



The Internet and World Wide Web



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What You Will Learn About

- The Internet and its history
- The differences between the Internet and the Web
- The concept of hypertext
- Web browsers and Web servers
- The parts of a URL



What You Will Learn About

- The elements of Internet addresses
- The most popular Internet services
- Web subject guides and search engines
- Search operators
- The reliability of information on a Web page



The Internet



- The Internet is a global, interconnected computer network in which every computer connected to it can exchange data with any other connected computer. (Network of networks)



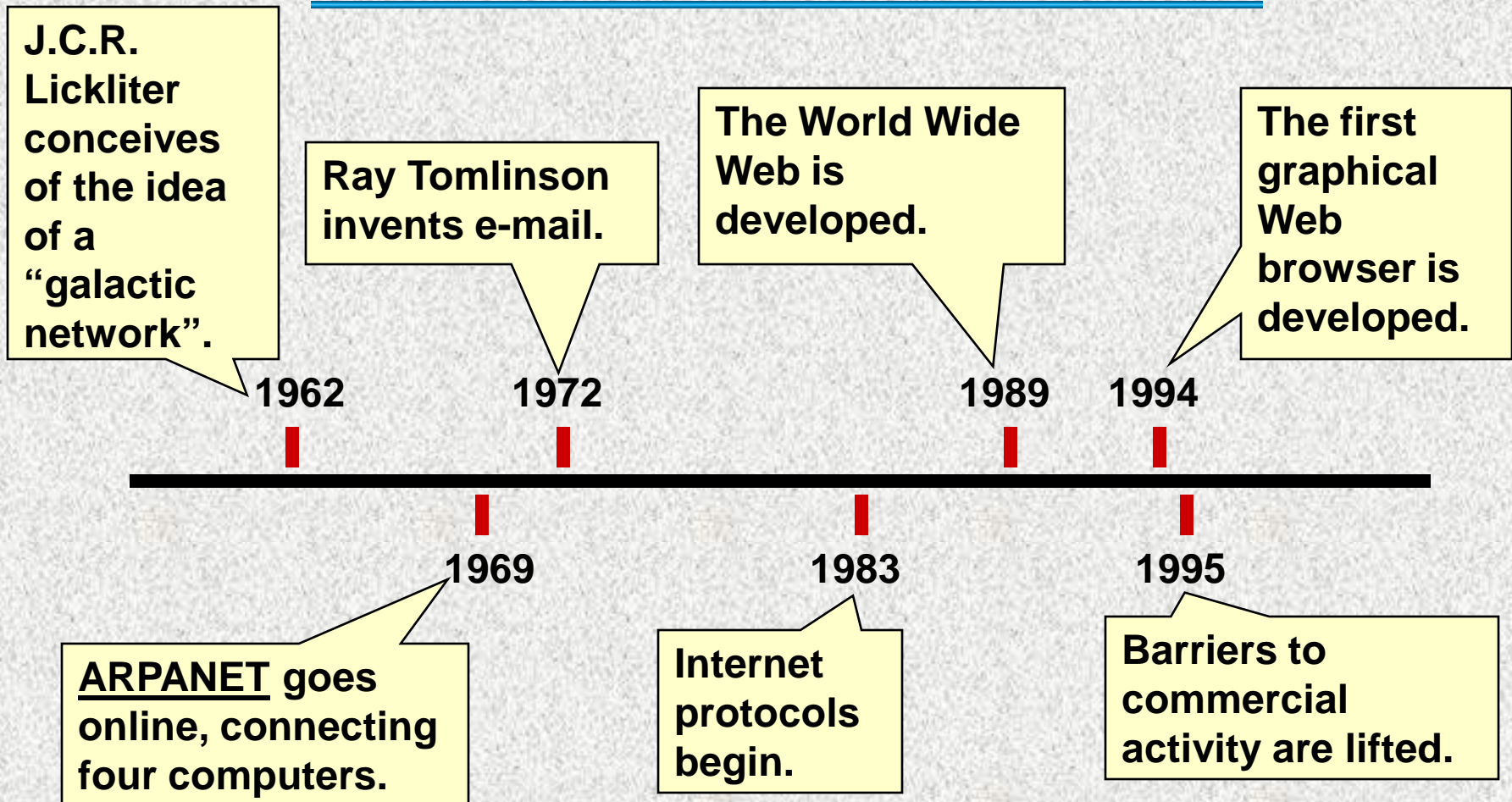
The significance of the Internet

- It's the first mass medium that involves computers and uses digitized data.
- It provides the potential for media convergence, the unification of all media.
- It's transforming how we communicate, obtain information, learn, seek jobs, and maintain professional growth.
- Businesses find it an indispensable tool for their needs.



The Internet's History

Significant events



Top Ten Internet Users (2014)



<http://www.internetlivestats.com/>

Rank	Country	Internet Users	1 Year Growth %	1 Year User Growth	Total Country Population	1 Yr Population Change (%)	Penetration (% of Pop. with Internet)	Country's share of World Population	Country's share of World Internet Users
1	China	641,601,070	4%	24,021,070	1,393,783,836	0.59%	46.03%	19.24%	21.97%
2	United States	279,834,232	7%	17,754,869	322,583,006	0.79%	86.75%	4.45%	9.58%
3	India	243,198,922	14%	29,859,598	1,267,401,849	1.22%	19.19%	17.50%	8.33%
4	Japan	109,252,912	8%	7,668,535	126,999,808	-0.11%	86.03%	1.75%	3.74%
5	Brazil	107,822,831	7%	6,884,333	202,033,670	0.83%	53.37%	2.79%	3.69%
6	Russia	84,437,793	10%	7,494,536	142,467,651	-0.26%	59.27%	1.97%	2.89%
7	Germany	71,727,551	2%	1,525,829	82,652,256	-0.09%	86.78%	1.14%	2.46%
8	Nigeria	67,101,452	16%	9,365,590	178,516,904	2.82%	37.59%	2.46%	2.30%
9	United Kingdom	57,075,826	3%	1,574,653	63,489,234	0.56%	89.90%	0.88%	1.95%
10	France	55,429,382	3%	1,521,369	64,641,279	0.54%	85.75%	0.89%	1.90%



The Future of the Internet

- Key changes in the Internet need to take place to handle the growing number of users and the speed of the connections.
- Future changes include:
 - More bandwidth
 - Internet 2 (I2) is being developed and tested to establish gigabits per second.





Band Width

In computer networks, bandwidth is used as a synonym for data transfer rate, the amount of data that can be carried from one point to another in a given time period (usually a second).

Network bandwidth is usually expressed in bits per second (bps); modern networks typically have speeds measured in the millions of bits per second (megabits per second, or Mbps) or billions of bits per second (gigabits per second, or Gbps).

A packet is the unit of data that is routed between an origin and a destination on the Internet or any other packet-switched network (thru TCP).

Packet loss, latency, jitter, bottleneck all degrade network throughput.



The Internet and Web: What's the Difference?

- The Internet is the physical connection of millions of networks.
- The Web uses the Internet for its existence.
- The Web consists of hypertext embedded on Web pages that are hosted on Web sites.





The Web Site

- A **Web site** is a collection of related Web documents that are made available to the public.
- The **index page**, or **home page**, is the first page of a Web site.
- **Web pages** are individual Web documents.





The Hypertext Concept

- **Hypertext** is a way of presenting information so that the order in which it's read is left up to the reader.
- **Hyperlinks** are underlined or highlighted words that can be used to view another document or Web page.
- **Hypermedia** refers to a link to multimedia, such as music and movies.
- The Web is a **distributed hypermedia system** or a system where the responsibility for creating content is distributed among many people.



Web Browsers and Servers

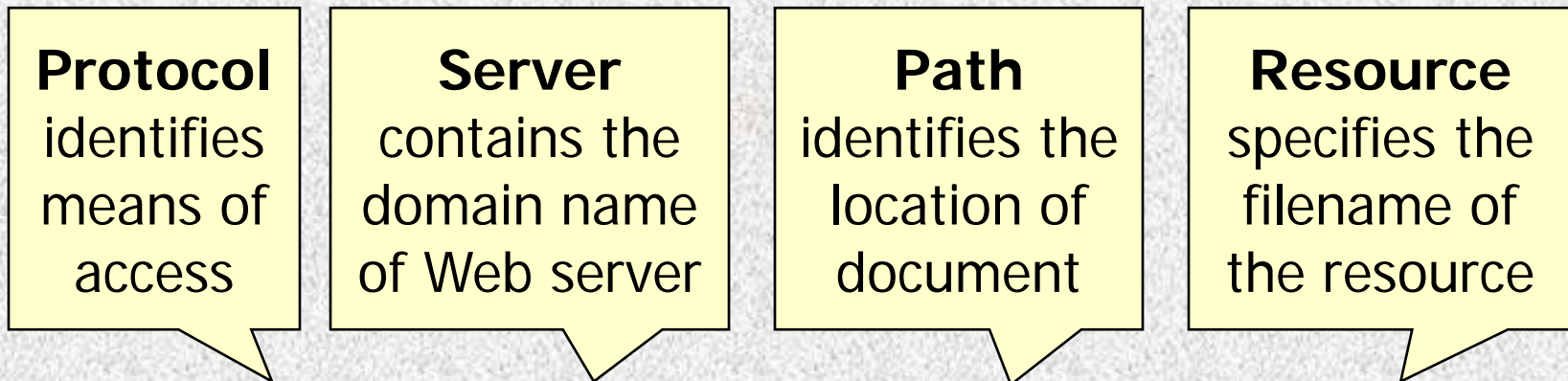


- **Web browsers** display a Web document and enable users to link to other Web pages.
 - The first browsers were text-only.
 - **Mosaic** was the first graphical browser.
- **Web servers** respond to the requests of browsers. They find and send requested resources back to the browser.



Web Addresses (URLs)

- Web addresses are an addressing system that identifies where a Web resource is located.
- The **uniform resource locator (URL)** is the standard used to identify Web resources.
- The URL consists of:



URL <http://www.yahoo.com/help/shop/shop-01.html>



- HTTP (Hypertext Transfer Protocol) is the set of rules for transferring files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web. HTTP is an application protocol that runs on top of the TCP/IP suite of protocols (the foundation protocols for the Internet).
- HTTPS (HTTP over SSL or HTTP Secure) is the use of Secure Socket Layer (SSL) or Transport Layer Security (TLS) as a sublayer under regular HTTP application layering. HTTPS encrypts and decrypts user page requests as well as the pages that are returned by the Web server. The use of HTTPS protects against eavesdropping and man-in-the-middle attacks.



Browsing the Web

To access a Web page, you can do any of the following:

- Click a hyperlink.
- Type a URL in the Address box.
- Click a button on the Links toolbar.
- Use the Back and Forward buttons.
- Use a Web site's navigation aids.
- Use the History list.
- Use the Favorites or Bookmarks list.



Web Page Design

HTML/XML Document

- Authors use a markup language called **Hypertext Markup Language (HTML)** to create Web pages.
- The markup language consists of codes that identify portions and special effects in the document.
- XML (Extensible Markup Language) is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere.



How the Internet Works

- The Internet provides immediate and direct contact with all computers on the network.
 - All Internet computers have an **Internet address (IP address)**.
 - **Internet service providers (ISPs)** sell subscriptions to the public.
 - Its **interoperability** feature enables access for all types of computers.
- Large organizations maintain the Internet.
 - Many private and public networks are linked together to provide a worldwide networking system.
- Packet switching technology is used to transmit data.



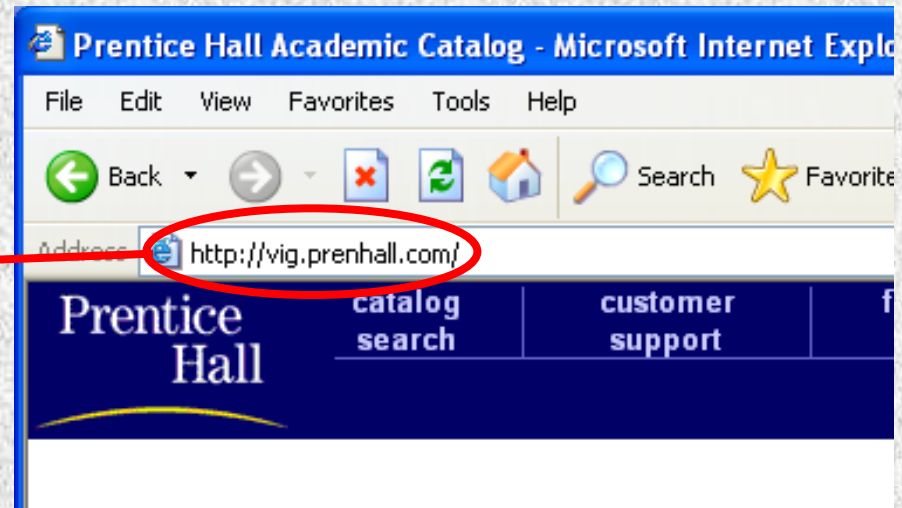
Internet Protocols

- **Transmission control protocol (TCP)** – A standard that defines how one computer can communicate and exchange data with another computer on the Internet.
- **Internet protocol (IP)** – Defines the Internet's addressing scheme.
- **IP address** – Each computer connected to the Internet is given an address composed of numbers and periods. Example: **209.234.456.8**



Domain Names

Domain Name



- **Domain Name System (DNS)** – Enables users to type names of Web sites and Web pages as well as IP addresses. Example: **www.msn.com** or **112.23.345.56**
- **Domain name registration** – Enables individuals, businesses, and organizations to register their Web sites with InterNIC (The Internet's Network Information Center).
- The last part of the domain name gives the type of organization that maintains the site. Examples: **.com**, **.net**, **.edu**, **.gov**, **.org**, **.int**, **.mil**, **Country codes**.



Accessing the Internet and Web



You will need:

- A computer with an operating system, such as Windows, MAC OS, or UNIX or Linux , that supports Internet protocols
- Communications equipment such as a modem, ISDN adapter, or Ethernet card
- An Internet service provider (ISP)
- Web browser software such as Internet Explorer or Google Chrome



Accessing the Internet

The Internet can be accessed in the following ways:

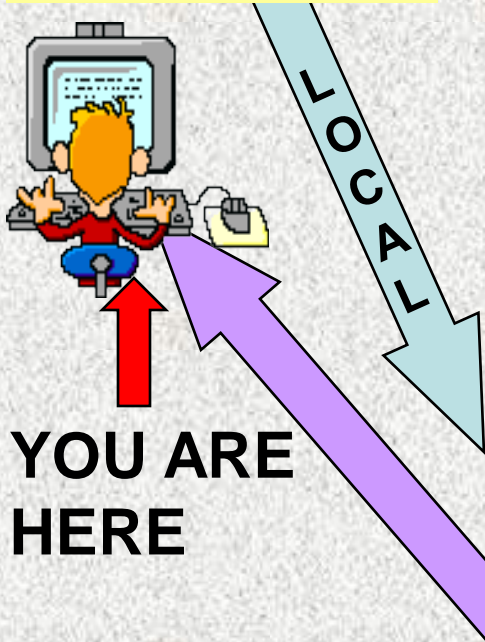
- Dial-up access with Point-to-Point Protocol (PPP)
- Digital Subscriber Line (DSL)
- Cable and satellite access
- LAN access



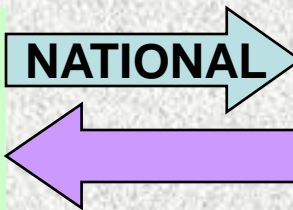
ISPs and Backbone Service Providers

Click to view animation. Click once only.

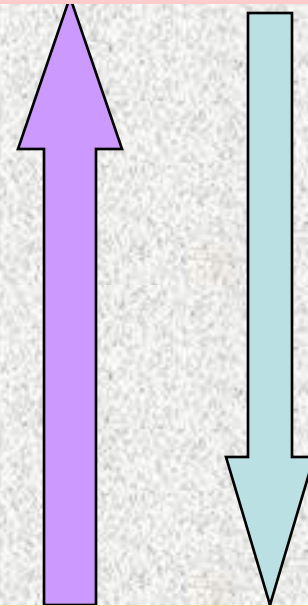
1. You request a Web page.



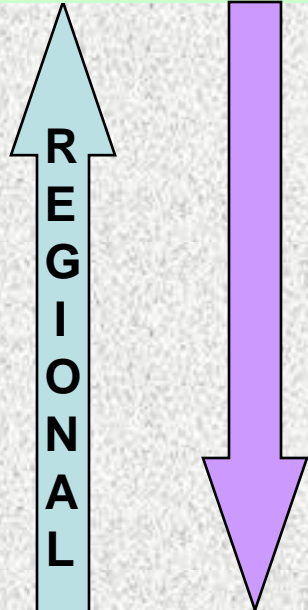
3. Your request goes to a **network access point (NAP)**.



4. Your request goes to a **national backbone network**.



2. Your request goes to your ISP's **point of presence (POP)**.

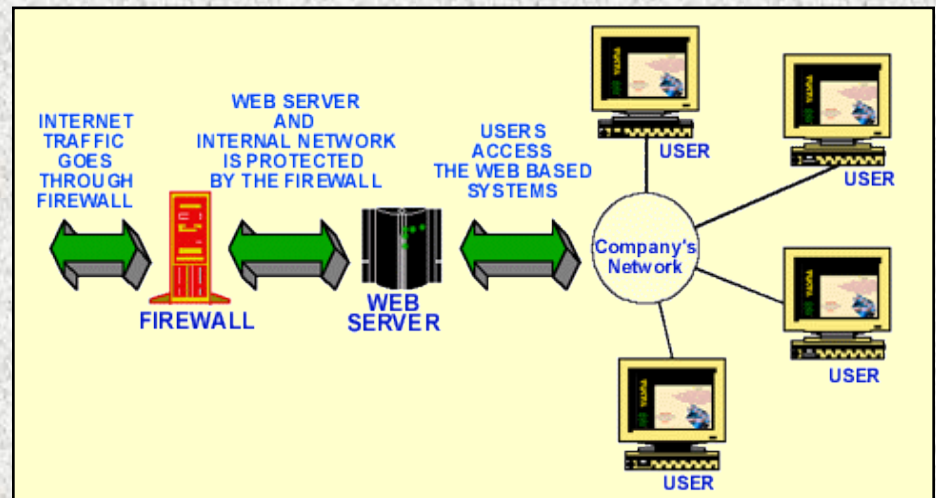


5. Your request reaches the Web site's server and the Web page is sent back to you in **packets**.



Intranets and Extranets

- **Intranet** – An internal networking system within a company
 - They function like the Internet
 - They are for internal use only and are not available to those outside the company
- **Firewall** – Software used to screen incoming data
- **Extranet** – An intranet that can be used by outside sources who access it over the Internet





The Internet vs. Online Services



Online Service



Web Service

- An online service is **proprietary**. It provides services through its network. Some examples of services provided: e-mail, chat rooms, customized content, and Internet access.
- Web services provide a **portal** (gateway) to connect to the Internet without offering many other services.



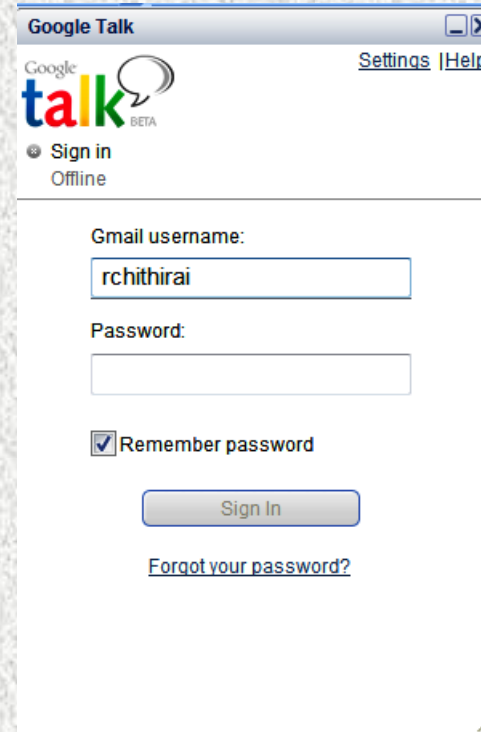
E-Mail: Staying in Touch



- **E-mail** is short for electronic mail.
- It's the most popular of the Internet services.
- Messages are sent and received in a few seconds.
- Attachments such as photos, music files, and any document may be sent with the message.



IRC: Text Chatting in Real Time



- Internet relay chat consists of real-time, text-based conversations.
- Chat groups are divided into channels that cover a specific topic.



File Transfer Protocol (FTP)

Your Computer



UPLOAD

FTP Server



DOWNLOAD

- **FTP** is a part of the Internet that enables client computers to transfer files.
- Transferring files from an FTP site to the client is known as **downloading**.
- Transferring files from the client to an FTP site is known as **uploading**.
- Clients may store files on an FTP site's server.



Usenet

- **Usenet** is the part of the Internet which enables users to participate in discussions and newsgroups.
- Usenet newsgroups are organized into hierarchies (categories) and subcategories.



The screenshot shows a web browser window with the URL www.usenet.org/what-is-usenet/. The page features a navigation bar with links for HOME, NEWSREADER, and USENET-FAQ. A breadcrumb trail indicates the current location: Home / Usenet-FAQ / What is Usenet?. The main content area includes a heading "What is Usenet?" and a sub-heading "What is Usenet? High-Speed Downloads." A sidebar on the right, titled "The World of Usenet", lists features such as "Maximum Speed" and "30 SSL Connections".



Listservs: Electronic Mail Lists

- A **listserv** is an automatic list server.
- Mail is sent to everyone on the list when e-mail is generated.
- It is similar to a newsgroup or a forum.

The screenshot shows the Listserv 1.8e interface. The title bar reads "LISTSERV 1.8e" and "LISTSERV @ Miami University". The main heading is "ARCHIVES Archives - February 2003, week 2".

Sort by: [Author](#) | [Date](#) | [Topic](#)
Chronologically | [Most recent first](#)

Options: [Show author](#) | [Hide author](#)
[Show table of contents](#) | [Hide table of contents](#)
[Back to main ARCHIVES page](#)
[Join or leave ARCHIVES](#)
[Search](#)

1. "Patriot Act II"
 • ["Patriot Act II" \(88 lines\)](#)
 From: Joel Minor <jminor@OLC.EDU>
 Date: Mon, 10 Feb 2003 10:08:55 -0800
 • [Re: "Patriot Act II" \(321 lines\)](#)
 From: Chris Flynn <cflynn@FNA.FSN.UIDAHO.EDU>
 Date: Mon, 10 Feb 2003 09:49:49 -0800

2. "Young Doctors" found
 • ["Young Doctors" found \(230 lines\)](#)
 From: Molly Beisler <agossen@FOUNDATIONNYSNURSES.ORG>
 Date: Thu, 13 Feb 2003 14:43:06 -0500

3. \$10,000 Fellowship for Genealogy Research (Doctoral Level)
 • [\\$10,000 Fellowship for Genealogy Research \(Doctoral Level\) \(120 lines\)](#)
 From: Robert Friedman <rfriedman@CJH.ORG>
 Date: Thu, 13 Feb 2003 13:38:39 -0500

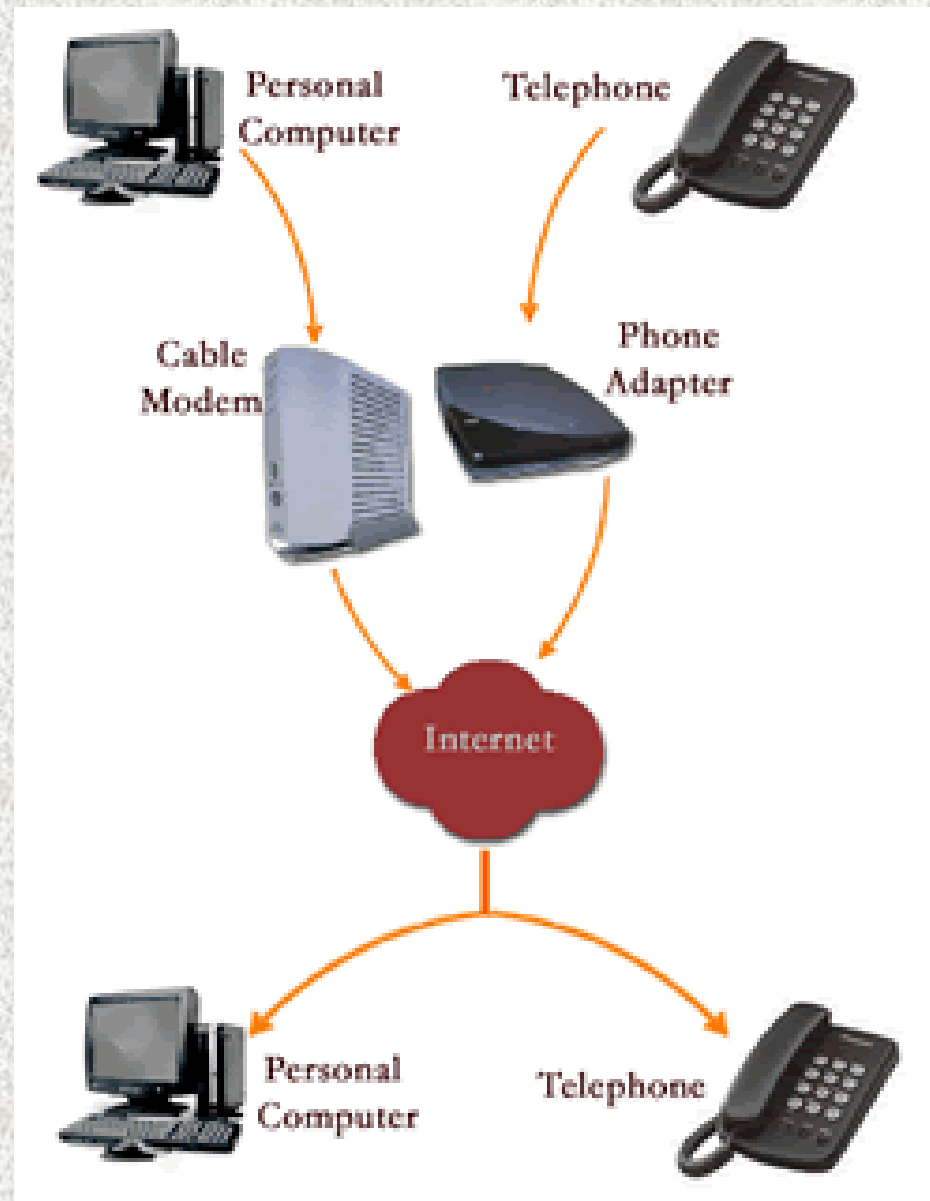
4. \$750 Scholarship available from the Midwest Archives Conference
 • [\\$750 Scholarship available from the Midwest Archives Conference \(68 lines\)](#)
 From: Erik Nordberg <enordber@MTU.EDU>
 Date: Thu, 13 Feb 2003 13:19:21 -0500

The interface also shows a Windows taskbar at the bottom with the "start" button, taskbar icons for Internet Explorer, Outlook, and other applications, and a system tray with a clock showing 1:58 PM on 2/13/2003.



Internet Telephony/VoIP

- **Internet telephony** consists of real-time voice and video conversations.
- A microphone, sound card, and digital video camera are required.





Finding Information on the Web

Ways to find information on the Web:

- **Browse** or **surf** the Web – This involves linking from one Web page to another, and so forth.
- **Search the Web** – This method involves using search engines to locate Web pages with the information you're looking for.
- **Subject guides** – Web pages are grouped under headings.

Using Search Engines



- To use a search engine, you:
 - Choose a search engine (Google, MSN, Lycos, Alta-Vista, Yahoo, etc).
 - Type in one or more words describing your topic.
- The search engine checks its database of Web pages that contain the words typed.
- The results are sent to your computer.
Clicking on the link takes you to that page.



Using Search Techniques

- Learning a few search techniques can increase the accuracy of Web searches.
- Searches using **search operators** will improve search performance.
- Most search engines use the following search operators:
 - Inclusion/exclusion operators
 - Wild cards
 - Phrases
 - Boolean operators



Using Search Techniques

The following tables show the results of using and not using search operators.

Using Search Operators

No Search Operators

Words Entered	Possible Results – Web pages containing
Fire station	Fire station Fire station

Words Entered	Possible Results – Web pages containing
+Fire+station	Fire station
+Fire+station*	Fire station Fire stations
+Fire-station*	Fire
"Fire station"	Fire station
Fire and station	Fire station
Fire or station	Fire station Fire station
Fire not station	Fire

Rules for Evaluating Web Pages



1. **Author** – Who is the author?
2. **Sources** – Where does the information come from?
3. **Server** – Who provides the server for the page?
4. **Objectivity** – Is the information objective or one-sided?
5. **Style** – Is the language objective or argumentative?
6. **Purpose** – What is the purpose of the page?
7. **Accuracy** – Is the information accurate?
8. **Currency** – Is the page up-to-date?



Summary

- The Internet is a global network providing direct access to computers worldwide.
- Because of its cross-platform feature, computers of all types can use the Internet.
- Related information, in hypertext documents, is referenced by linking to other documents.
- The user's Web browser is known as the client, and the Web server retrieves documents requested by the client.
- A URL consists of the:
Protocol, Server, Path, Resource name
- Web pages are created using Hypertext Markup Language (HTML).

Summary ...



- Online services are proprietary.
 - Client software enables information to be accessed, and server software delivers the information.
 - An Internet address uniquely identifies each computer connected to the Internet.
 - Intranets enable companies to set up internal communications.
 - Popular Internet services include:
 - E-mail, World Wide Web, FTP, Usenet, Listservs, Instant messaging, Internet Relay Chat, Internet telephony
- You can improve search results by using inclusion operators, phrases, and Boolean operators.



Agri Resources

<http://www.icar.org.in/>

<http://agricoop.nic.in/>

<http://india.gov.in/>

<http://mkisan.gov.in/>

<http://india.gov.in/topics/agriculture>

<http://www.rainwaterharvesting.org/>

<http://www.isapindia.org/>

<http://www.apeda.gov.in/>

<http://agritech.tnau.ac.in/>

www.csir.res.in

www.ugc.ac.in/

www.uasbangalore.edu.in/

<http://www.worldbank.org/>

<http://www.ifpri.org/>

<http://agricola.nal.usda.gov/>

<http://www.fao.org/>

<http://plants.usda.gov/java/>

<http://www.worldinformation.com/>

<http://www.icrisat.org/>

<http://www.cgiar.org/>

<http://www.cimmyt.org/en/>

<http://www.bioversityinternational.org/>

<http://www.irri.org/>

<http://www.worldfishcenter.org/>

<http://www.worldagroforestrycentre.org/>



Thank you !