Overview

- Internet Services
- Security
- Markup Languages
- HTML
Goals

- Understand Internet Services
- Examine network security issues
- What is a “Markup Language”?
- Learn Basic HTML
Assignments

- Brooksheer: Ch 8.2, 8.3 (Read)
- Read HTML Primers
  - [http://www.w3.org/MarkUp/](http://www.w3.org/MarkUp/)

- Primer on the Semantic Web
  - [http://www.scientificamerican.com/article.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21&catID=2](http://www.scientificamerican.com/article.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21&catID=2)

- Read linked documents on these slides (slides will be posted in courseworks)
Network Protocols

- A Protocol is a means for two parties to exchange data. Contains ways of sending/receiving/acknowledging data, error recovery, ability to switch context
- Example: HTTP, SMTP
Figure 3.18: The Internet software layers

- Application
- Transport
- Network
- Link
Figure 3.19: Following a message through the Internet
Figure 3.19: Following a message through the Internet (continued)

At each intermediate stop the network layer assigns a new intermediate address to the packet and returns it to the link layer for transmission across another network.
Protocols

- There are distinct protocols at each of the Link, Network, Transport, Application layers
- Protocols establish standards for exchanging binary data
- Protocols can be optimized for each task (some protocols are good for transferring large files... others are better for transferring streaming video)
Figure 3.20: Choosing between TCP and UDP

- Application layer
  - Transport layer
  - TCP: More "reliable" but less efficient
  - UDP: More efficient but less "reliable"
Figure 3.17: Package-shipping example

- **Origin**
  - You
  - Shipping company
  - Airline

- **Intermediate stops**
  - Transfers container to another airplane

- **Final destination**
  - Friend
  - Shipping company
  - Airline

- **Students' roles**
  - Prepares package for shipping
  - Places package in container for airline
  - Places container in airplane

- **Teacher's role**
  - Receives and opens package
  - Removes package from container and delivers it to addressee
  - Sends container to shipping company
Figure 3.13: A typical URL

http://ssenterprise.aw.com/authors/Shakespeare/Julius_Caesar.html

- Protocol required to access the document. In this case it is hypertext transfer protocol (http).
- Mnemonic name of host holding the document
- Directory path indicating the location of the document within the host's file system
- Document name
Figure 3.14: A simple Web page expressed in HTML

The Web page will appear as the text “My Web Page” presented prominently on the screen.
The Internet

- HTTP (Hypertext Transfer Protocol) is sent over TCP/IP (Transmission Control Protocol/Internet Protocol).
- HTTP is a means of efficiently requesting and sending HTML pages/graphics.
- TCP/IP is generic and operates at the lower “Transport” layer
Core Internet Services

- DNS – Translates Names to numerical IP Addresses
- IP Addresses consist of 4 “octets” of data (a number from 0 to 255)
Markup Languages

- A markup language exists only in the context of some other language. A markup language surrounds and "marks up" terms in an existing language.
- HTML "marks up" human languages with structural and presentational information.
- Examples: HTML, XML, LaTeX
HTML

- Hypertext Markup Language
- “Hyper” => Text in multiple dimensions
- International Standard (W3C)
- Describes the *structure* of information (not really the presentation of it)