

Welcome to
Advanced Topics in Internet
Technologies

Why Internet Measurements & Security

- Internet attacks are increasing in frequency, severity and sophistication
- Denial of service (DoS) attacks
 - Cost \$1.2 billion in 2000
 - 1999 CSI/FBI survey 32% of respondents detected DoS attacks directed to their systems
 - Thousands of attacks per week in 2001

Why Internet Security

- Virus and worms
 - Melissa, Nimda, Code Red, Code Red II, Slammer ...
 - Cause over \$28 billion in economic losses in 2003, growing to over \$75 billion in economic losses by 2007.
 - Code Red (2001): 13 hours infected >360K machines - \$2.4 billion loss
 - Slammer (2003): 10 minutes infected > 75K machines - \$1 billion loss

Overview

- Course Administrative Trivia
 - Distributed Multimedia Systems
 - Review of Congestion Control
 - P2P Systems and Overlay Networks
 - Internet Security
 - Internet Measurement
 - Projects and paper presentations

Logistics

- Instructor

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Course Overview

- Style: Topical Presentations + paper reading + several projects + exam.
- Start with the basic concepts of Internet architecture, its design principles and evolution
 - End-to-end, active networks, etc.
- First half focus on network applications (distributed multimedia services, resource allocation, congestion control, P2P and overlays)
- Second half of the course about Internet measurements and issues.

Prerequisites and Course

- Introduction to computer networking
- Highly Recommended: OS or and simulation background
- No required textbook – paper reading!
- Recommended books or papers

Grading

- Final Examination: 40%
- Project(s): 30%
- Group Presentation: 30%

Class Format I -

- Introduction of the basic problems, ideas and solutions (10 minutes)
- Student presentations of a chosen paper
 - 30 minutes for presentation, and 10 minutes for discussion
 - Each non-speaker need to ask at least one question about the

Format of the Presentation

- Presentation should include the following
 - Motivation
 - Classification of related work/
background
 - Main ideas

Class Format II – Debate

- Defensive team presentation: 20 minutes
- Offensive team presentation: 20 minutes
- Follow up argument from the defensive and offensive teams

Communication and Policies

- Web page: <http://www.cse.cuhk.edu.hk/~cslui/csc7221.html>
- No late handins! Will be ignored
- Work division
 - Each team member should do similar amount of work
 - Survey on work division at the end of quarter
 - More contribution, better grade!