

Senn Chap. Three

***A Tour of the Internet and  
the World Wide Web***

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## Chapter Outline

- Background of the Internet
- Client/Server Computing
- Internet Structure and Addresses
- 11 Common Applications  
( communication and retrieval )
- World Wide Web
- Basic HTML tags

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## Internet: The Early Years

- The Internet: A communication network that is itself a connection of many other networks.
- U.S. Department of Defense funded the research on internetworking. By late 60's, ARPA (Advanced Research Projects Agency) had a project to build a wide area network called ARPANET to use a new technology called packet switching.
- Their goal was universal connections - interconnect all machines at dispersed sites so that researchers could share data and their findings.

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## Quick History

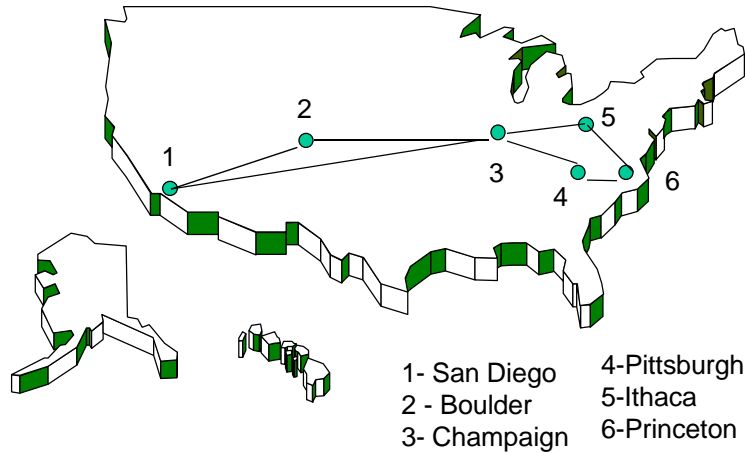
- Arpanet became extremely successful - in 1975, it was converted into an operational network administered by Defense Communications Agency DCA, it became the backbone of the Internet.
- ARPA researchers invented networking software called TCP/IP - mid 70's.
- 1983 - ARPA mandates TCP/IP for all military installations and connected every site to Internet
- 1993 - Birth of Mosaic: first graphical, multimedia browser
- 1994 - First commercial browser: by Netscape communications founded by Jim Clark and Marc Andreessen

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## NSF Backbones



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## Decade of Incredible Growth

Year	Approx. number of computers on the Internet
1983	562
1984	1024
1985	1961
1986	2308
1987	5089
1988	28174
1989	80000
1990	290000
1991	500000
1992	727000
1993	1200000
1994	2217000

1994 - www explosion hits the Internet.

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## Since 1994...

- ❑ The Web Browser creates a uniform interface to deal with different file format and different computing platform.
- ❑ Rise of commercial sites on the Internet; increasing use of multimedia (voice, images, video).
- ❑ The Telecom Act of 1996 promotes commercial growth of the Internet.
- ❑ Late 1996 - academics, research institutes demand Internet-2 project....
- ❑ Emerging technology: ADSL, Cable Modem, VoIP, Wireless communication...

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## Computers on the Internet

- ❑ Servers computers (host computers)
- ❑ Client computers
- ❑ Routers: know where to send data based on the *address* of the data.
- ❑ All machines in the internet should share a universal set of machine identifiers/addresses.

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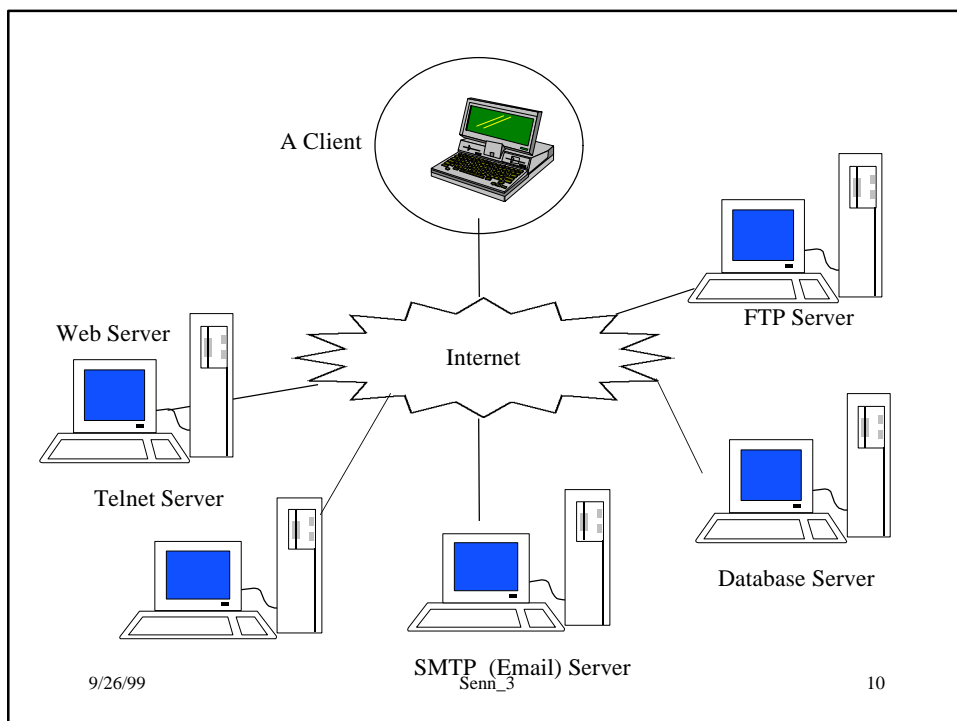
# Client-Server Computing

- ❑ **Client**
  - ❑ The computer that accesses the information stored on a server computer
- ❑ **Server**
  - ❑ The computer that contains data and information that can be accessed by a client computer
- ❑ **Client Server Computing**
  - ❑ A type of computing in which all data and information retrieval requests and responses pass over a network

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# Structure of the Internet

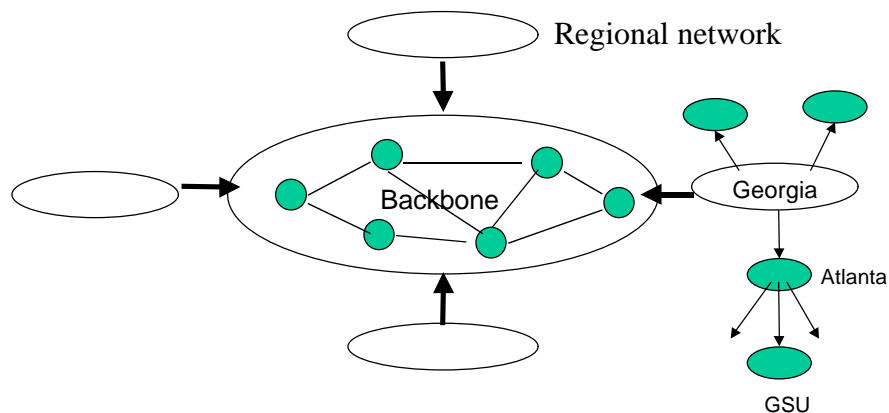
- ❑ National Networks (Backbone)
- ❑ Regional Networks
- ❑ Subnets (e.g. Peachnet)
- ❑ Local Networks (e.g. company's internal network)

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# Structure of the Internet



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# Internet Domain Name

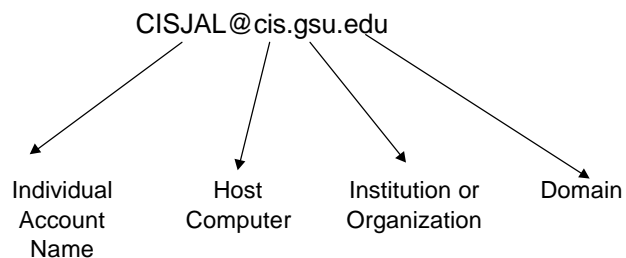
- Internet presently uses a hierarchical system to name hosts based on **domain names**.
  - att.com, gsu.edu, nsf.gov
- The set of standard top-level domain names forms the basis of both geographical and non-geographical naming system.
  - com - commercial organization
  - edu - educational institutions
  - gov - government institutions
  - mil - military groups
  - net - major network support centers
  - org - other organizations
  - int - International organizations
  - country code

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# Internet Address



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# Common Applications

- ❑ **Communication**
  - ❑ EMAIL
  - ❑ USENET
  - ❑ CHAT Sessions
  - ❑ Mailing Lists
  - ❑ Telnet
- ❑ **Retrieval**
  - ❑ FTP
  - ❑ Archie
  - ❑ Gopher and Veronica
  - ❑ Wais
  - ❑ WWW

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## Usernet, Chat Session, Mailing List

- ❑ **Usenet**
  - ❑ an electronic bulletin board, where anyone can post message for anyone else to view.
- ❑ **Chat Session**
  - ❑ live interactive discussion, each will see other's comments simultaneously and be able to respond immediately.
- ❑ **Mailing lists**
  - ❑ getting emails only when you subscribe the mailing list.

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## Archie and FTP

### FTP

- transfer copy of file from server to client.

### Archie

- search index of anonymous FTP sites (based on keyword), and list the ftp addresses

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## Gopher, Veronica and WAIS

Gopher	Search for textual information in hierarchical menus.
Veronica	Uses keywords to search multiple Gopher menus.
WAIS (Wide Area Information Servers)	Search the fully indexed contents of databases on the Net, and creates a menu of articles and manuscripts containing the keywords provided.

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# WWW

- WWW
  - a set of interconnected electronic documents linked together over the Internet
- Web pages
  - Interconnected electronic documents
  - the first page of a Web site is called “home page”
- Hyperlinks
  - highlighted keywords that connect one document to another related document on the Web
- HTML(Hypertext Markup Language)
  - A set of commands that specifies the position, size and color of text, the location of graphic and other multimedia information

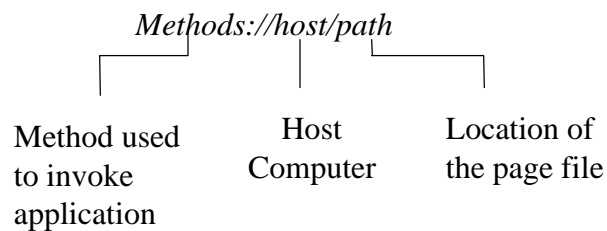
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# URL

- URL: A document's address on the WWW



Example:

<http://www.cis.gsu.edu/~ljin/index.html>

<ftp://www.cis.gsu.edu/~ljin/index.html>

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## Introduction to basic HTML Tags

- Document Components
- Basic HTML Tags
- In-line images
- Lists

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## HTML Document Components

comments	<!DOCTYPE HTML PUBLIC...>
begin html	<Html>
header	<Head> <Title>...</Title> </Head>
Body	<Body> ... </Body>
end html	</Html>

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## Basic Html Tags

- Header tags `<Hx> ... </Hx>`
- New Paragraph tag `<P align=(left/center/right)>...</P>`
- Line break tag `<BR>`
- Hypertext link  
URL, or file name `<A HREF="www.cis.gsu.edu"...</A>`

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## In-Line Images

**`<IMG SRC="..." ALT="..." ALIGN=...>`**

**src:** img file name

**alt:** text shown when the image is not displayed

**align:**

top: image top is aligned to the text

bottom: image bottom is aligned to the text

left: floats the image to the left margin of the page

right: floats the image to the right margin of the page

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# Lists

- Ordered list  
    <OL> <LI [type=(number/square/circle)]...</OL>
- Unordered list  
    <UL><LI>...</UL>

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# Formatting Text

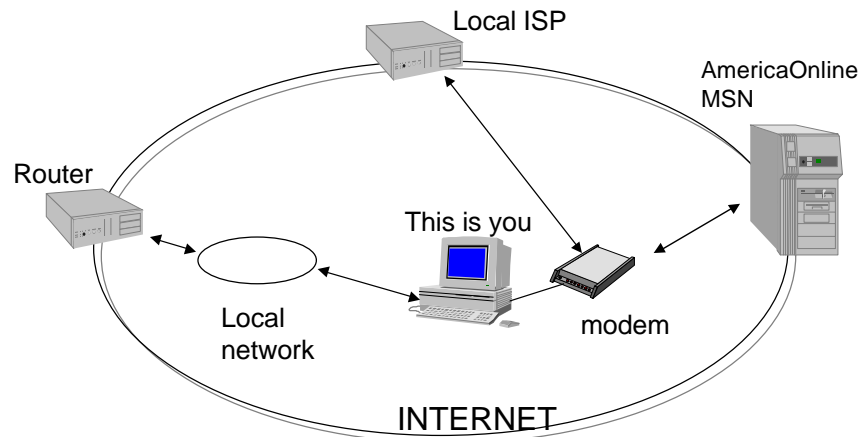
- Insert a ruler line: <HR>
- Boldface the text: <B>...</B>
- Italic the text: <I>...</I>
- Underline: <U>...</U>

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## *Connect to the Internet*



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