

General Items:

- Lab assignment?
- Class assignment?
- Any questions?

Reading Materials:

Miscellaneous:

Internet Usage

- Typical examples
 - o Shopping / Banking / File Sharing/
 - o Medical information / Personality check!
 - o Downloading music / Downloading homework
 - o News / Chat / e-mail
- Many different varieties:
 - o E-commerce
 - \$100 billion industry
 - Spend \$5 billion on advertising
 - o Religion
 - Techno-Spiritual
 - [Offering online Praying](#)
 - o Sex and pornography
 - [Cybersex reached 7 billion of profits in 2002](#)
 - 14.5 million pages of pornography

- Anything that is not there?
 - What is the most popular aspect of Internet?

Who is using it?

- 500 million people around the world as of 2004
- ONE billion people by the year 2005
- Internet in U.S.
 - o [Over 130,000,000 Americans are on-line](#)
 - o 60 million people are using it everyday
 - o Every 100 days the Internet traffic is doubling

• [Internet around the globe:](#)

- o There are 233 countries and regions using the Internet worldwide!

World Regions	Population (2003 Est.)	Internet Usage, (Year 2000)	Internet Usage, Latest Data	Growth (2000-2003)	% Population (Penetration)	% of Users
Africa	879,855,500	4,514,400	8,073,500	78.8 %	0.9 %	1.2 %
Asia	3,597,465,700	114,303,000	210,902,651	84.5 %	5.9 %	30.9 %
Europe	722,509,070	103,096,493	199,527,277	93.5 %	27.6 %	29.2 %
Middle East	259,318,000	5,284,800	12,019,600	128.0 %	4.6 %	1.8 %
North America	323,488,300	108,096,800	201,339,798	86.3 %	62.2%	29.5%
Latin America / Caribbean	541,378,400	18,068,919	35,466,586	96.3 %	6.6 %	5.2 %
Oceania	31,528,840	7,619,500	15,090,100	98.0 %	47.9 %	2.2 %
WORLD TOTAL	6,355,543,810	360,983,912	682,419,512	89.1 %	10.7 %	100.0 %

What is Internet (or the Net)?

- The biggest connection of computers and devices connected together
 - o A worldwide network
 - o Today there are 100 MILLION computer connected to the Internet
- Offers many different services
 - o World Wide Web
 - Offering many different activities
 - o Electronic mail
 - o File Transfer
 - o News groups and message boards
 - o Chat and instant messaging

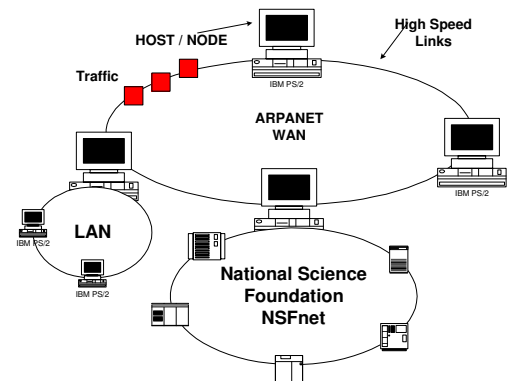
Where did the Internet come from? (A little history!)

- First Project started in 1960 (ARPANET)
 - o Initiated by ARPA (Advanced Research Projects Agency of the U.S. Department of Defense (now DARPA)

- o The big idea: Connect FOUR Computers (Building a WAN)
 - UC Santa Barbara, Stanford Research Institute, University of Utah, UCLA
 - Completed in 1969
 - Still up and running!
 - Many of the computer terminologies go back to ARPANET

Then came ARPA Internet!

- o More and more LANS got connected together via the ARPANET
- o MILNET was also based on ARPANET technology
- o By 1984, 1000 computers were connected to ARPANET
- o In 1986 NSFnet was connected to ARPANET
 - A very complex network called INTERNET:



Basic ARPANET Functionalities:

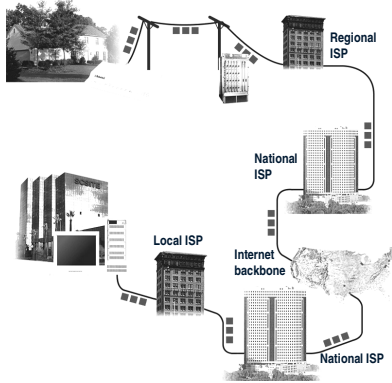
- Email, File transfer, Remote login

Who owns the Internet?

- Until 1995 controlled by NSF
- Today mainly large corporations and political organizations control it
- Its standards and researches are overseen by many including
 - o World Wide Web Consortium (W3C) – at MIT
 - o Internet2 (I2) – with over 200 Universities collaborating

So how does the Internet work?

- How does the data flow?
- How does the data know where to go?



How do you get connected?

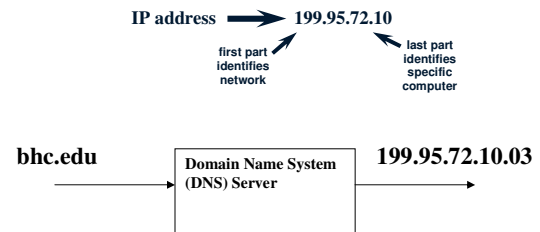
- Dial-up (POP)
- DSL and Cable modem
- Gbit Internet

Service Provider:

- OSP (Internet along with features)
- ISP, WSP
 - o Regional and National
 - o AT&T

Finding the right destination:

- Internet Protocol Address (IP address)
 - o An address that uniquely identifies each computer or device connected to the Internet
 - o 4 groups of numbers:
 - dotted-decimal notation
 - Each section has its own meaning (priority, destination, etc.)
- Domain name
 - o Text version of IP address
 - o Top-level domain name:
 - Assigned by Internet Corporation for Assigned Names and Numbers (ICANN)
 - Different organizations: dot-com, dot.edu, dot.gov
 - Diff countries: visitmexico.com.mx, iffeltower.com.fr
 - o For example: Domain name for **199.95.72.10** = **bhc.edu**



What is the World Wide Web (WWW)?

- A worldwide collection of electronic documents
- Also called the Web
- Each document is called a **Web page**
- Can contain text, graphics, sound, video, and links to other Web pages
- A **Web site** is a collection of related Web pages

Some WWW related terminologies:

- **Browser:** A program that allows viewing Web pages
 - o Netscape
 - o Internet Explorer
- **Home Page:** Starting page for a browser (book cover)
- **Downloading:**
 - o Processes of receiving information from the server into your computer (Which is faster? DSL or dial-up?)
- **Uploading:**
 - o Processes of transmitting information from your computer into the server (why would you upload?)
- **Hyperlink (link)**
 - o Most web pages contain a link
 - o A built-in connection to another web page (phrase, image, word...)
 - o Lets you NAVIGATE though different pages
- **URL (Uniform Resource Locator)**
 - o Web address, telling the browser where to locate the document

http:// www.utdallas.edu /~ffarid/
Protocol + Domain name+ Path

- HTTP (Hypertext Transfer Protocol)

- o Communication standard that enables pages to transfer on the web

There are billions of web pages on the net!

- 1.2 Billion Web pages are visited daily!

So how do you find the one you want?

- Know the URL
- Use a web directory (An organized directory of topics) – pp. 2.15
 - o Examples: LookSmart.com, YahooGroup.com
- Use a search engine (software program used to find web pages, sites, etc.)
 - o Examples of web searcher: Yahoo, Google, and many more.....
- Search guides (tell you how to search - pp. 2.61)
 - o AND, AND NOT, “Computers”, wild-character, and more

Web page types (Many different usages – 6 basic categories):

- Portal (Provides internet services)
 - o Search engine, news, sports, Web community,
 - o Examples: AOL, Google, MSN
 - o Media: Wireless, Wire-based
- News
- Informational
- Business/marketing (used for e-commerce, selling products)
- Advocacy (opinion page)
- Personal

What is a web page made of?

- Text (text-based internets – they are fast but boring!)
- Multimedia: Application integrating text with other media elements –
 - o Slow but cool!
- Multimedia Elements:
 - o Graphics
 - Drawing, pictures, etc.

- Digital representation of INFORMATION
- Formats: JPEG, GIF, TIFF,
 - Differ in size, compression techniques, etc.
- Animation
 - Displaying a series of static pictures in rapid sequence (GIF)
 - Texts can be animated too: **marquee**
- Audio
 - Voice, speech, and other sounds
 - Formats: WAV, MP3 (1/10 of the original size/ good for transferring music)
 - Streaming Audio (Allows you to listen as it down loads)
- Video
 - Consists of full-motion images with sound
 - It can be played back at various speeds
 - MPEG is a popular video compression standard
 - Other examples: MPEG-4, Streaming Video
 - Used for Web cams
- Virtual reality
 - Use of computers to simulate real or imagined environment
 - Used for games and many practical applications (such as?)

Other Web Applications:

- E-commerce:
 - Marketing of good and services over Internet
 - Types (3):
 - B2C (Business-to-consumer)
 - C2C (ebay)
 - B2B
- M-Commerce
 - E-commerce but using mobile devices

Creating Web Pages and Sites:

- Write your page (text, audio, animation, etc.)
 - File format is called **HTML** (HyperText Markup Language)
- Deploy your web page
 - Need an ISP (OSP) as a **hosting server** – to store your files
 - Upload you pages
 - Use FTP, Web Folder, etc.
 - Register your site
 - Maintain the page with the latest updates – need a **webmaster**

Internet Services:

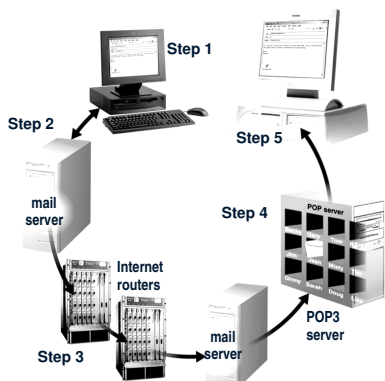
- WWW
- FTP
 - File Transfer Protocol
 - Internet standards that allows downloading and uploading
 - The larger the file is the longer it takes to transfer
 - **FTP Server**: A computer that allows users to upload and download using FTP
 - **FTP Site**: Collection of sites that reside on an FTP server
 - **File Server**: is the computer that stores and manages the files
- Newsgroups and Message boards
 - Online area where users conduct written discussions about particular subject
 - User sends message to newsgroup
 - Other users in newsgroup read and reply to message
 - The entire collection of Internet newsgroup is called **Usenet**
 - The computer that stores and distributes newsgroup messages is called **news server**
- E-mail
 - Transmission of files and messages via a computer network

- E-mail programs
- E-mail attachment (a file attached to the email)
- E-mail address
 - Each user ID must be unique in its domain!

farid.farahmand@flash.net

User name (ID) + at + Domain name

- Address book: it contains list of names and addresses
- Mailbox: storage location typically residing on computer that connects you to the Internet
- Mail server: the server that contains the Mailbox
- Typically most ISPs and OSPs provide:
 - E-mail program, e-mail box, e-mail server
- Sending messages via e-mail:
 - YOUR mail server determines how to route the message
 - HER mail server transfers the message to POP server (Post Office Protocol)
 - The POP will retrieve the e-mail from a mail server
 - Holds e-mails until they are read



- Mailing Lists
 - A dedicated name to a group of e-mail names and addresses
 - Example: YahooGroup.com
- Chat Room
 - A **Real-time** typed conversation between computers (between Chatters!)
 - **Chat server** is the computer that connects the “Chatters” together
 - **Chat client** is a program allowing you to chat (Yahoo Messenger)
 - The world of chatters:
 - Netiquette (Behave accordingly!)
 - Flames (your computer sucks!)
 - Emoticons (☺, ☹)
 - Shortcuts (LOL)
 - Spoilers! Ohhhhhhhhhhhhhhh!
 - Shouters!
 - Spammers (people sending junk mails known as **Spam**)

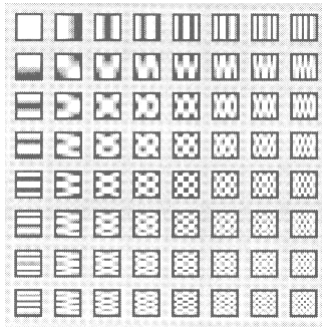
Remember

Computer Protocols

- Collective rules and conventions used in a computer network
- Examples:
 - FTP (file transfer)
 - HTTP (web paging)
 - POP (emails)
 - IP (Internet addressing)

About Video Compression (for you to know):

- First we need to **SAMPLE**
- Human visual system:
 - Brightness
 - Color
 - Motion
- Resolution (pixels – 720 x 480 and 360 x 240)



- Compression (compression ratio – 20:1, 100:1)
 - How to reconstruct the picture
 - Different coding technique (easier when less motion)