Technology In Action
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Chapter 3
Using the Internet: Making the Most of the Web’s Resources
Topics

• Internet basics
• Internet data
• Internet service providers
• Web browsers
• URLs
• Hyperlinks
More Topics

• Search engines and subject directories
• Internet communications
• E-commerce
• Internet multimedia
• The Internet’s future
The Internet: The Basics

- Origin of the Internet
- The Web vs. the Internet
- Clients and servers
- Connecting to the Internet
The Origin of the Internet

- **ARPANET:**
  - Advanced Research Projects Agency Network
  - Funded by the US Government in the 1960s
  - Allowed computers at leading universities and research organizations to communicate with each other over great distances
The Internet vs. The Web

- Internet – part of the system that is primarily hardware infrastructure (telecommunications, routers, servers, disk drives, etcetera)
- Web - part of the system that contains intellectual property in many multimedia formats (test files, graphic files, sound files, video files, etcetera): the means to access the Internet.
Client and Server

• **Client computer:**
  – Users connect to the Internet
  – Request data and Web pages

• **Server computers**
  – Store Web pages and data
  – Return the requested data to the client
Connecting to the Internet

- **Dial-up connections:**
  - Uses standard telephone line
  - Least costly connection
  - Requires a modem
    - **Modulate:** converts digital signals the computer can understand to analog signals that can travel over the phone line.
    - **Demodulate**
      - Slowest connection speed (56kbps)
Broadband Connections

• Digital Subscriber Lines
  – Faster than dial-up
    • Upstream (16Kbps -640kbps)
    • Downstream (1.5 Mbps – 9 Mbps)
    • ADSL: asymmetrical DSL
    • SDSL: same upload and download speed.
  – Requires special DSL modem
Broadband Connections

- **Cable:**
  - Uses TV coaxial cable
  - Fast connection speed (300kbps – 4mbps)
  - Speed depends on number of users
  - Not available in all areas
  - Requires a cable modem

Coaxial cable
Satellite Connections

- Uses a satellite dish and coaxial cable
  - Download speed 500kbps
  - Upload speed 100kbps
  - Signal is affected by location and weather
## Comparing Internet Connection Options

<table>
<thead>
<tr>
<th>Connection Option</th>
<th>Maximum Upload Data Transfer Rate (approximate)</th>
<th>Maximum Download Data Transfer Rate (approximate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial-Up</td>
<td>56kbps</td>
<td>56kbps</td>
</tr>
<tr>
<td>DSL (ADSL)</td>
<td>300 kbps</td>
<td>1 Mbps</td>
</tr>
<tr>
<td>DSL (SDSL)</td>
<td>1.5mbps</td>
<td>1.5mbps</td>
</tr>
<tr>
<td>Cable</td>
<td>500 kbps</td>
<td>6 mbps</td>
</tr>
<tr>
<td>Satellite</td>
<td>100kbps</td>
<td>400kbps</td>
</tr>
</tbody>
</table>
Internet Service Providers

• **ISP:**
  - Internet service provider
  - Provide user access to the Internet
  - National, regional or local companies

• **OSP:**
  - Online service provider
  - Provide online proprietary content as well as Internet access
  - AOL, CompuServe, MSN

<table>
<thead>
<tr>
<th>Company</th>
<th>Dial-Up Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Image]</td>
<td>33.6, 28.8, 56K</td>
</tr>
<tr>
<td>[Image]</td>
<td>ISDN, 33.6, 28.8, 56K</td>
</tr>
<tr>
<td>[Image]</td>
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</tr>
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<tr>
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</tr>
</tbody>
</table>
Choosing an ISP

• Factors to consider:
  – Customer service
  – Local access numbers
  – E-mail options
  – Cost
  – Trial period
Navigating the Web: Web Browsers

- Computer software
- Graphical
- Enables Web navigation
- Popular browsers:
  - Internet Explorer
  - Netscape Navigator
  - Mozilla (firefox)
Browser Toolbars

Navigation
(Back/Forward)
The Back button returns you to the most recently visited page, while the Forward button returns you to the page you were on before you clicked on the Back button.

Stop and Reload/Refresh
The Stop button stops a Web page from loading. The Reload/Refresh button updates a site, such as a news site, to the most recent version. It also reloads a page if it doesn’t immediately display properly.

Home
The Home button enables you to return to the home page—a preselected Web page that opens automatically when you open your Web browser.

Favorites
The Favorites button enables you to save links to your most frequently visited Web pages.

Search
The Search button allows you to search the Internet by connecting you to a search engine.

Print
The Print button allows you to print the page you are viewing.
Getting Around the Web

- Web sites
- URLs
- Hyperlinks
- Favorites and Bookmarks
Web Sites

• Web site:
  – Collection of related Web pages
  – First page known as Home or Index page

• Web page:
  – HTML document
    • Text and graphics
  – Unique address
  – Hyperlinks
URL

- Uniform Resource Locator
- Unique Web page address

URL: http://www.nytimes.com/Pages/cartoons/

Protocol identifies the means of access
Domain name contains the host and top-level domain
Path identifies the subdirectories within the Web site
<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.aero</td>
<td>Members of the air transport industry</td>
</tr>
<tr>
<td>.biz</td>
<td>Businesses</td>
</tr>
<tr>
<td>.com</td>
<td>Can be used by anyone</td>
</tr>
<tr>
<td>.coop</td>
<td>Cooperative associations</td>
</tr>
<tr>
<td>.edu</td>
<td>Degree granting institutions</td>
</tr>
<tr>
<td>.gov</td>
<td>United States government</td>
</tr>
<tr>
<td>.info</td>
<td>Information service providers</td>
</tr>
<tr>
<td>.mil</td>
<td>United States military</td>
</tr>
<tr>
<td>.museum</td>
<td>Museums</td>
</tr>
<tr>
<td>.name</td>
<td>Individuals</td>
</tr>
<tr>
<td>.net</td>
<td>Networking organizations</td>
</tr>
<tr>
<td>.org</td>
<td>Organizations (often nonprofits)</td>
</tr>
<tr>
<td>.pro</td>
<td>Credentialed professionals</td>
</tr>
</tbody>
</table>
Hyperlinks

• Provide access to other Web pages
• Specially coded text or graphics
• Cursor becomes a hand with finger pointing upward
Favorites and Bookmarks

- List created of favorite Web pages
- Easy method of returning to Web pages
- Internet Explorer uses Favorites
- Netscape uses Bookmarks
Tabbed Browsing

- Found on Firefox and Safari browsers.
  - Not available on Internet Explorer
- Multiple pages in same browser window
Search Engines

- User keys word or phrase in search box
- “Spider” or “Web Crawler” program scans web pages
- Results are indexed and sent to the client
Subject Directories

- Web pages organized by topics and subtopics
Evaluating Web Sites

• Who is the author of the article or Web site sponsor?
• What audience is the site geared toward?
• Is the site biased?
• Is the information current?
• Are links available?
Communicating Through the Internet

- E-mail
- Weblogs
- Chat rooms
- Instant messaging
- Newsgroups
E-mail

- Electronic mail
- Primary means of communication
- E-mail accounts
  - Client-based
  - Web-based
- Spam
  - Prevention
Weblogs

- Known as blogs
- Personal logs or journal entries posted on the Web
- Available to the public
Chat Rooms

- Real time text based conversations
- Rooms focus on specific topics or interests
- Identity protection
  - Username
Instant Messaging

• Real time text based conversations
• Set up a list of contacts
  – Buddy list
• Contacts must be online
• IM software detects presence
• Example: AOL Instant Messenger
Newsgroups

- Online discussion forums
- Post and reply to messages
Online Annoyances

- Spam – electronic junk mail
- Pop-ups – intrusive advertising
- Cookies – tracking user’s browsing habits
- Spyware – Programs that collect data from a user’s computer
- Phishing and Hoaxes – Ruses to fool and maybe steal from users.
Spam

- Junk E-Mail
- Spam filters
- Anti-spam practices
Pop-ups

- Usually advertising
- Pop-up automatically
- Pop-up blockers

Buy Now!
Cookies

- Text files stored on client computers when visiting Web sites
- Used on return visits to Web sites
- Unique ID number
- Personal information remembered
- Privacy risk – Selling information
Spyware

- Added as a program piggybacked with a requested program
- Gathers information, usually about surfing habits
- Anti-virus software doesn’t detect it
- Anti-spyware programs are required
Phishing and Hoaxes

• Phishing is a phony communication
• Attempts to scam someone into sending vital information
• Hoaxes are attempts to scam people into sending money, or join a chain letter.
Conducting Business Over the Internet

- **E-Commerce:**
  - Electronic commerce
  - Business-to-consumer (B2C)
  - Business-to-business (B2B)
  - Consumer-to-consumer (C2C)
  - Secure transactions
Web Entertainment

• Multimedia:
  – Involves forms of media and text
    • Graphics
    • Audio
    • Video
  – Streaming audio and video: deliver on-demand pictures and sounds without downloading the whole file.
  – Plug-in: built-in program and automatically loads
Future of the Internet

• Large Scale Networking (LSN):
  – Research and development of cutting-edge networking and wireless technologies

• Internet2:
  – Project sponsored by universities, government, and industry to develop new Internet technologies
  – Internet2 backbone supports transmission speeds of 10 Gbps
Chapter 3
Summary Question 1

• What is the origin of the Internet?
Chapter 3
Summary Question 2

• How does data travel on the Internet?
Chapter 3
Summary Question 3

• What are my options for connecting to the Internet?
Chapter 3
Summary Question 4

• How do I choose an Internet service provider?
Chapter 3
Summary Question 5

• What is a Web browser?
Chapter 3
Summary Question 6

• What is a URL and what are its parts?
Chapter 3
Summary Question 7

• How can I use hyperlinks and other tools to get around the Web?
Chapter 3
Summary Question 8

• How do I search the Internet using search engines and subject directories?
Chapter 3
Summary Question 9

• How can I communicate through the Internet?
Chapter 3
Summary Question 10

• What is e-commerce?
Chapter 3
Summary Question 11

• What are cookies?
Chapter 3
Summary Question 12

• What are the various kinds of Multimedia?
Chapter 3
Summary Question 13

• What does the Internet of the future look like?