Objectives Overview

Discuss the evolution of the Internet

Briefly describe various broadband Internet connections

Describe the purpose of an IP address and its relationship to a domain name

Describe features of browsers and identify the components of a web address

Describe ways to enter effective search text

Explain benefits and risks of using social networking sites

See Page 54 for Detailed Objectives
Objectives Overview

- Describe uses of various types of websites
- Identify and briefly describe the steps required for web publishing
- Explain how the web uses graphics, animation, audio, video, and virtual reality
- Explain how email, email lists, instant messaging, chat rooms, discussion forums, VoIP, and FTP work
- Identify the rules of netiquette

See Page 54 for Detailed Objectives
The Internet

- The **Internet** is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals.
Evolution of the Internet

- The Internet originated as ARPANET in September 1969 and had two main goals:

  - Allow scientists at different physical locations to share information and work together
  - Function even if part of the network were disabled or destroyed by a disaster
Evolution of the Internet

1969 ARPANET becomes functional

1984 ARPANET has more than 1,000 individual computers linked as hosts

Today Millions of hosts connect to the Internet
Connecting to the Internet

• With wired connections, a computer or device physically attaches via a cable or wire to a communications device
• Computers without a communications device can use a wireless modem
Connecting to the Internet

Figure 2-2

modem

cable connects modem to computer

Internet

wireless modem

wireless modem inserted in computer’s USB port

Discovering Computers: Chapter 2
### Connecting to the Internet

<table>
<thead>
<tr>
<th>Wired</th>
<th>Wireless</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cable Internet service</td>
<td>• Wi-Fi (wireless fidelity)</td>
</tr>
<tr>
<td>• DSL (digital subscriber line)</td>
<td>• Mobile broadband</td>
</tr>
<tr>
<td>• Fiber to the Premises (FTTP)</td>
<td>• Fixed wireless</td>
</tr>
<tr>
<td></td>
<td>• Satellite Internet Service</td>
</tr>
</tbody>
</table>
Connecting to the Internet

- A **cybercafé** is a location that provides computers with Internet access, usually for a fee.
- A hot spot is a wireless network that provides Internet connections to mobile computers and devices.
Connecting to the Internet

- An **Internet service provider (ISP)** is a business that provides individuals and organizations access to the Internet free or for a fee.
- Bandwidth represents the amount of data that travels over a network:
  - Megabyte (MB)
  - Gigabyte (GB)
Connecting to the Internet

How a Home User’s Request for a Webpage Might Travel the Internet Using Cable Internet Service

**Step 1**
You send a request to the Internet. For example, you enter the web address of a webpage you want to visit in the address bar of your browser.

**Step 2**
A cable modem transfers the computer’s digital signals to the cable television line in your house.

**Step 3**
Your request (digital signals) travels through cable television lines to a central cable system, which is shared by up to 500 homes in a neighborhood.

**Step 4**
The central cable system sends your request over high-speed fiber-optic lines to the cable operator, who often also is the ISP.

**Step 5**
The ISP routes your request through the Internet backbone to the destination server (in this example, the server that contains the requested webpage).

**Step 6**
The server retrieves the requested webpage and sends it back through the Internet backbone to your computer.
Connecting to the Internet

- An **IP address** is a sequence of numbers that uniquely identifies each computer or device connected to the Internet.
- A **domain name** is a text-based name that corresponds to the IP address.
- A **DNS server** translates the domain name into its associated IP address.

![Diagram showing IP address and domain name relationships](image)

IPv4 address → 72.14.207.99
IPv6 address → 2001:4860:4860::8844
Domain name → google.com

*top-level domain*
## Connecting to the Internet

### Table 2-3  Popular TLDs

<table>
<thead>
<tr>
<th>TLD</th>
<th>Intended Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>.com</td>
<td>Commercial organizations, businesses, and companies</td>
</tr>
<tr>
<td>.edu</td>
<td>Educational institutions</td>
</tr>
<tr>
<td>.gov</td>
<td>Government agencies</td>
</tr>
<tr>
<td>.mil</td>
<td>Military organizations</td>
</tr>
<tr>
<td>.net</td>
<td>Network providers or commercial companies</td>
</tr>
<tr>
<td>.org</td>
<td>Nonprofit organizations</td>
</tr>
</tbody>
</table>
Connecting to the Internet

How a Browser Displays a Requested Webpage

**Step 1**
Run the browser and enter the web address in the browser’s address bar.

**Step 2**
The browser communicates with a DNS server maintained by your ISP or another provider. The DNS server looks up the domain name portion of the web address, finds its associated IP address, and then sends the IP address to your computer or mobile device.

**Step 3**
The browser uses the IP address to contact the web server at the specified IP address to request the content of the desired webpage. The web server fulfills the user’s request by sending the desired content to the user’s browser, which formats the page for display on the screen.

---

72.14.207.99
2001:4860:4860::8844
The World Wide Web

- The World Wide Web (WWW), or web, consists of a worldwide collection of electronic documents (webpages)
- A website is a collection of related webpages and associated items
- A web server is a computer that delivers requested webpages to your computer
- Web 2.0 refers to websites that provide a means for users to share personal information, allow users to modify website content, and provide applications through a browser
The World Wide Web

- A browser is an application that enables users with an Internet connection to access and view webpages on a computer or mobile device.
- A home page is the first page that a website displays.
- Desktop browsers typically support tabbed browsing.
The World Wide Web

- A webpage has a unique address called a **web address** or **URL**

```
http://www.nps.gov/history/places.htm
```

![Diagram of webpage structure](image)
The World Wide Web

- A web app is an application stored on a web server that you access through a browser
  - Web app hosts usually provide storage for users’ data and information on their servers, known as cloud storage
Types of Websites

- A search engine is software that finds websites, webpages, images, videos, news, maps, and other information related to a specific topic.
- A subject directory classifies webpages in an organized set of categories, such as sports or shopping, and related subcategories.
Types of Websites

- Search operators can help to refine your search

<table>
<thead>
<tr>
<th>Table 2-4</th>
<th>Search Engine Operators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operator</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Space or +</td>
<td>Display search results that include specific words.</td>
</tr>
<tr>
<td>OR</td>
<td>Display search results that include only one word from a list.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>( )</td>
<td>Combine search results that include specific words with those that include only one word from a list.</td>
</tr>
<tr>
<td>-</td>
<td>Exclude a word from search results.</td>
</tr>
<tr>
<td>“ “</td>
<td>Search for an exact phrase in a certain order.</td>
</tr>
<tr>
<td>*</td>
<td>Substitute characters in place of the asterisk.</td>
</tr>
</tbody>
</table>
The World Wide Web

• There are thirteen types of Web sites

- Online social network
- Informational
- Media sharing and bookmarking sites
- News, weather, sports, and other mass media
- Educational
- Business, Governmental, and Organizational
The World Wide Web

- Blogs
- Wikis
- Health and Science
- Entertainment
- Financial
- Travel and Mapping
The World Wide Web

- Shopping and Auctions
- Careers and Employment
- E-Commerce
- Portals
The World Wide Web

- **Web publishing** is the development and maintenance of websites.
Media on the Web

- Multimedia refers to any application that combines text with:

  - Graphics
  - Animation
  - Audio
  - Video
  - Virtual Reality
Media on the Web

• A **graphic** is a digital representation of nontext information
• Graphic formats include BMP, GIF, JPEG, PNG, and TIFF
Media on the Web

- An infographic is a visual representation of data and information, designed to communicate quickly, simplify complex concepts, or present patterns or trends.
Media on the Web

• **Animation** is the appearance of motion created by displaying a series of still images in sequence.
Media on the Web

• Audio includes music, speech, or any other sound
  – Compressed to reduce file size

• You listen to audio on your computer using a media player
Media on the Web

- Video consists of images displayed in motion
- **Virtual reality (VR)** is the use of computers to simulate a real or imagined environment that appears as a three-dimensional space
A plug-in is a program that extends the capability of a Web browser.
Other Internet Services

- **Email** is the transmission of messages and files via a computer network
- An **email program** allows you to create, send, receive, forward, store, print, and delete email messages
Other Internet Services

**How an Email Message May Travel from a Sender to a Receiver**

**Step 1**  
Using an email program, you create and send a message on a computer or mobile device.

**Step 2**  
Your email program contacts software on the outgoing mail server.

**Step 3**  
Software on the outgoing mail server determines the best route for the data and sends the message, which travels along Internet routers to the recipient’s incoming mail server.

**Step 4**  
When the recipient uses an email program to check for email messages, the message transfers from the incoming mail server to the recipient’s computer or mobile device.
Other Internet Services

- An **email list** is a group of email addresses used for mass distribution of a message.

![Email Subscription Interface](image)
Other Internet Services

- **Instant messaging (IM)** is a real-time Internet communications service
Other Internet Services

- A **chat** is a real-time typed conversation that takes place on a computer or mobile device.
- A **chat room** is a website or application that permits users to chat with others who are online at the same time.
Other Internet Services

• A **discussion forum** is an online area in which users have written discussions about a particular subject.
Other Internet Services

- **VoIP (Voice over IP)** enables users to speak to other users over the Internet.
Other Internet Services

• **FTP** (File Transfer Protocol) is an Internet standard that permits file uploading and downloading to and from other computers on the Internet

• Many operating systems include FTP capabilities

• An FTP server is a computer that allows users to upload and/or download files using FTP
Netiquette

- **Netiquette** is the code of acceptable Internet behavior

**Netiquette Guidelines for Online Communications**

*Golden Rule: Treat others as you would like them to treat you.*

- Be polite. Avoid offensive language.
- Avoid sending or posting *flames*, which are abusive or insulting messages. Do not participate in *flame wars*, which are exchanges of flames.
- Be careful when using sarcasm and humor, as it might be misinterpreted.
- Do not use all capital letters, which is the equivalent of SHOUTING!
- Use **emoticons** to express emotion. Popular emoticons include:
  - :) Smile
  - :| Indifference
  - :o Surprised
  - :( Frown
  - :\ Undecided
  - ;) Wink
- Use abbreviations and acronyms for phrases:
  - BTW by the way
  - IMHO in my humble opinion
  - FWIW for what it’s worth
  - FYI for your information
  - TTFN ta ta for now
  - TYVM thank you very much
- Clearly identify a spoiler, which is a message that reveals an outcome to a game or ending to a movie or program.
- Be forgiving of other’s mistakes.
- Read the FAQ (frequently asked questions), if one exists.
Summary

- Evolution of the Internet
- The Web
- Various types of websites
- Other services available on the Internet
- Netiquette