

# CONNECTING AND COMMUNICATING ONLINE

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# The Internet

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



# 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

# The Internet

**1969** ARPANET  
becomes  
functional

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

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

# 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 or other communications device that enables wireless connectivity

# Connecting to the Internet



# Connecting to the Internet

## Wired

- Cable Internet service
- DSL (digital subscriber line)
- Fiber to the Premises (FTTP)

## Wireless

- **Wi-Fi** (wireless fidelity)
- Mobile broadband
- Fixed wireless
- Satellite Internet Service

# Connecting to the Internet

- 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.



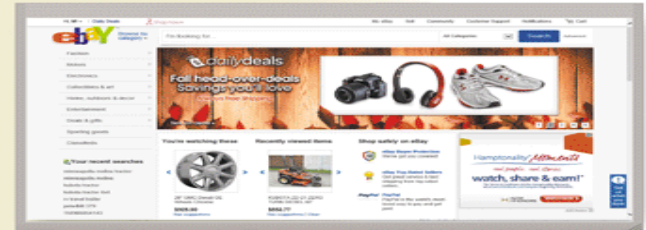
### Step 5

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

IPv4 address —————→ 74.125.224.72

IPv6 address —————→ 2001:4860:4860::8844

Domain name —————→ google.com

↑  
top-level domain

# Connecting to the Internet

**Table 2-3 Original TLDs**

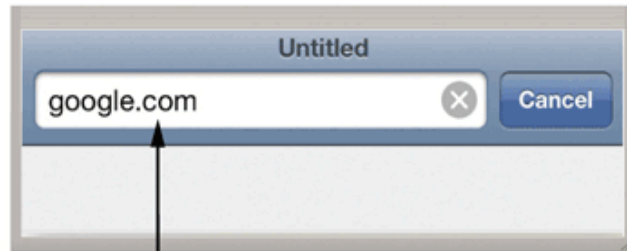
<b>TLD</b>	<b>Intended Purpose</b>
.com	Commercial organizations, businesses, and companies
.edu	Educational institutions
.gov	Government agencies
.mil	Military organizations
.net	Network providers or commercial companies
.org	Nonprofit organizations

# 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.



web address contains domain name

### 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.

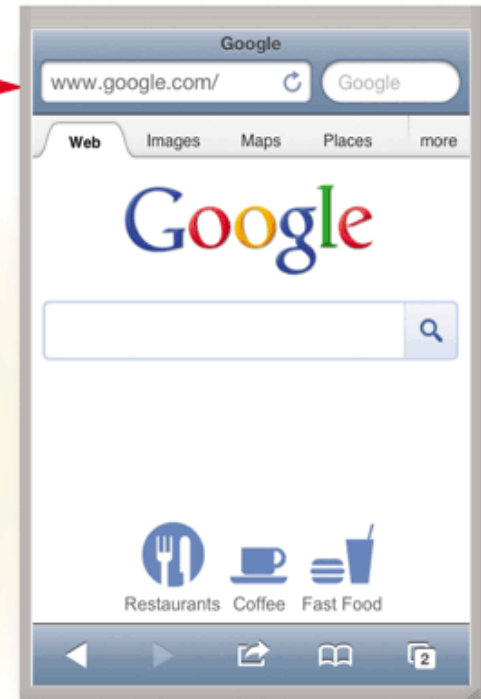


google.com  
74.125.224.72  
2001:4860:4860::8844

74.125.224.72  
2001:4860:4860::8844

### 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.

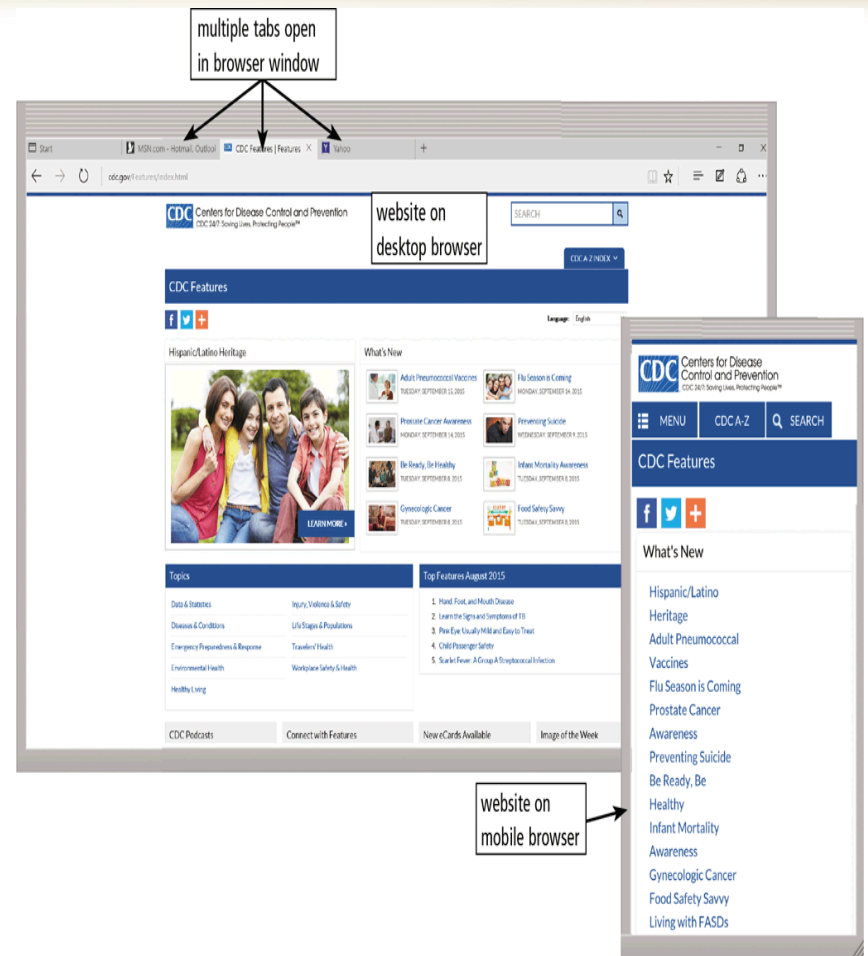


# The World Wide Web

- 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

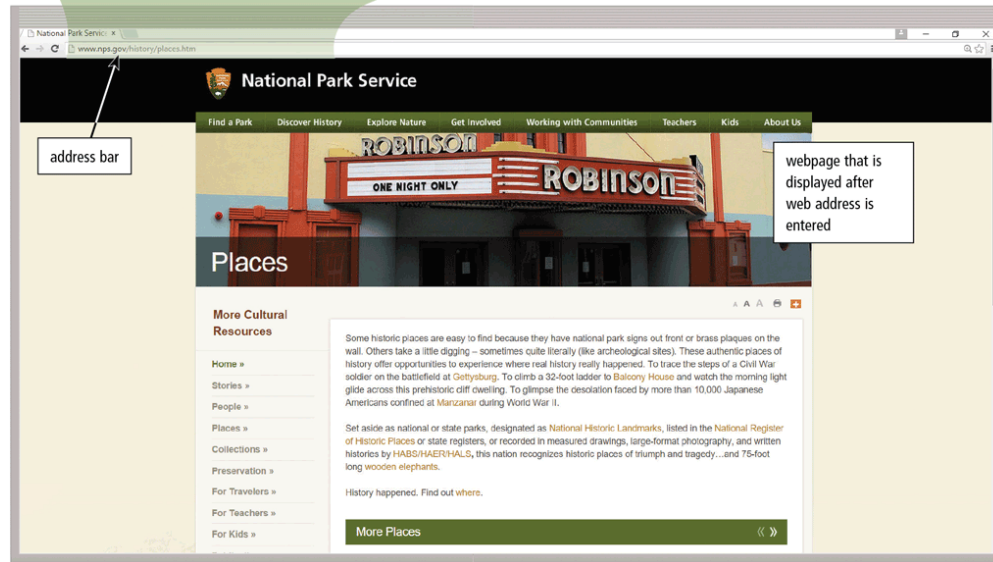
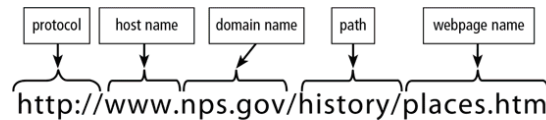
- A **browser** is an application that enables users with an Internet connection to access and view webpages on a computer or mobile device
- A **home page** is the first page that a website displays
- Current browsers typically support **tabbed browsing**





# The World Wide Web

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





# 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 web **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 2-4 Search Engine Operators**

Operator	Description	Examples	Explanation
Space or +	Display search results that include specific words.	art + music art music	Results have both words, art and music, in any order,
OR	Display search results that include only one word from a list.	dog OR puppy  dog OR puppy OR canine	Results have either the word, dog, or the word, puppy.  Results have the word, dog, or the word, puppy, or the word, canine.
( )	Combine search results that include specific words with those that include only one word from a list.	Kalamazoo Michigan (pizza OR subs)	Results include both words, Kalamazoo Michigan, and either the word, pizza, or the word, subs.
–	Exclude a word from search results.	automobile-convertible	Results include the word, automobile, but do not include the word, convertible.
“ ”	Search for an exact phrase in a certain order.	“19th century literature”	Results include the exact phrase, 19th century literature.
*	Substitute characters in place of the asterisk.	writer*	Results include any word that begins with the text, writer (e.g., writer, writers, writer's)

# Types of Websites

- There are several types of websites

**Search engine**

**Online social  
network**

Informational  
and research

Media sharing

Bookmarking

News, weather,  
sports, and other  
mass media

# Types of Websites

Educational

Business,  
governmental,  
and  
organizational

**Blogs**

**Wiki** and  
collaboration

Health and fitness

Science

# Types of Websites



**Entertainment**

**Banking and  
finance**

**Travel and  
tourism**

**Mapping**

**Retail and  
auctions**

# Types of Websites



Careers and  
employment

**E-commerce**

**Portals**

**Content  
aggregation**

Website  
creation and  
management

# Types of Websites

- **Web publishing** is the creation and maintenance of websites





# Digital Media on the Web

- Multimedia refers to any application that combines text with media

*Graphics*

Animation

Audio

Video

Virtual  
Reality

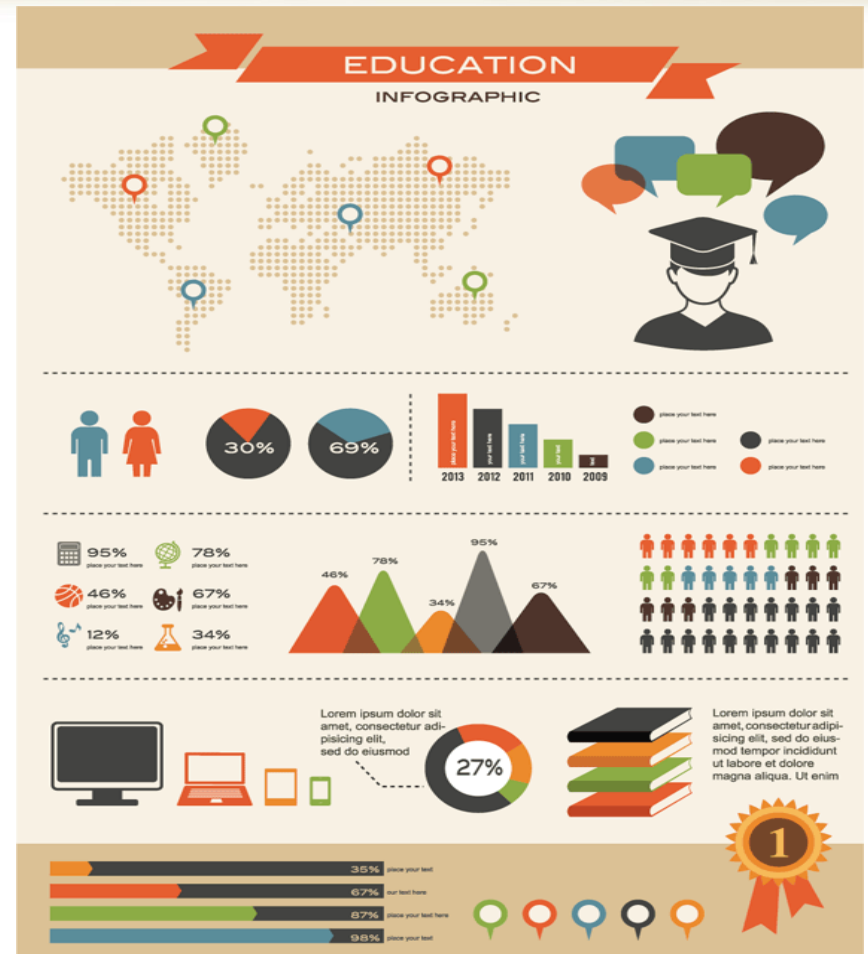
# Digital Media on the Web

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



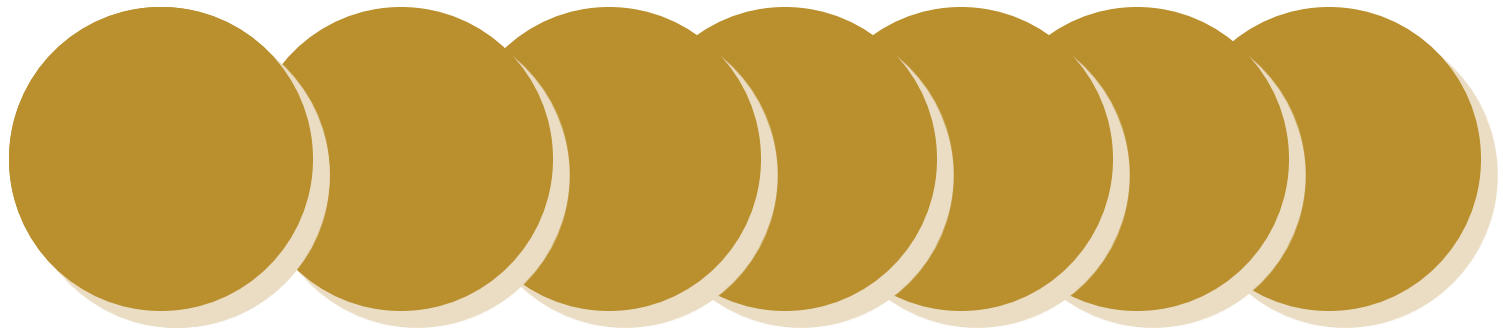
# Digital Media on the Web

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



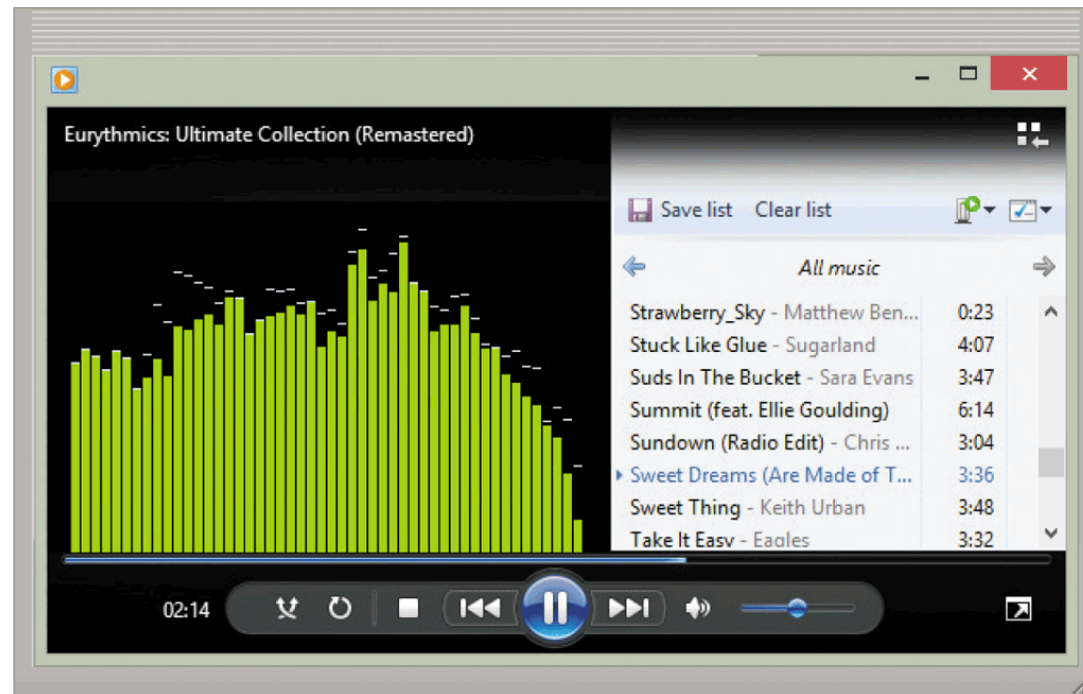
# Digital Media on the Web

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



# Digital 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



# Digital 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

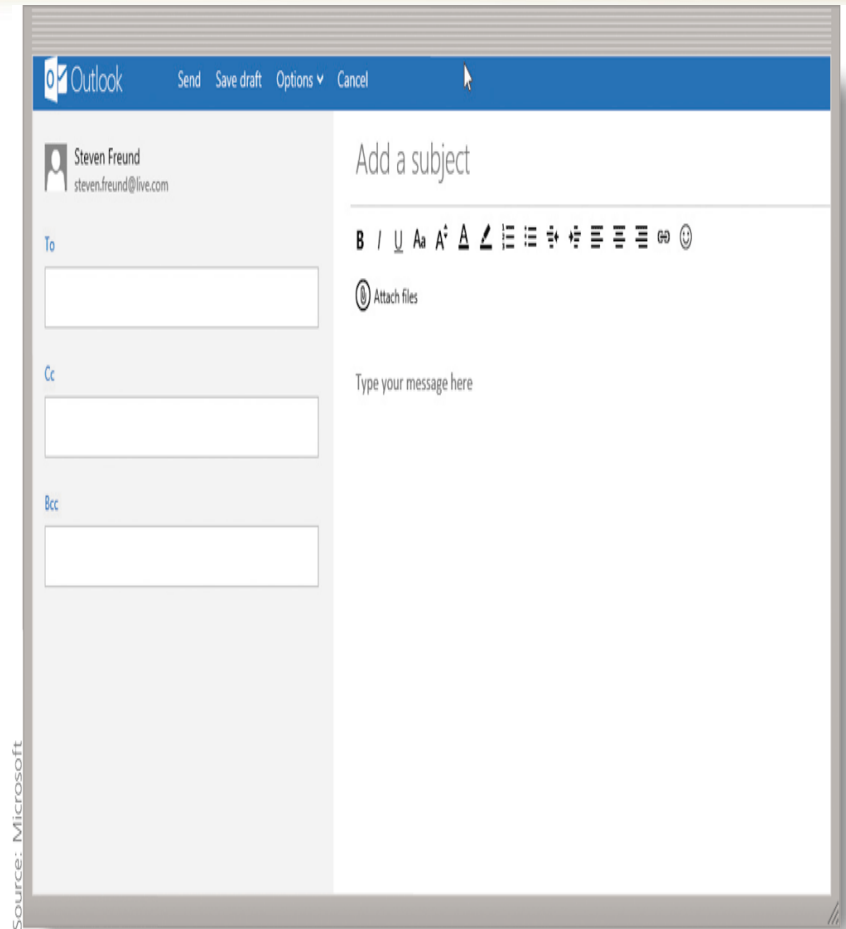


# Digital Media on the Web

A plug-in, or add-on, is a program that extends the capability of a 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

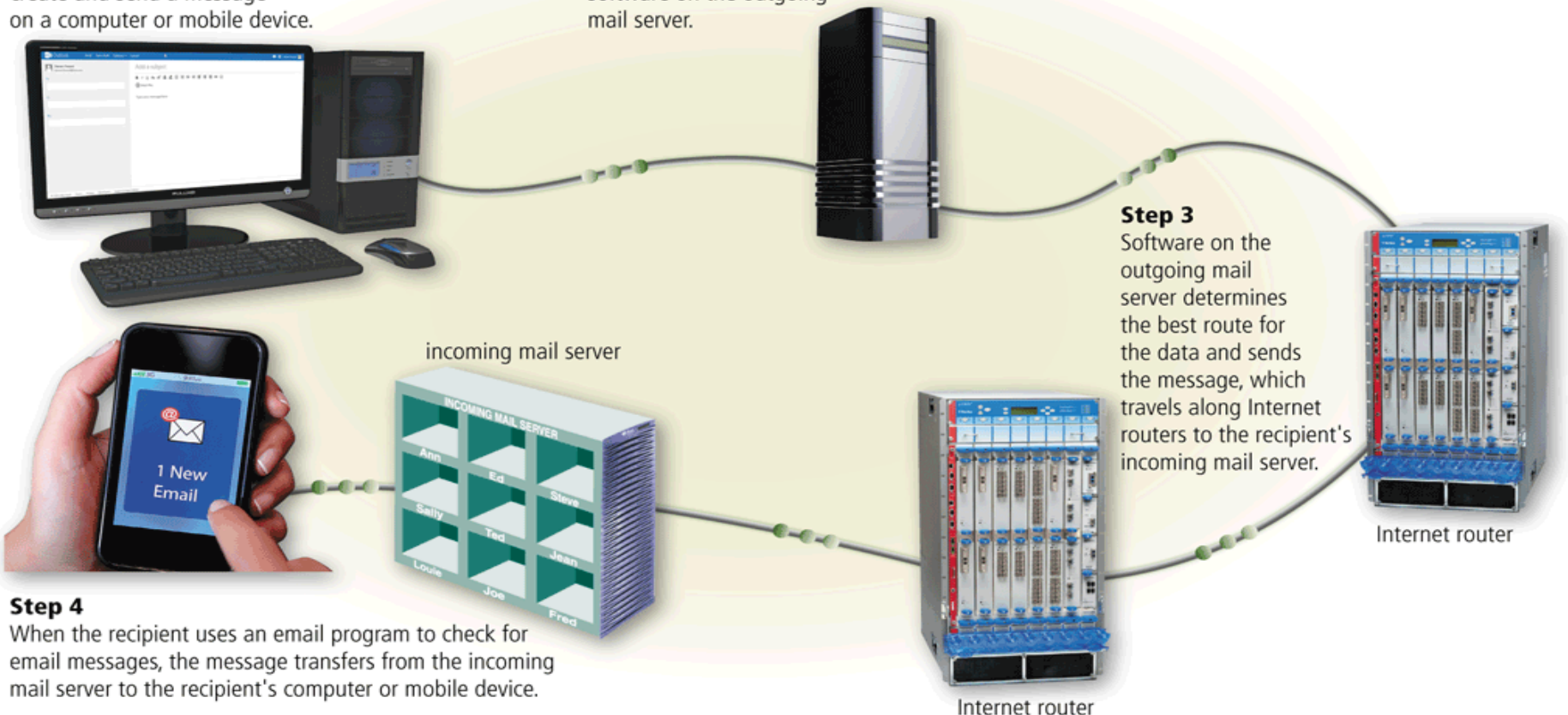
## How an Email Message May Travel from a Sender to a Receiver

### 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 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

The screenshot shows a web form titled "Newsletters & Alerts". At the top, there is a text input field for "Your Email Address" containing "rclaremont@esite.com" with a green checkmark icon to its left. A callout box labeled "email address entered" points to this field. To the right of the email field is a section for "Preferred Newsletter Format" with two radio buttons: "HTML" (selected) and "Text". Below the email field, a green message states "Your email address has been added! Please choose your subscriptions below and click 'Submit Subscriptions'". To the right of the form, a callout box labeled "tap or click to subscribe to selected mailing lists" points to a "Submit Subscriptions" button. Below the message, there are two sections: "ALERTS" and "NEWSLETTERS". The "ALERTS" section has two items: "FoxNews.com Breaking News Alerts" (checked) and "FoxBusiness.com Breaking News Alerts" (unchecked). Each item includes a description and an "Arrives:" note. The "NEWSLETTERS" section has two items: "GretaWire Alerts" (unchecked) and "Top Headlines From FoxNews.com" (checked). Each item also includes an "Arrives:" note.

**Newsletters & Alerts**

email address entered

Your Email Address  
✓ rclaremont@esite.com

Preferred Newsletter Format  
☒ HTML ☐ Text

tap or click to subscribe to selected mailing lists

Submit Subscriptions

Your email address has been added!  
Please choose your subscriptions below and click "Submit Subscriptions".

**Choose Your Subscriptions...**

**ALERTS**

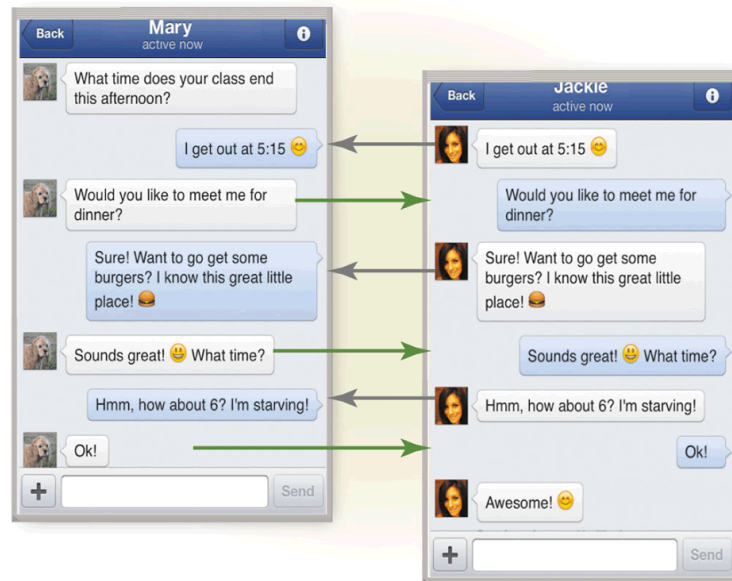
<input checked="" type="checkbox"/> <b>FoxNews.com Breaking News Alerts</b> The latest news on politics, entertainment, global affairs & more -- right to your inbox!	Arrives: When news breaks	<input type="checkbox"/> <b>FoxBusiness.com Breaking News Alerts</b> When the market moves, we're on it. Get breaking business news sent to your inbox.	Arrives: When news breaks
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**NEWSLETTERS**

<input type="checkbox"/> <b>GretaWire Alerts</b>	Arrives:	<input checked="" type="checkbox"/> <b>Top Headlines From FoxNews.com</b>	Arrives:
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# Other Internet Services

- ❑ **Instant messaging** services notify you when one or more of your established contacts are online and then allows you to exchange messages or files or join a private chat room with them



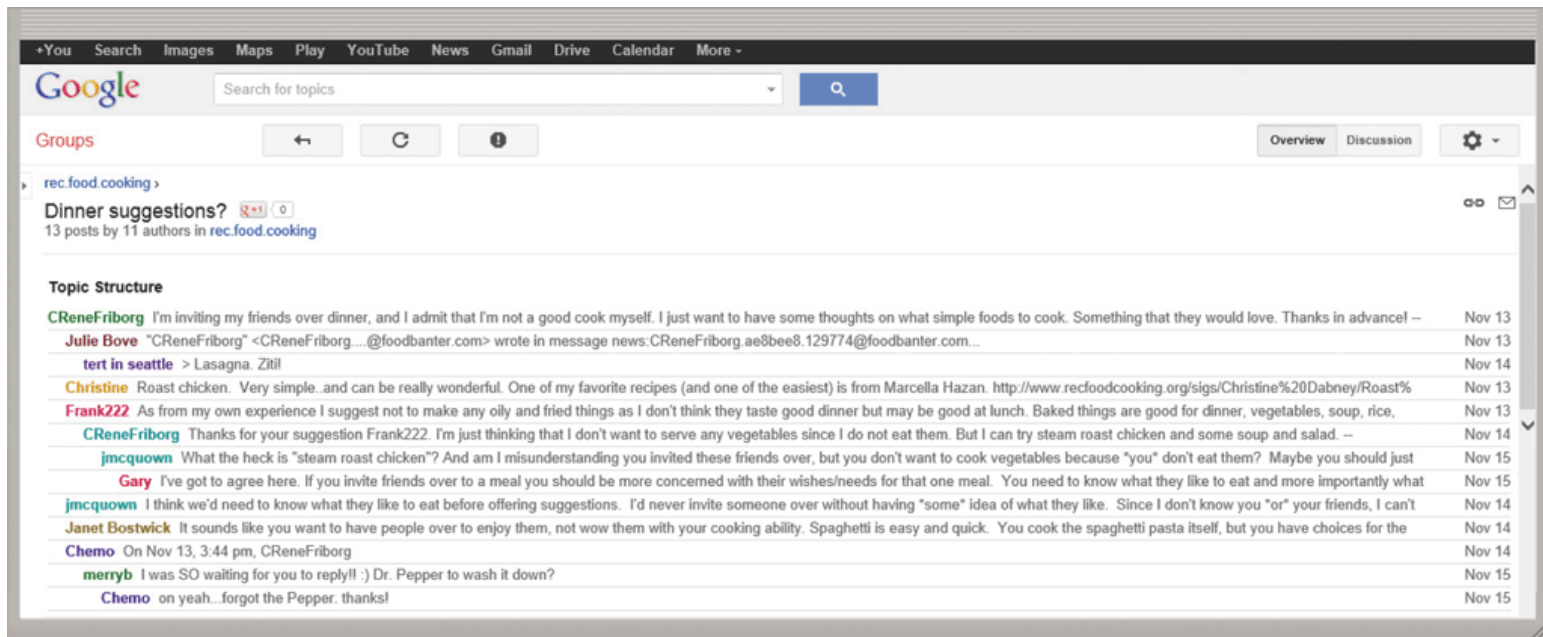
# Other Internet Services

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



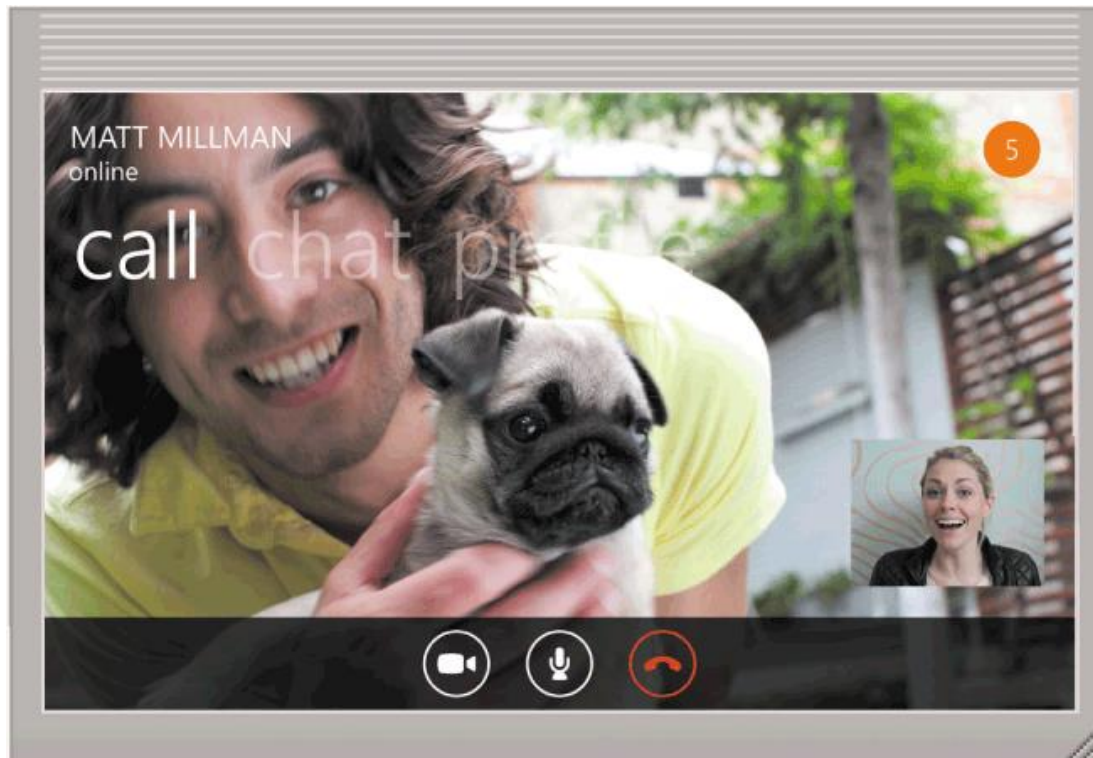
# Other Internet Services

- An **online discussion** 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 via their Internet connection





# 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.