CSE3300: Computer Networks and Data Communications

Song Han

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Office: ITEB 355
Instructor and TA

- Instructor: Song Han
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- Office: ITEB 355
- Office hours: Wednesday 5:00-6:00pm
- Course website
  - www.engr.uconn.edu/~song/classes/cn/index.html
  - Slides and reading materials will be available on course website
  - HW/PA will be submitted through HuskyCT
  - Related course: CSE4709/5095 Networked Embedded Systems
  - http://engr.uconn.edu/~song/classes/nes/index.html
Instructor and TA (Cont.)

• TA: Ms. Lina Kloub
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• Office: ITEB 311
• Office hours: Tue and Thu 9-10 AM
Waiting list or sitting in

Please send email to the instructor: 1) Your name and netID; 2) Which year are you in? 3) Courses have taken.
Homework, Programming Assignments and Exams
Internet Applications – Social Media Examples
Internet Companies

Technology – Access – Interest – Channel

TAIC – SIMO business model
Screen – Internet – Media – Operator

Simo

Apple rules
Business
Assets
Companies
Trend

TAIC SIMO model
Junani Risho 2011

Software reservoir

Entertainment reservoir

Media
Interest
Business

A
Access

Channel

C

Technology

Reservoir

Technology reservoir

Simo

Apple

Business

Assets

Companies

Trend

Internet

Screen

Operator

Cable TV

Operator

Media

TV

Search

content, people, ideas, literature, music, films, art, hobbies, culture, civilization, history, science, drama

operators

Google

facebook

LinkedIn

Twitter

TechCrunch

TheHuffingtonPost

Engadget

Mashable

priceline

Expedia

Amazon

dentsu

Square Enix

SONY

Software reservoir

Entertainment reservoir

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Expedia

Amazon

dentsu

Square Enix

SONY
The History of Internet

http://www.youtube.com/watch?v=9hIQjrMHTv4
Covered Topic: Internet Architecture
A visualization of routing paths through a portion of the Internet (Wiki)
Covered Topic: Internet Protocol Suite
Chapter 2: application layer

our goals:
• conceptual, implementation aspects of network application protocols
  – transport-layer service models
  – client-server paradigm
  – peer-to-peer paradigm
• learn about protocols by examining popular application-level protocols
  – HTTP
  – FTP
  – SMTP / POP3 / IMAP
  – DNS
• creating network applications
  – socket API
Chapter 3: transport layer

our goals:

• understand principles behind transport layer services:
  – multiplexing, demultiplexing
  – reliable data transfer
  – flow control
  – congestion control

• learn about Internet transport layer protocols:
  – UDP: connectionless transport
  – TCP: connection-oriented reliable transport
  – TCP congestion control
Chapter 4: network layer

4.1 introduction
4.2 virtual circuit and datagram networks
4.3 what’s inside a router
4.4 IP: Internet Protocol
   – datagram format
   – IPv4 addressing
   – ICMP
   – IPv6
4.5 routing algorithms
   – link state
   – distance vector
   – hierarchical routing
4.6 routing in the Internet
   – RIP
   – OSPF
   – BGP
4.7 broadcast and multicast routing
Chapter 5: link layer, LANs

5.1 introduction, services
5.2 error detection, correction
5.3 multiple access protocols
5.4 LANs
  - addressing, ARP
  - Ethernet
  - switches
  - VLANS
5.5 link virtualization: MPLS
5.6 data center networking
5.7 a day in the life of a web request
Chapter 6 Wireless and Mobility

6.1 Introduction

**Wireless**

6.2 Wireless links, characteristics
   – CDMA

6.3 IEEE 802.11 wireless LANs (“Wi-Fi”)

6.4 Cellular Internet Access
   – architecture
   – standards (e.g., GSM)

**Mobility**

6.5 Principles: addressing and routing to mobile users

6.6 Mobile IP

6.7 Handling mobility in cellular networks

6.8 Mobility and higher-layer protocols

6.9 Summary
Chapter 8 network security

8.1 What is network security?
8.2 Principles of cryptography
8.3 Message integrity, authentication
8.4 Securing e-mail
8.5 Securing TCP connections: SSL
8.6 Network layer security: IPsec
8.7 Securing wireless LANs
8.8 Operational security: firewalls and IDS
COURSE SCHEDULE