CSE461

Midterm Review

Network Components

- Parts of a network
  - Application, Host, Router, Link
- Types of Links
  - Full-duplex, Half-duplex, Simplex
- Protocols and Layers
- Encapsulation

Physical Layer

- Types of Modulation
  - Frequency
  - Amplitude
  - Phase
- Latency
  - Transmission Delay
  - Propagation Delay
- Bandwidth-Delay Product

Link Layer

- Framing
  - Byte Count
  - Byte Stuffing
  - Bit Stuffing
- Error Detection and Correction
  - Hamming Distance
  - Parity Bit
  - Hamming Code
- Retransmissions
  - Sliding Window

Link Layer (Continued)

- Multiple Access
  - CSMA/CD (Collision Detection)
  - Binary Exponential Backoff
  - Hidden Terminals
  - Exposed Terminals
  - CSMA/CA or MACA (Collision Avoidance using RTS/CTS)
- Switching
  - Backwards Learning
  - Spanning Tree

Network Layer

- Datagram Model (connectionless service)
  - Packets contain a destination address; each router uses it to forward packets, maybe on different paths.
  - Each router has a forwarding table keyed by address.
  - Eg: IP(Internet Protocol)
- Virtual Circuit Model (connection-oriented service)
  - Three phases.
  - Statistical sharing of links.
  - Packets contain label to identify the circuit.
  - Each router has a forwarding table keyed by circuit.