Intro. to Computer Network

- Wed. 2:20pm-5:20pm, in CSIE 102
- Instructor: Cheng-Fu Chou
  - Email:ccf@csie.ntu.edu.tw
  - Office hours: by appointments
- TAs: (501)
  - Chih-Cheng Hsu: kenneth@cmlab.csie.ntu.edu.tw
  - Ming-Hung Chen: mhchen@cmlab.csie.ntu.edu.tw
- Lecture Format:
  - Slides
  - Interactive

Class Resources

- Class web page:
  - http://www.cmlab.csie.ntu.edu.tw/~mhchen/CN2010/
    - Computer Networks 2010
  - Includes message archives (send by the instructor or the TA)
  - Reading list
  - Proj. assignment & HWs
  - You should check this site regularly

Course Reading

- Textbook:
  - "Computer Networking: A Top Down Approach Featuring the Internet,"5th edition, Jim Kurose and Keith Ross, Addison-Wesley
- Reference books:
  - Computer Networks: A Systems Approach – by Larry Peterson and Bruce Davie, 4th Edition, Morgan Kaufman, 2007.
  - TCP/IP Illustrated volume I and volume II

Important Info.

- Grading:
  - HW 15%
  - projects (I,II, and III) 35%
  - midterm 25%
  - final 25%
  - class participation: 5%

Assignments

- HW
  - Based on readings and discussions
- Projects:
  - C/C++ only
- Late Policy
  - TBD: check the class web site

Things to Do Today

- Read class web page
  - Check course description

Student Commitments

- Keep up with your reading
- Do your own work
- Turn in assignments on times
- You are encouraged to study with other students and discuss (no sharing) programming assignments and HWs

Objective

- This course will cover the basic principles of networking with a focus on protocols, implementations, and issues specific to the Internet. We will study how routing, transport and internetworking protocols using the Internet family of protocols as examples. We will selectively implement new protocols and network services; as such, this course will have rather a substantial programming component.

Contents

- Computer Networks and Internet
- Application Layer
- Transport Layer
- The Network Layer

Contents

- Wireless and Mobile Networks
- Multimedia Networking
- Security in Computer Networks
- Network Management

Expectations

- This class **IS** about...
  - Principles and Concepts
  - General-Purpose Computer Networks
  - Internet Perspective
  - Network Software
  - Designing and Building a System

- This class **IS NOT** about...
  - Survey of existing protocol standards
  - Specialized networks (e.g., CATV, telephone)
  - OSI Perspective
  - Network Hardware (we do survey)

Question 1

- Suppose you are at a workstation with IP address 140.112.28.40 and are running IE. You are click on an URL pointing to http://www.isi.edu (IP addr. 128.9.176.20). Assume that the web page is available, loaded and displayed by your browser. Describe, in as much details as you can, the steps that occur between the mouse-click and the displaying of the web page.

Ans.

- 6 messages to translate the server name (www.isi.edu) into its IP address
- 3 messages to set up TCP connections
- 2 messages for the browser to send HTTP "get" request
- 2 messages for the server to send back the requested page
- 4 messages to tear down the TCP connections

Question 2

- What are the requirements as you design a computer network

Requirements

- Connectivity
- Cost-Effective Resource Sharing
- Functionality
  - Support for common services (or applications)
- Scalability
- What else?

The End

- Questions ?
  - interested issues, topics

Cheng-Fu Chou, CMLAB, CSIE, NTU