Midterm Review

CS 519 SP 2003

Where we've been

- We've covered 8 slide sets
- KR 1-part of 4
- Stevens 1, 3, 6,7,8,11, 12,14, 17-22 (some of 23 ad 24 mentioned in class)
- 4 homeworks and one programming assignment

Slide Sets

- 01_intro
  - This is all stuff you should know but pretty high level for exam questions
- 02_history
  - No history details on the exam
- 04_httpdns and 05_smtpother
  - Mentioned lots of application protocols
  - Focus on HTTP, DNS and SMTP
  - Details especially of the human readable protocols are fair game

Slide sets (con't)

- 05_sockets
  - Won't ask you to write code
- 06_udp_reliable
  - Won't ask you to memorize header format details
  - If I give you details you should understand their implications
  - Understanding generic stop and wait, go-back-N and selective repeat important but I'd be more likely to frame the questions about TCP though

Slide sets (con't)

- 07_tcpdetails
  - We spent a lot of time on TCP
  - 28/70 points on exam relate to TCP
- 08_ipintro
  - Again won't ask you to memorize header formats
- 09_routingbasics
  - Not on the exam

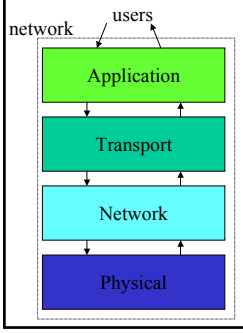
Books

- Books are for reference – to support material covered in class
- I won't pull an obscure detail out of the textbooks
- Everything on the exam I have mentioned in class
  - I may ask you to go beyond what we discussed in class to make you think (not to test memorization of details from the book)

Exam Details

- 9 main questions; 27 sub questions
- 70 points
  - Approximately 20 for application layer, 30 for transport layer (mostly TCP), 20 for IP layer
- Mostly short answer
- Any calculations can be done by hand (bring a calculator if it makes you feel better)
- More detailed and a bit harder questions that I have done in the past so not clear that practice exams would help alot

Internet protocol stack



Application Layer

- Apps are why we care about building a network infrastructure
- Basics
  - Protocols
  - Client server
- Specifics
  - HTTP
  - DNS (domain names and IP addresses)
  - SMTP, POP, IMAP
  - Others: FTP, NNTP, RTP
  - In terms of details focus on HTTP, DNS and SMTP
- Hands-on
  - telnet to interact with servers
  - sockets

Transport Layer

- Basics
  - Multiplexing/Demultiplexing
  - Principles of Reliable Data Transfer
- Specifics
  - UDP – interesting but thin layer on IP
  - TCP - interesting, important, substantial
- Hands-on
  - ttcp
  - netstat

TCP Specifics

- TCP Header
- Connection Establishment
- Steady State Data Transfer
- Adaptive Round Trip Times
- Slow Start/Congestion Avoidance
- Fast Retransmit / Fast Recovery
- Reno, SACK

Network Layer (partial)

- Basics
  - Virtual Circuit
  - Datagram
  - Basics of efficient routing
- Specifics
  - IP addressing
  - IP Header
  - IP Fragmentation
  - ICMP
- Hands-on
  - ping
  - traceroute