

Lecture 34

CS625: Advanced Computer Networks
Fall 2003

Thursday, 13 November 2003

Bhaskaran Raman
CSE, IIT-Kanpur

<http://www.cse.iitk.ac.in/users/braman/courses/cs625-fall2003/outline.html>

Final class

Conclusions, Summary

Main Design Principles

- Layering: abstraction, interface design
- End-to-End principle
- *Caching*
- *Hierarchy*
- *Level of indirection*
- CAP principle for distributed systems
- Soft-state

Design Mechanisms

- State in packet
- Core of network different from edges
- Cross-layer optimization
- Add an additional layer

Design Techniques

- Various routing protocols
 - Multicast or unicast
- TCP engine
- TCP over wireless
- Scheduling algorithms
- IP traceback
- Bloom filter

Sub-topics in Networking

- Wireless and mobile networks
- Intra- and Inter-domain routing
- Queuing and Scheduling
- Router architecture
- TCP
- QoS: signaling, admission control
- Traffic engineering
- Multicast: overlay, peer-to-peer

Sub-topics in Networking (continued)

- Overlay networks
- Peer-to-peer networks
- Network security
- Internet measurement and modeling
- Content distribution networks
- IPv6

System Design

- Specify:
 - Design goals
 - Design challenges
 - Design principles
 - Design mechanisms/techniques
 - Evaluation methodology
 - Metrics and Parameters for evaluation