Detailed Outline - Midterm

All the material, comments, etc. in the slides.

I. Exponential and Poisson (ExponentialPoisson in files)

PDF in resources:

- Exponential distribution (inter arrival, service) + Poisson process
- Properties: memoryless, minimum interarrival time of multiple exponential processes (distribution, average, probability of arrival from process i), Definition of Poisson process, superposition of Poisson processes, thinned Poisson processes.

II. Architecture

Tanenbaum (material1.pdf in files):

- 2.6.1: Telephone network topology
- 2.6.2: LATA, LEC, IXC, POP, definitions and description
- 2.6.4: trunks, multiplexing, hierarchy of multiplexing, TDM, FDM. **No** details on digitalization and modulation (Only comments in slides), **No** SONET/SDH, **No** wavelength multiplexing
- 2.6.5: circuit switching

Kurose:

- 1.3.2: circuit switching, multiplexing in circuit switching
- 1.2.1: access networks
- 1.3.1: Packet switching
- 1.3.2: Packet switching vs circuit switching
- 1.3.3: Network of networks
- 1.4: performance metrics: delay, throughput, packet loss, (efficiency in slides)
- 1.5: layering: motivation, ISO stack, internet stack, encapsulation
- 3.6.1: congestion and scenarios.

III. Application Layer

Kurose:

- 2.1: client-server and peer-to-peer architectures, processes and sockets, transport services, TCP and UDP services, Application layer protocols
- 2.2: HTTP architecture, non-persistent and persistent connections (no header format), cookies
- 2.4: architecture, SMTP (operations, skip the message part), comparison with HTTP, mail access protocols, POP3, Imap (functioning, no need to memorize the commands).