Welcome to CS 653
Fall 2010

Arun Venkataramani
Dept. of Computer Science
Course goals

- Advanced, fundamental networking principles
  - Mix of theory and usage in real networks
  - Exposure to networking research
- Second course in networking
  - Prerequisite: a first course
Course topics

0. Architectural design principles, Review
1. Internetworking: policy routing, traffic engineering, switching
2. Resource management: TCP and active queue management, router scheduling, router-assisted congestion control, CSMA
3. Overlays: virtualization, DHTs, indirection, location independence, peer-to-peer systems,
4. Wireless: wireless network architecture, link abstraction, TCP problems, physical layer information theory
5. Security: DDoS defense mechanisms, protocol misbehavior, worms and the Internet underground
Administrivia

- Announcements: [cs653@edlab-mail.cs.umass.edu](mailto:cs653@edlab-mail.cs.umass.edu)
- Material
  - papers, notes, and web links on Schedule page
  - “Computer Networking: A Top-Down Approach Featuring the Internet” (5th ed.), Kurose and Ross for reviewing basic material
Administrivia

- 4 homeworks
  - May involve some programming/scripting
- 2 take-home exams
- Project with small research component
  - Proposal + final report
- Class participation important
  - Reading preparation for each class