

Chapter Two

The Internet and World Wide Web

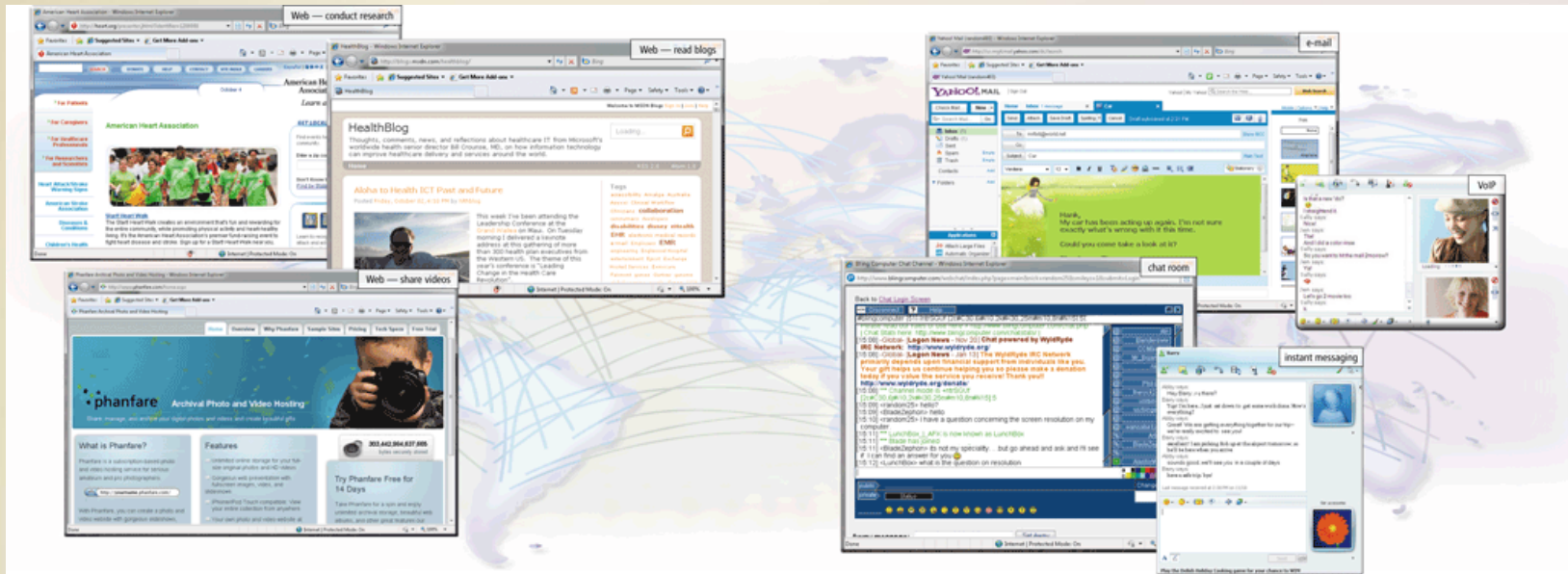
Discovering Computers 2011

Living in a Digital World



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

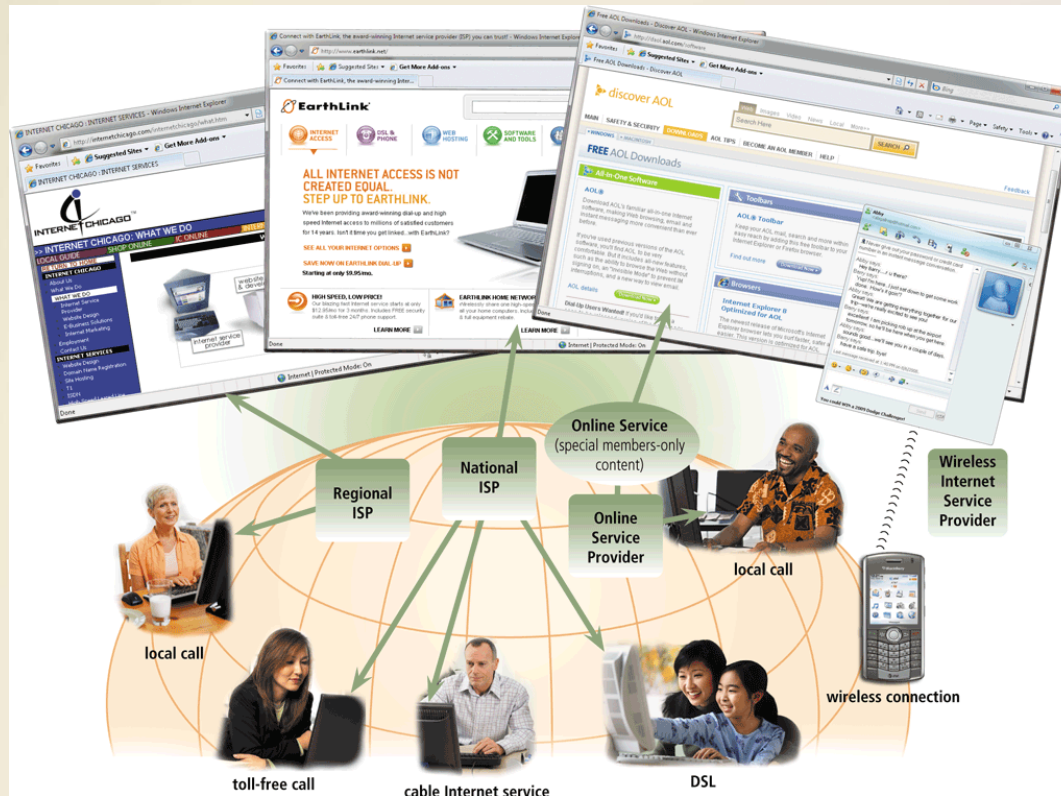
- Each organization is responsible only for maintaining its own network
 - The World Wide Web Consortium (W3C) oversees research and sets guidelines and standards
- Internet2 connects more than 200 universities and 115 companies via a high-speed private network



Click to view Web Link,
click Chapter 2, Click Web
Link from left navigation,
then click W3C
below Chapter 2

Evolution of the Internet

- An **access provider** is a business that provides individuals and organizations access to the Internet free or for a fee



Evolution of the Internet

ISP (Internet service provider)

Regional ISPs provide Internet access to a specific geographical area

National ISPs provide Internet access in cities and towns nationwide

Online service provider (OSP)

Has many members-only features

Popular OSPs include AOL (America Online) and MSN (Microsoft Network)

Wireless Internet service provider (WISP)

Provides wireless Internet access to computers and mobile devices

May require a wireless modem



Click to view Web Link, click Chapter 2, Click Web Link from left navigation, then click Wireless Modems below Chapter 2

Evolution of the Internet

How a Home User's Data and Information Might Travel the Internet Using a Cable Modem Connection

Step 1

You initiate an action to request data or information from the Internet. For example, you request to display a Web page on your computer screen.



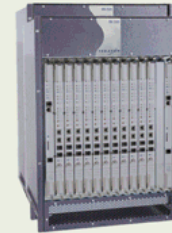
Step 2

A cable modem transfers the computer's digital signals to the cable television line in your house.



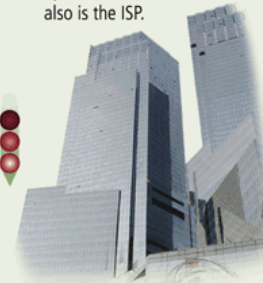
Step 3

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.



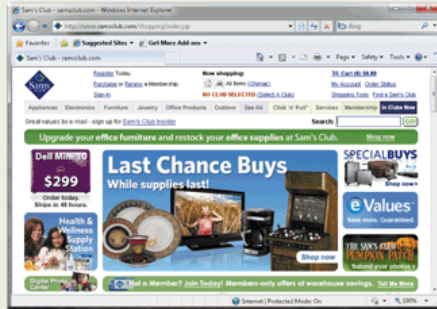
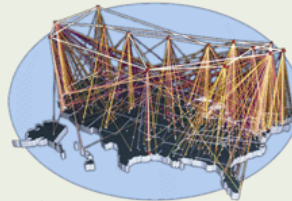
Step 4

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



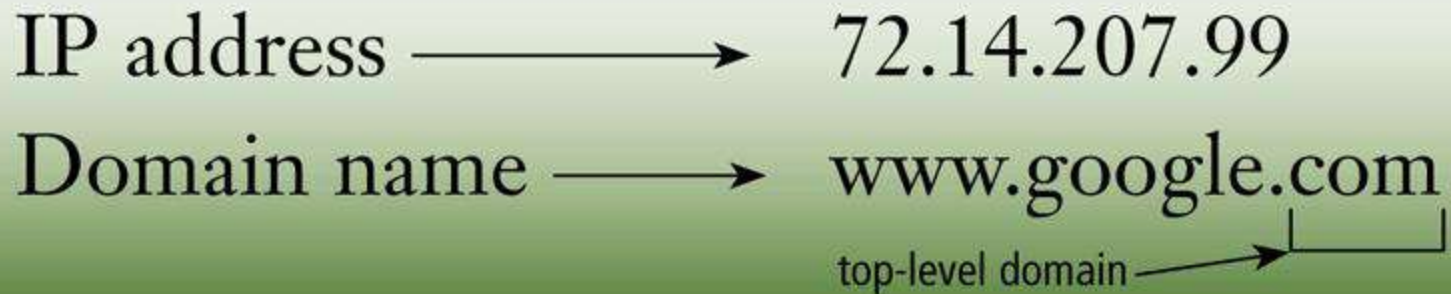
Step 5

The ISP routes your request through the Internet backbone to the destination server (in this example, the server that contains the requested Web site).



Evolution of the Internet

- An **IP address** is a number that uniquely identifies each computer or device connected to the Internet
- A **domain name** is the text version of an IP address
 - Top-level domain (TLD)
- A **DNS server** translates the domain name into its associated IP address



Evolution of the Internet

Examples of Generic Top-Level Domains	
Generic TLD	Intended Purpose
aero	Aviation community members
biz	Businesses of all sizes
cat	Catalan cultural community
com	Commercial organizations, businesses, and companies
coop	Business cooperatives such as credit unions and rural electric co-ops
edu	Educational institutions
gov	Government agencies
info	Business organizations or individuals providing general information
jobs	Employment or human resource businesses
mil	Military organizations
mobi	Delivery and management of mobile Internet services
museum	Accredited museums
name	Individuals or families
net	Network providers or commercial companies
org	Nonprofit organizations
pro	Certified professionals such as doctors, lawyers, and accountants
tel	Internet communications
travel	Travel industry

The World Wide Web

- The **World Wide Web**, or **Web**, consists of a worldwide collection of electronic documents (**Web pages**)
- A **Web site** is a collection of related Web pages and associated items
- A **Web server** is a computer that delivers requested Web pages to your computer
- **Web 2.0** refers to Web sites that provide a means for users to interact

The World Wide Web

- A **Web browser**, or **browser**, allows users to access Web pages and Web 2.0 programs

Internet
Explorer

Firefox

Opera

Safari

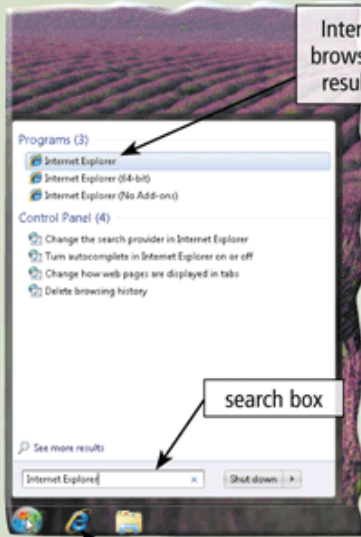
Google
Chrome

The World Wide Web

How a Web Browser Displays a Home Page

Step 1

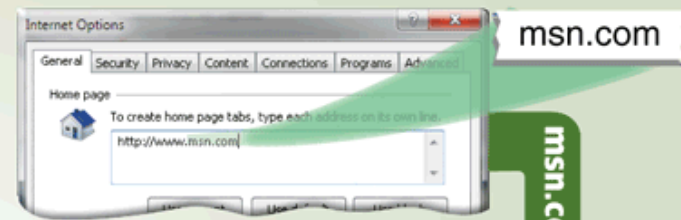
Start the Web browser software by clicking the Web browser icon on the taskbar or typing the Web browser name in the search box on the Start menu.



Internet Explorer Web browser icon on taskbar

Step 2

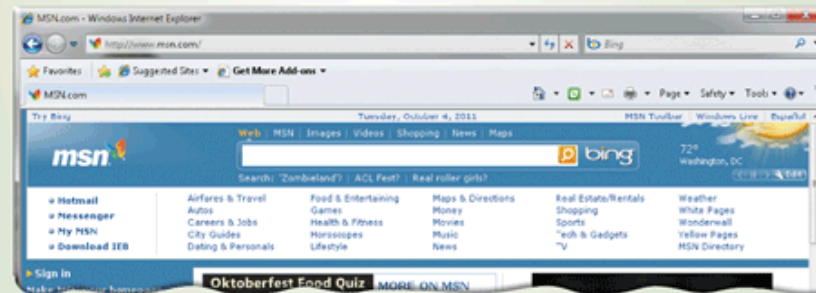
Behind the scenes, the Web browser looks up its home page setting. For illustration purposes only, the screen on the right shows the home page setting is msn.com.



Step 3

The Web browser communicates with a server maintained by your Internet access provider. The server translates the domain name of the home page to an IP address and then sends the IP address to your computer.

207.68.172.234



Step 4

The Web browser uses the IP address to contact the Web server associated with the home page and then requests the home page from the server. The Web server sends the home page to the Web browser, which formats the page for display on your screen.

The World Wide Web

- A **home page** is the first page that a Web site displays
- Web pages provide **links** to other related Web pages
 - **Surfing the Web**
- **Downloading** is the process of receiving information
- Some Web pages are designed specifically for microbrowsers



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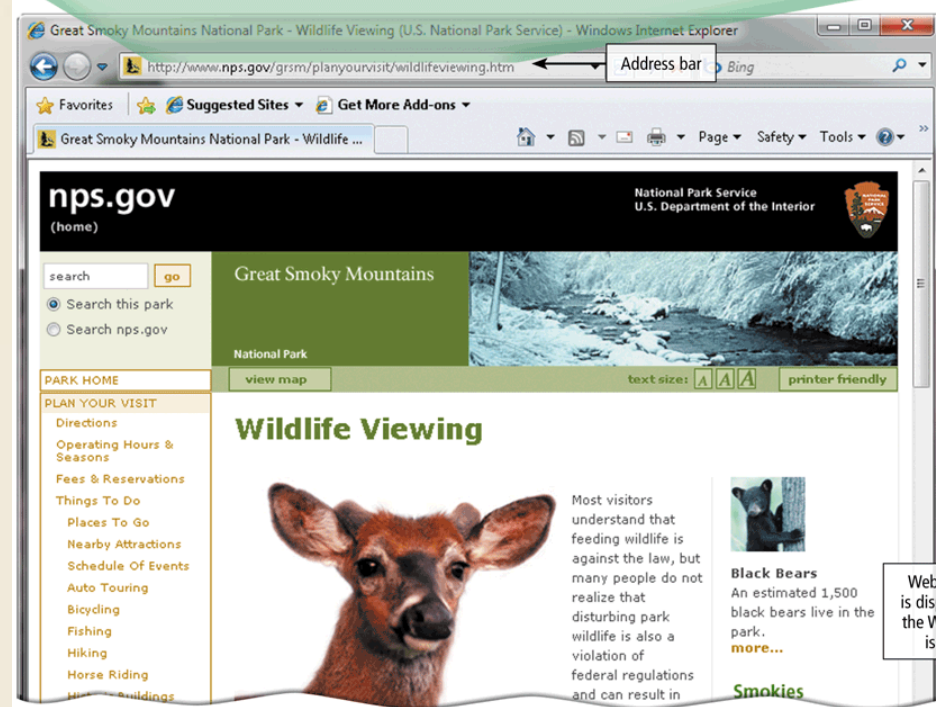
The World Wide Web

- A Web page has a unique address called a **URL** or **Web address**

Diagram illustrating the components of a URL:

- protocol
- domain name
- path
- Web page name

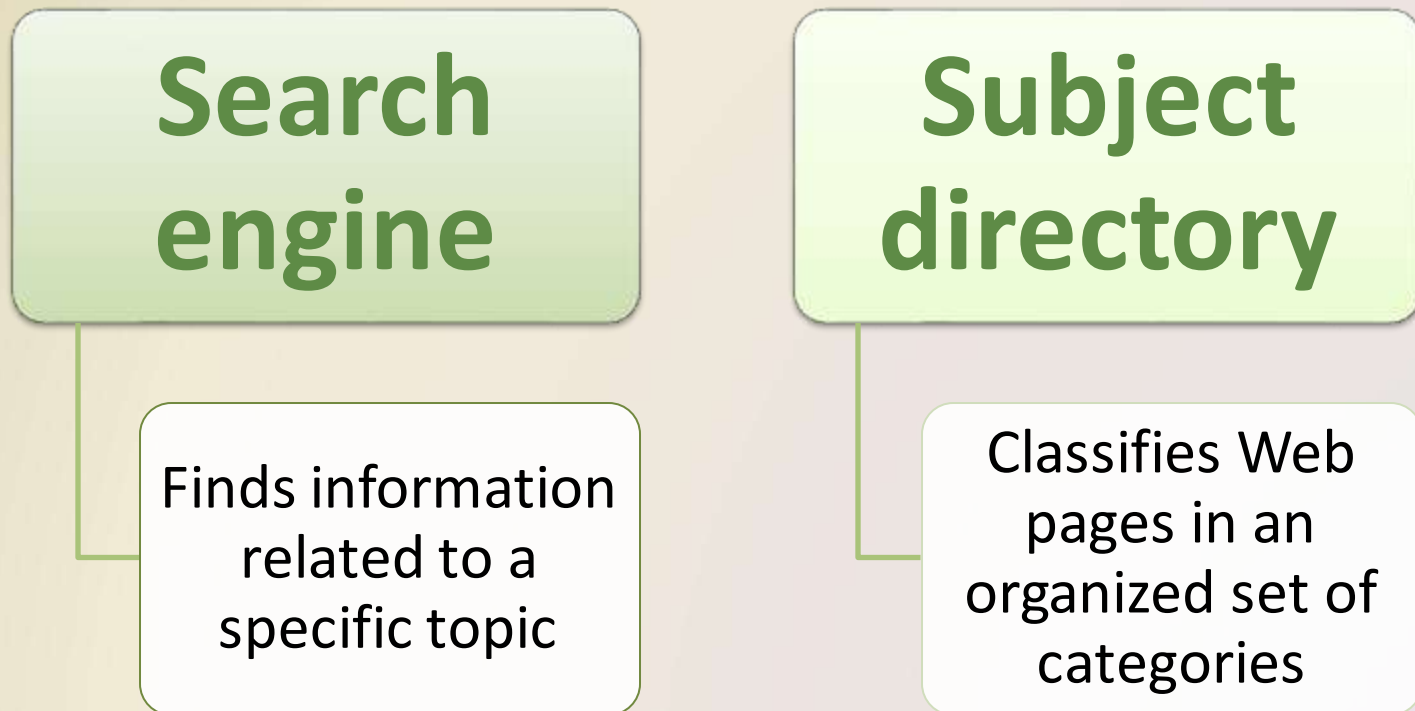
Example URL: `http://www.nps.gov/grsm/planyourvisit/wildlifeviewing.htm`



Web page that is displayed after the Web address is entered

The World Wide Web

- Two types of search tools are search engines and subject directories



The World Wide Web

Widely Used Search Tools			
Search Tool	Web Address	Search Engine	Subject Directory
A9	a9.com	X	
AlltheWeb	alltheweb.com	X	
AltaVista	altavista.com	X	
AOL Search	search.aol.com	X	
Ask	ask.com	X	
Bing	bing.com	X	
Cuil (pronounced cool)	cuil.com	X	
Dogpile	dogpile.com	X	
Excite	excite.com	X	X
Gigablast	gigablast.com	X	X
Google	google.com	X	X
Lycos	lycos.com	X	
MSN	msn.com	X	X
Open Directory Project	dmoz.org	X	X
WebCrawler	webcrawler.com	X	
Yahoo!	yahoo.com	X	X

The World Wide Web

- There are thirteen types of Web sites



Portal



News



Informational



Business/Marketing



Blog



Wiki

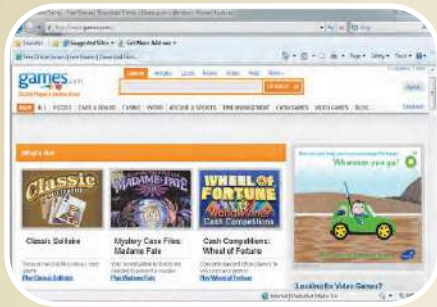


Online Social Network



Educational

The World Wide Web



Entertainment



Advocacy



Web Application



Content Aggregator



Personal

The World Wide Web

- **Multimedia** refers to any application that combines text with:

Graphics

Animation

Audio

Video

Virtual
Reality

The World Wide Web

- A **graphic** is a digital representation of nontext information
- Graphic formats include BMP, GIF, JPEG, PNG, and TIFF



The World Wide Web

- **Animation** is the appearance of motion created by displaying a series of still images in sequence



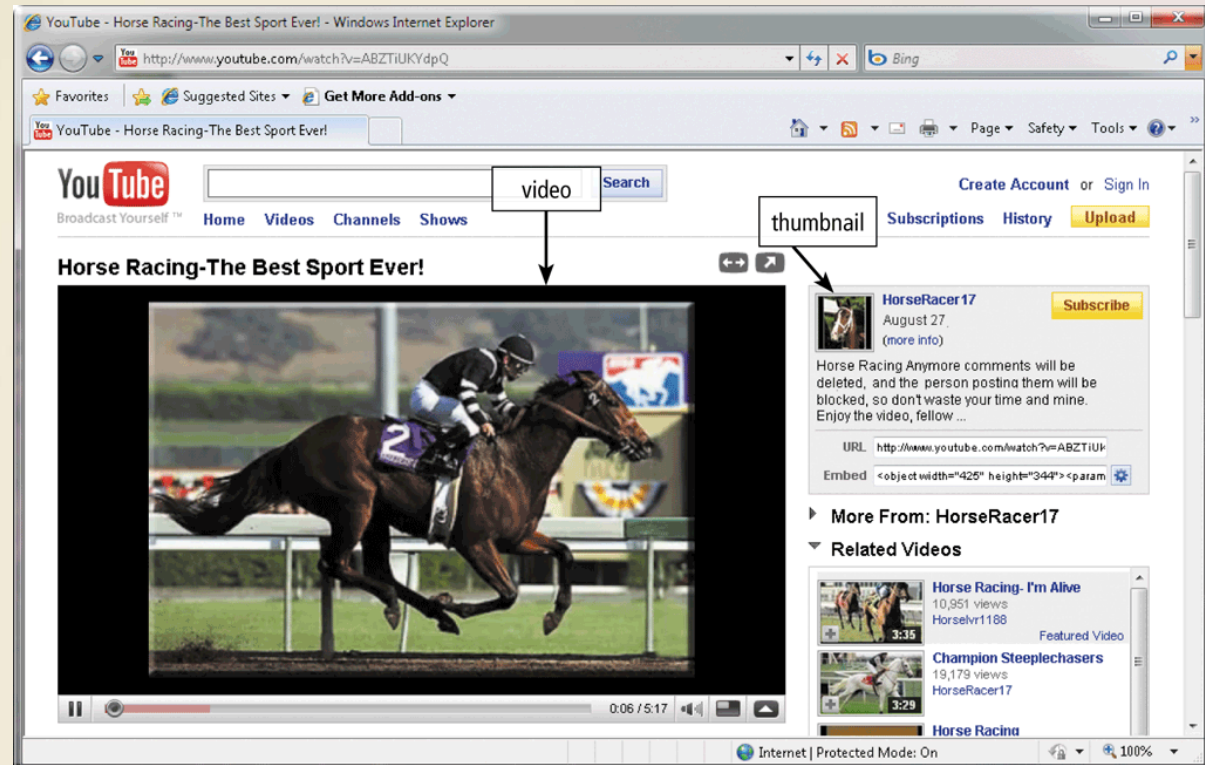
The World Wide Web

- **Audio** includes music, speech, or any other sound
 - Compressed to reduce file size
- You listen to audio on your computer using a **player**
- **Streaming** is the process of transferring data in a continuous and even flow

Audio Web File Formats			
Format	Description	Format	Description
AAC	Advanced Audio Coding	WAV	Windows waveform
AIFF	Audio Interchange File Format	WMA	Windows Media Audio (part of Windows Media framework)
ASF	Advanced Streaming (or Systems) Format (part of Windows Media framework)	RA	RealAudio sound file (supported by RealPlayer)
MP3	Moving Pictures Experts Group Audio Layer 3 (MPEG-3)	QT	QuickTime audio, video, or 3-D animation
Ogg	Free, unpatented audio and video format		

The World Wide Web

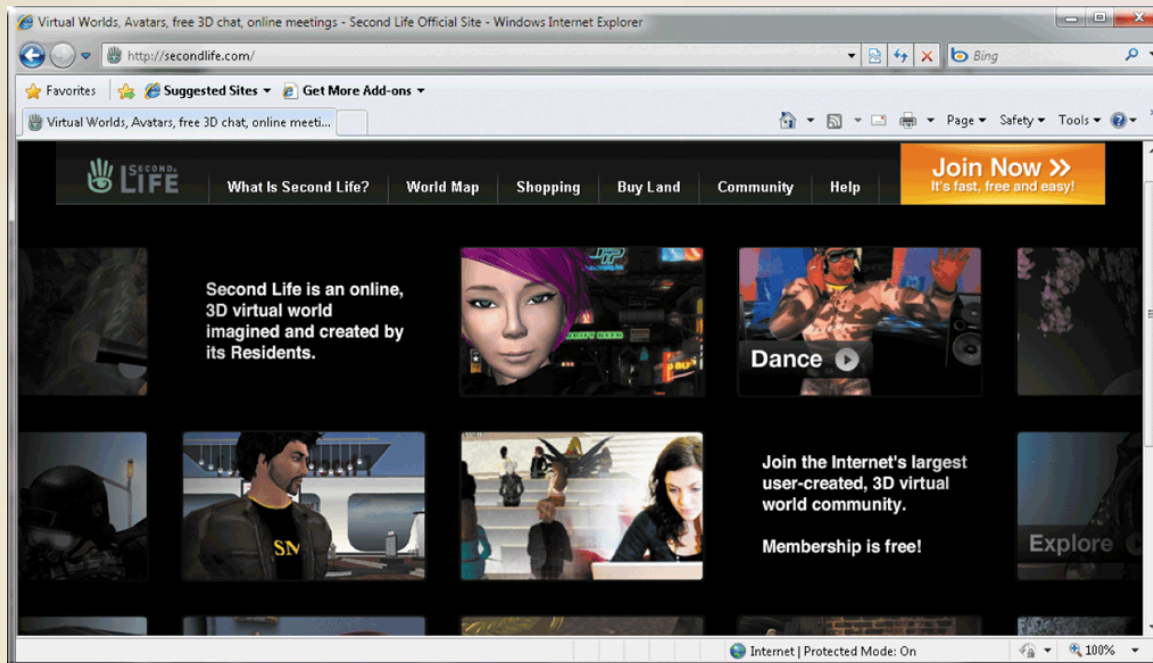
- **Video** consists of full-motion images that are played back at various speeds



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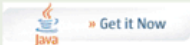





The World Wide Web

- **Virtual reality (VR)** is the use of computers to simulate a real or imagined environment that appears as a three-dimensional space



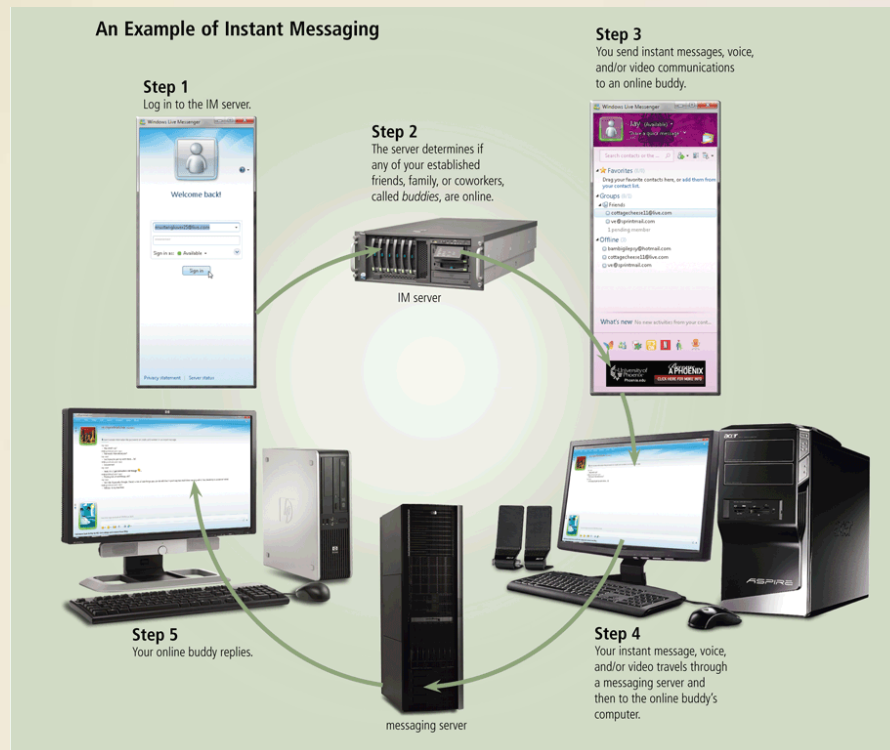
The World Wide Web

- A **plug-in** is a program that extends the capability of a Web browser

Popular Plug-Ins			
Plug-In Application		Description	Web Address
Acrobat Reader		View, navigate, and print Portable Document Format (PDF) files — documents formatted to look just as they look in print	adobe.com
Flash Player		View dazzling graphics and animation, hear outstanding sound and music, display Web pages across an entire screen	adobe.com
Java		Enable Web browser to run programs written in Java, which add interactivity to Web pages	java.com
QuickTime		View animation, music, audio, video, and VR panoramas and objects directly on a Web page	apple.com
RealPlayer		Listen to live and on-demand near-CD-quality audio and newscast-quality video, stream audio and video content for faster viewing, play MP3 files, create music CDs	real.com
Shockwave Player		Experience dynamic interactive multimedia, 3-D graphics, and streaming audio	adobe.com
Silverlight		Experience high-definition video, high-resolution interactive multimedia, and streaming audio and video	microsoft.com
Windows Media Player		Listen to live and on-demand audio, play or edit WMA and MP3 files, burn CDs, and watch DVD movies	microsoft.com

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
- A **chat room** is a location on an Internet server that permits users to chat with each other



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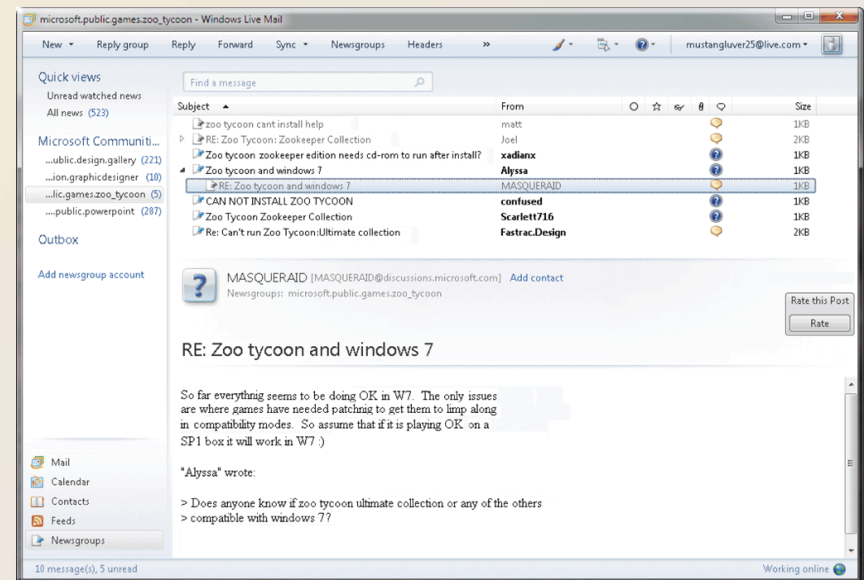
Other Internet Services

- **VoIP** (Voice over IP) enables users to speak to other users over the Internet
 - Also called Internet telephony



Other Internet Services

- A **newsgroup** is an online area in which users have written discussions about a particular subject
 - Typically requires a newsreader
- A **message board** is a Web-based type of discussion group



Other Internet Services

- **FTP** (File Transfer Protocol) is an Internet standard that permits file **uploading** and downloading with 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



Click to view Web Link,
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then click FTP
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