The Internet

Chapter 7
A Resource for All of Us

The Internet as a Phenomenon

- The Internet is a loosely configured, rapidly growing labyrinth of networks.
- composed of computers from around the world,
- owned by multiple corporations, organizations, and individuals.

Don't Know Much about History

The history of the Internet is mercifully short, and is covered briefly in the next sections.

First Stirrings at the Department of Defense

In the Cold War era of the 1950s, paranoid atmosphere in the United States prompted the U.S. DoD to design a survivable computer network.

This result was the Advanced Research Projects Agency Network (ARPANet).

First Stirrings at the Department of Defense

The packets, or message parts, conveyed through ARPANet were taken care of by the Transmission Control Protocol/Internet Protocol software (TCP/IP).

First Stirrings at the Department of Defense

Computers from research universities and defense contractors joined the network, but the technology's popularity was still restricted largely to professionals and those with technical expertise.
In 1990, Dr. Tim Berners-Lee, a physicist at CERN, knew his work would be easier if he linked his and his colleagues’ computers together on a network. He saw the linked machines as a spider’s web, hence the term “Web.”

Marc Andreessen was a student when, in 1993, he led a team that invented the browser, software used to explore the Internet.

TCP/IP software was, and still is, in the public domain, and the Internet grew by leaps and bounds as more and more people joined in and linked up. As the Internet, a name taken from the TCP/IP protocol, began to dominate, the original ARPANet began to disappear altogether.

The browser, Mosaic, featured a graphical interface, so that users could see and click on pictures as well as text. Today, several competitive browsers exist, such as Netscape and Internet Explorer.

The emergence of the Internet is due to four factors:
- The universal TCP/IP standard
- The web-like ability to link from site to site
- The ease of use provided by the browser’s graphical interface
- The growth of personal computers and their LANs connected to the Internet
Getting Started

The following sections briefly cover the process of accessing and using the Internet and its resources.

The Internet Service Provider and the Browser

An Internet user needs:
- A computer with a modem.
- An Internet service provider (ISP) that provides the server computer and software to connect to the Internet.
- A browser to explore the Internet and access links.
You can also sign up for an online service to access the Internet.

The Internet Service Provider and the Browser

Approximately two thirds of Internet users connect via online services. The other third use ISPs.
To use an ISP, you must first decide which one.
Once you have arranged to pay the fees (installation, monthly), you'll set up your ISP as the provider's instructions direct.

The Browser in Action

Two popular browsers are Marc Andreessen's Netscape Communicator and Microsoft's Internet Explorer.
When you start the browser, it will dial up the ISP and, once connected:
- display either the home page of the Web site that created your browser or
- some other site designated by the ISP.

The Parts of a Browser

Browser control panel - shows the web address currently displayed, buttons to go to the previous/successive pages visited.
Browser display window - the largest part of the display. Shows the content of the current web page.
Browser status line - shows the status of data being loaded or the destination of selected links.
The Parts of a Browser

Control Panel
Display Window
Status Line

Browser Functions and Features

The following sections cover the functions and workings of the browser control panel.

Menus and Buttons

Using a mouse you issue commands through a series of menus, a set of choices typically selectable from the top of the screen. Most menus are pull-down menus, at the very top of the display.

Menus and Buttons

Buttons also invoke commands.
- Back and Forward traverse site history.
- Print prints a web site.
- Home goes to the home page.

URL

The location slot contains a rather messy bit of text called the Uniform Resource Locator (URL). First, the HyperText Transfer Protocol (http://)

http://www.intel.com/pressroom/index.htm

Second, the domain name, the address of the ISP contacted. (If it is a commercial site, it ends in .com, .org means nonprofit organization).

http://www.kevinmitnick.com
Third, the **paths, directories, and file names** of sites and their content loaded by the browser.

*URL*

http://www.intel.com/pressroom/index.htm

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Frames

Each section can operate independently.

- Most browsers support a concept called **frames**.
- Frames let you divide pages into rectangular sections.

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**Competition**

Not just functional buttons, but buttons that illuminate when the cursor passes over them.

- Not just English, but French, German, and Italian.
- Not just frames, but borderless frames.

Today’s browsers are a whole suite of programs for communicating, sharing information, mail and security support.

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**Plug-ins**

In addition to the browsers themselves, many vendors offer **plug-ins**, software that enhances the value of a browser by increasing its functionality or features.

- Typical plug-ins enhance audio-visual experience or image viewing capability.
- Most plug-ins can be downloaded from their own web sites.

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**Java**

**Java** is a programming language developed by Sun Microsystems, used to write software that can run on any machine.

- Java makes possible the dancing icons, sound clips, flashing messages, and scrolling banners that you see on the Internet today.
- The Java programs that provide multimedia effects are called **applets**.

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**Moving from Site to Site**

Most browsers provide lists of clickable categories.

- Many home sites provide “cool” links to selected pages.
- If you want to be specific, you can delete the URL listed in the location bar and enter a desired URL to “transport” you to an intended site.
Searching the Internet

A search engine is software, usually located at its own web site, that lets a user specify terms; the search engine then finds sites that fit those terms.

A search engine finds sites by building a database, following links across the Web and keeping data on some or all of the words on a Web site.

Hot Search Engines

The various search engines of the Internet vary widely in size, content, and search methodology.

Hot Search Engines

A brief comparison:

- AltaVista: Very fast; indexes every word on every page of every site; searches Usenet too; excellent for custom searches.
- HotBot: Fast; unique search options let you restrict searches; very comprehensive; excels at finding current news.

Hot Search Engines cont.

- Lycos: Numerous search options, a comprehensive directory, and good returns on simple searches.
- Infoseek: Searches not only the Web but also newsgroups, FAQs, and E-mail addresses; extras such as foreign language searching and searching by geographical region.

Narrowing the Search

Boolean logic - a system of mathematics based on three key operations - AND, OR, and NOT:

AND - in Boolean, include both terms (life AND insurance)
OR - in Boolean, include either or both terms (university OR college)
NOT - in Boolean, exclude any site with terms preceded by NOT (browsers AND NOT Microsoft)

- Excite: Good returns for simple searches; related hints and an array of extra content.
- WebCrawler: Good for simple searches; returns clickable links related to the search topic.
- Yahoo!: Well-organized categories let you switch from browsing to searching in a certain area; but finds only keywords, not any word on a site.
Search Engine Limitations

Search engines are known for turning up too much information. But even with the pages they turn up, search engines only search about one third of the entire Web. For now, the best way to turn up Web pages with content you want is to use multiple search engines.

Branching Out

Although the WWW is usually the focus of any Internet discussion, there are other parts of the Internet that deserve attention. One way to identify such sites is the protocol. Instead of http, you may see news or ftp.

Newsgroups

Usenet is an informal network of computers that allows the posting and reading of messages in newsgroups that focus on specific topics. A more informal name is simply newsgroups. Think of a newsgroup as one large bulletin board marked off by category.

FTP: Downloading Files

Computers on the Internet have a standard way to transfer copies of files, a program called FTP, for file transfer protocol. Most downloading is done by a method called anonymous FTP.

FTP: Downloading Files

Whether or not a file is available for downloading depends on two things:
1. whether you are allowed to download files to the hard disk of the computer you are using
2. whether the file you want is available for copying
All kinds of files - programs, text, graphics, images, even sounds - are available to be copied without restriction.

Not Quite Perfect Yet

The Internet has been heaped with well-deserved praise. But still there are concerns. The last two sections cover the shortcomings of the Internet.
Behavior Problems

- There really are some behavior problems on the Internet.
- Those who abuse the Internet are, relatively speaking, few in number.
- Meanwhile, the community of Internet users has made serious effort to monitor behavior on the Internet.
- One consistent effort is *netiquette*, which refers to appropriate behavior online.

Useless, Overburdened, and Misinformed

Some people consider home pages useless. Still, many people are willing to pay for the connection to a Web server primarily to promote their own web pages.

Useless, Overburdened, and Misinformed, cont.

The "coolest" sites of the Internet, and the sites which list popular URLs are often crowded with thousands of visitors.

The Internet can be full of misinformation as well, from news hoaxes to conspiracy buffs to tall tales of popular culture and far-fetched remedies.