Major Topics for Test #2

CS 3171

Summer 2003

1 Chapter 1 of *Kurose & Ross (2e)*

1.1 Functions of Layers

especially error control and flow control

error control reliability and response messages/codes

flow control types of connections (persistent, parallel, pipelining, etc.)

mutliplexing Host header in HTTP

connection setup negotiated HTTP content parameters

segmentation and reassembly headers and MIME encoding

2 Chapter 2 of *Kurose & Ross (2e)*

2.1 Examples of application layer protocols

- HTTP, FTP, SMTP, DNS
- POP3, IMAP
- Peer-to-peer architectures, CDNs in general

2.2 Interaction Models

- Client-Server
- Peer-to-Peer
- Distributed Systems (particularly DNS and CDN)

2.3 Client-Server

- stateful and stateless connections
- reliability guarantees (through lower layer and through application layer)
- round trip times
- push and pull protocols

2.3.1 Stateful Transactions

- FTP method vs. HTTP methods
- HTTP cookies
- HTTP authorization
- out-of-band data

2.3.2 Lower-level Details

- sockets
- the `accept` loop

2.4 Addressing

- sockets
- ports
- URLs

2.5 DNS

- record types
- query types (iterative vs. recursive)

2.6 Content Distribution Networks (CDN)

2.7 Peer-to-Peer Architectures

3 Middleware Basics

- what is middleware
- what are distributed systems
- middleware methods
  - Remote Procedure Calls
- Middleware essentials
  - Paramater Marshalling
  - External Data Representation
  - Stubs
- Interface Definition Language
- Concept of services
- Names and registries