CS 494/594
Internetworking Protocols

Agenda

- Course objectives
- Syllabus
- Assignments
- Chapter 1

My networking interests

- Networking geek
  - Congestion control on the Internet (Chapter 3)
  - Puzzle protocols for thwarting denial-of-service attacks
  - Protocols for detecting and preventing cheating in on-line games

Syllabus

- Same as course web page
  - http://thefengs.com/wuchang/work/courses/cs594
- Instructor information and office hours listed
  - TA: to be determined
  - Will be updated on web site
- Accounts
  - If you don't have one, get one remotely or in person from CAT (http://cat.pdx.edu)
- Class e-mail/group
  - pdx-cs594@yahoogroups.com
  - http://groups.yahoo.com/group/pdx-cs594

Syllabus

- Textbook
  - James Kurose, Keith Ross, “Computer Networking: A Top-Down Approach (4th ed)”
  - Contains on-line material that will also be made available (for those with used texts)

Syllabus

- Course objectives
  - Explain fundamental ideas associated with Ethernet and the PPP point-to-point protocols. For Ethernet, explain CSMA/CD and MAC addresses
  - Explain the fundamental concepts associated with modern Ethernet switches, including full-duplex and collision-free networks, VLANs, spanning-trees, and adaptive-learning.
  - Explain how ARP works in IPv4 and explain how broadcast can be used for link reachability
  - Setup a host and network in terms of IP addressing
  - Explain how traceroute and ping work as well as other ICMP mechanisms.
  - Work with IPv4 addresses in terms of subnetting, VLSM, and supernetting.
  - Explain the basic ideas behind sliding window protocols in general and TCP in particular
  - Compare and contrast TCP and UDP in terms of the applications that use them.
  - Compare and constrast distance-vector and link-state routing algorithms
  - Explain how application-layer protocols work including HTTP, FTP, SMTP, DNS, and TELNET.
  - Describe how layer 3 and layer 7 network devices operate
  - Explain network attacks based on arp-spoofing, and IP address spoofing.
  - Explain techniques involved in the Morris worm, and other network-based attacks.
  - Program network-based applications using the socket mechanism.

Syllabus

- Course outline
  - First five chapters of textbook along with supplemental material from instructor
  - Chapter 1 – Internet Overview
  - Chapter 2 – Application layer
  - Chapter 3 – Transport layer
  - Chapter 4 – Network layer
  - Chapter 5 – Data-link layer

Syllabus

- Homeworks
  - Assignments and their due dates posted on course web site
  - Assignments due at the beginning of class on due date
  - Late policy
    - 10% each business day late (up to 5 days)
- Programming project
  - Your choice
    - Web-based proof-of-work
    - Networked game

Evaluation

- Midterm exam = 35%
- Final exam = 35%
- Homework = 10%
- Programming project = 20%