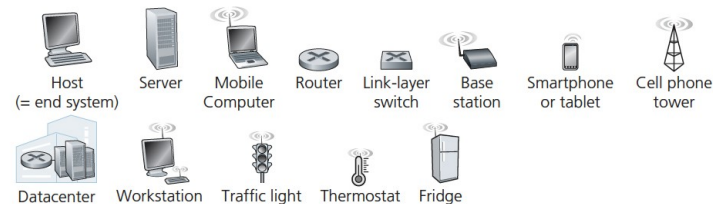- Also: assuming no prior knowledge of networks

What Is The Internet?

- Hardware/Software Discussion
- Networking Infrastructure for Services and Distributed Applications

Figure 1.1 – Some Pieces of the Internet
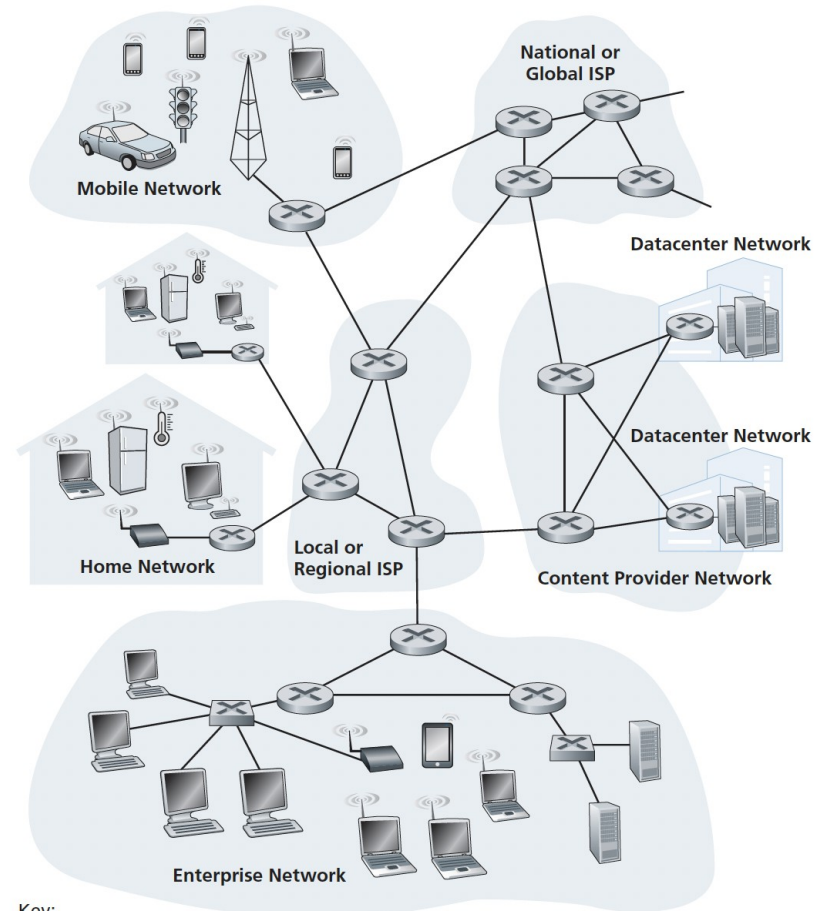
Nuts and Bolts/Hardware and Software

- Internet – computer network that connects many computing devices throughout the world

- Used to be desktop machines, primarily
  - With advent of smartphones, tablets, etc. – more ways to connect

- More traditional "non-Internet things" are being connected to the internet
  - Gaming consoles
  - Glasses
  - Cars
  - Watches

- All of these devices are called hosts or end systems

- 18 billion devices connected in 2017; 28.5 billion in 2022?

Hardware and Software

- End systems are connected via communication links and packet switches
    - Many different types of communication links from many different media
    - Transmission rate of a link is measured in bits/second; different types of links can transmit data at different rates
- Packets – resulting packages of information are sent through the network to the destination end system
    - Data is then reassembled when received
- Packet switches – takes a packet arriving on one of its incoming communication links and forwards that package on one of its outgoing communication links
    - Routers
    - Link-layer switches

Packet Switches

- Both types of switches forward packets toward their ultimate destinations

- Link-layer – used in access networks

- Router – network core

- Route/path – sequence of communication links and packet switches traversed by a packet from sender to receiver