16th Edition
Understanding Computers
Today and Tomorrow
Comprehensive

Chapter 8
The Internet

Deborah Morley
Charles S. Parker

Learning Objectives (1)

- Discuss how the Internet evolved and what it is like today.
- Identify the various types of individuals, companies, and organizations involved in the Internet community and explain their purposes.
- Describe device and connection options for connecting to the Internet, as well as some considerations to keep in mind when selecting an ISP.
- Understand how to search effectively for information on the Internet and how to cite Internet resources properly.

2

Learning Objectives (2)

- List several ways to communicate over the Internet, in addition to e-mail.
- List several useful activities that can be performed via the Web.
- Discuss censorship and privacy and how they are related to Internet use.

3

Overview

- This chapter covers:
  - A discussion of how the Internet evolved
  - The members comprising the Internet community
  - Different options for connecting to the Internet
  - Internet searching techniques
  - Common applications available via the Internet
  - Societal issues related to Internet use

4

Evolution of the Internet

- The **Internet** is the largest and most well-known computer network, linking millions of computers all over the world
  - The Internet has actually operated in one form or another for several decades
- **ARPANET** is the predecessor of the Internet
  - Created in 1969 and named after the Advanced Research Projects Agency (ARPA), which sponsored its development
  - Initially connected four supercomputers; eventually evolved into today's Internet
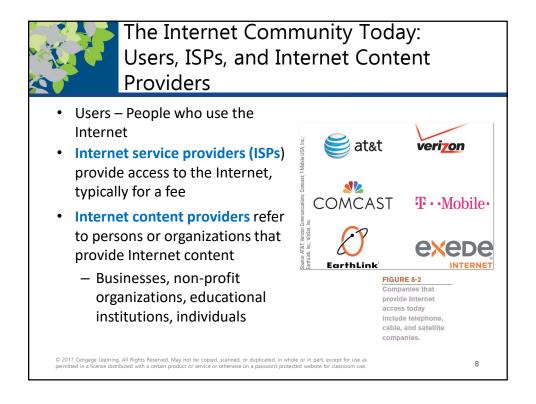
5

Evolution of the Internet (cont'd)

- The **World Wide Web (Web)** is the collection of Web pages available through the Internet
  - Proposed by Tim Berners-Lee in 1989
  - Originally only text-based content; release of the Mosaic browser in 1993 led to graphical content
  - The Web is the most widely use part of the Internet
- Internet2 is a consortium of researchers, educators, and technology leaders from industry, government, and the international community
  - Dedicated to the development of revolutionary Internet technologies; much of the focus is on speed

6

The Internet Yesterday and Today

FIGURE 8-1
Using the Internet: Back in the "old days" versus now.

EARLY 1990s
Even at the beginning of the 1990s, using the Internet for most people meant learning how to work with a cryptic sequence of commands. Virtually all information was text-based.

TODAY
Today's Web organizes much of the Internet's content into easy-to-read pages that can contain text, graphics, animation, video, and interactive content that users access via hyperlinks.

7

The Internet Community Today: Users, ISPs, and Internet Content Providers

- Users – People who use the Internet
- **Internet service providers (ISPs)** provide access to the Internet, typically for a fee
- **Internet content providers** refer to persons or organizations that provide Internet content
  - Businesses, non-profit organizations, educational institutions, individuals

FIGURE 8-2
Companies that provide Internet access today include telephone, cable, and satellite companies.
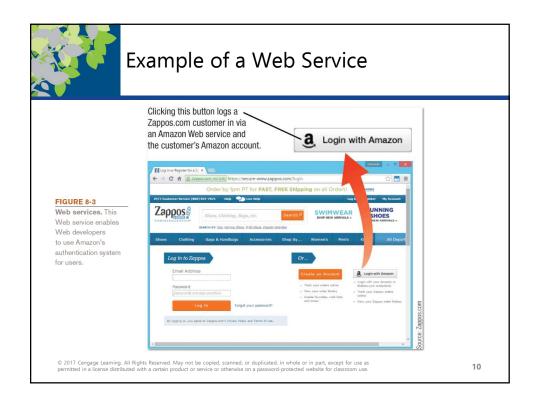
8

ASPs and Infrastructure Companies

- **Application service providers (ASPs)** refer to companies that manage and distribute Web-based software services over the Internet
  - Cloud software, Software as a Service (SaaS), cloudware
  - Often fee-based business software
  - A **Web service** is a self-contained business application that operates over the Internet
- Infrastructure companies are enterprises that own or operating the physical structure of the Internet
  - Conventional and mobile phone companies, cable companies, and satellite Internet providers

9

Example of a Web Service

Clicking this button logs a Zappos.com customer in via an Amazon Web service and the customer's Amazon account.

FIGURE 8-3
Web services. This Web service enables Web developers to use Amazon's authentication system for users.

Source: Zappos.com

10

Hardware and Software Companies and the Government

- Hardware and software companies provide the hardware and software used in conjunction with the Internet and Web
- Government and other organizations impact the Internet
  - Some countries limit information and access
  - FCC influences communications in the United States
  - Internet Society (ISOC)
    - Addresses issues impacting the future of the internet
  - Internet Corporation for Assigned Names and Numbers (ICANN)
    - Domain and IP address management
  - World Wide Web Consortium (W3C)
    - Protocols and standards, ensures interoperability

11

Myths About the Internet

- Myth 1: The Internet is free
  - Most people and businesses pay for Internet access
  - Businesses, schools, and libraries lease communications lines from phone companies
  - Mobile phone users pay hotspot or mobile phone providers for access
  - Fee-based content is growing at a rapid pace
    - Music/movie downloads
    - Donation-based sites

FIGURE 8-4
Fee-based Web content. The use of fee-based Web content, such as streaming movies via Netflix as shown here, is growing.

12

Myths About the Internet (cont'd.)

- Myth 2: Someone controls the Internet
  - No single group or organization controls the Internet
  - Governments can regulate Internet use within its country, but this is difficult to enforce
- Myth 3: The Internet and World Wide Web are identical
  - Internet is the physical network
  - WWW is the collection of Web pages available over the Internet
  - Other resources are available via the Internet, for example, FTP

13

Getting Set Up to Use the Internet: Type of Device

- Combination of factors to consider
  - Devices available to you
  - Whether you need access just at home or while on the go
  - What types of Internet content you want to access
- Possible devices
  - Personal computers
  - Smartphones, tablets, and other mobile devices
  - Gaming devices and televisions
    - Content depends on the device or TV being used and the installed apps

14

Examples of Devices Used to Access the Internet

PERSONAL COMPUTERS   SMARTPHONES   SMART TVS

FIGURE 8-5
A variety of devices can be used to access the Internet.

15

Technology and You

Mobile Data Caps

- Mobile data use is increasing rapidly
- Many wireless carriers now have data caps for mobile devices
  - Users lose high-speed access or are charged a fee when data cap is exceeded
  - Monitor data use to stay below your data cap
  - Onavo also compresses data

Onavo Extend helps you monitor and extend your data usage.

16

8

Type of Connection and Internet Access

- Computer must be connected to the Internet to obtain access
- Most connections today are broadband
- **Dial-up connections** must dial up and connect to the ISP
  - **Conventional dial-up Internet access** uses standard phone lines
    - Uses modem to dial and connect to the ISP
    - Slower, but cheaper
    - Ties up phone lines
    - Relatively secure from hackers
- **Direct connections** are always connected to the ISP
  - Often available in various tiers of speed vs. cost

17

Home Internet Connection Options

TYPE OF INTERNET CONNECTION	AVAILABILITY	APPROXIMATE MAXIMUM SPEED*	APPROXIMATE MONTHLY PRICE
Conventional dial-up	Anywhere there is telephone service	56 Kbps	Free–$30
Cable	Virtually anywhere cable TV service is available	6–200 Mbps	$30–110
DSL	Within 3 miles of a switching station that supports DSL	3–15 Mbps	$30–40
Satellite	Anywhere there is a clear view of the southern sky and where a satellite dish can be mounted and receive a signal; most often in rural or mountainous areas	5–15 Mbps	$40–80
Fixed wireless	Selected areas where service is available; most often in rural areas	2–12 Mbps	$60–250
Broadband over fiber (BoF)	Anywhere fiber has been installed to the building; most often in urban areas	5 Mbps–1 Gbps	$30–70
Mobile wireless (4G)	Virtually anywhere cellular phone service is available	3–100 Mbps	Varies greatly depending on data plan

* Download speed; most connections have slower upload speeds.

FIGURE 8-7
Typical home Internet connection options.

18

Cable and DSL

- **Cable Internet access** is most widely used home broadband connection
  - Delivers via a cable provider's network
  - Fast, typically around 25 Mbps
  - Requires a cable modem
- **DSL (Digital Subscriber Line) Internet access** delivers data via standard telephone lines
  - Must be less than 3 miles from a switching station
  - Transmits over telephone lines but does not tie up the line
  - Typically around 10 Mbps

19

Satellite and Fixed Wireless

- **Satellite Internet access** is often the only broadband option for rural areas
  - Slower than cable and more expensive that cable or DSL
  - Requires satellite modem and transceiver dish
  - Performance might degrade or stop altogether during bad weather
- **Fixed wireless Internet access** uses radio transmission towers rather than satellites
  - Requires a modem and, sometimes, an outside-mounted transceiver
  - Uses Wi-Fi or WiMAX technology
  - Typically between 2 and 10 Mbps

20

Broadband over Fiber (BoF) and Mobile Wireless

- **Broadband over Fiber (BoF) Internet access** delivers data over fiber-optic cabling all the way to the building
  – Also called fiber-to-the-premises (FTTP)
  – Verzion Fios and Google Fiber
  – Very fast—up to 1 Gbps
  – Requires special networking equipment
- **Mobile wireless Internet access** delivers data via a cellular network
  – Often used with smartphones and tablets while on the go
  – Typically requires a data plan
  – Speed depends on the cellular standard and specific network

21

Wi-Fi Hotspots

- A **Wi-Fi hotspot** is a location with a direct Internet connection and a wireless access point
- Both free and fee-based hotspots are available
- Hotels, schools, restaurants, libraries, businesses, etc.

FIGURE 8-9
Wi-Fi hotspots. Hotspots are used to wirelessly connect to the Internet via the Internet connection belonging to a business, city, school, or other organization.

COFFEEHOUSES AND OTHER PUBLIC LOCATIONS
Often fee-based, though some are available for free.

HOTELS AND CONFERENCE CENTERS
Often free for guests.

HOSPITALS, BUSINESSES, AND OTHER ORGANIZATIONS
Usually designed for employees but are sometimes also available free to visitors.

COLLEGE CAMPUSES
Usually designed for students and faculty; sometimes used directly in class, as shown here.

22

Selecting an ISP and Setting Up Your Devices

- Selecting an ISP
  - Determining factors: Device used, type of Internet connection and service desired, geographical location
  - ISPs offer a number of tiers; that is, different combinations of speeds and/or data caps
- Setting up your Internet connection and devices
  - Depends on the type of device, the type of connection, and the ISP
  - May need additional hardware to connect other computers and devices
  - Mobile device setup usually doesn't require any additional hardware

23

Choosing an ISP

AREA	QUESTIONS TO ASK
Services	Is the service compatible with my device?
	Is there a monthly data cap? If so, do I have a choice of tiers?
	How many e-mail addresses can I have?
	What is the size limit on incoming and outgoing e-mail messages and attachments?
	Do I have a choice between conventional and Web-based e-mail?
	Are there any special member features or benefits?
	Does the service include Web site hosting, Wi-Fi hotspots, or other benefits?
Speed	How fast are the maximum and usual download (ISP to my device) speeds?
	How fast are the maximum and usual upload (my device to ISP) speeds?
	How much does the service slow down under adverse conditions, such as high traffic or poor weather?
Support	Is telephone-based technical support available?
	Is Web-based technical support (such as via e-mail or live chat) available?
	Is there ever a charge for technical support?
Cost	What is the monthly cost for the service? Is it lower if I prepay a few months in advance? Are different tiers available?
	Is there a setup fee? If so, can it be waived with a long-term agreement?
	What is the cost of any additional hardware needed, such as modem or transceiver? Can the fee be waived with a long-term service agreement?
	Are there any other services (telephone service or TV, for instance) available from this provider that can be combined with Internet access for a lower total cost?

FIGURE 8-10

Choosing an ISP. Some questions to ask before making your final selection.

24

Quick Quiz (1)

1. The Internet began as an experimental network that is known by which name?
   a. ARPANET
   b. Internet2
   c. World Wide Web

2. True or False: Although broadband is defined by the FCC as 25 Mbps or faster, many home Internet connections considered broadband connections today are significantly slower than 25 Mbps.

3. What type of broadband Internet access is often the only option for rural users?

Answers:

1) a; 2) True; 3) satellite Internet access

25

Searching the Internet

- **Search sites** are Web sites designed to help users find Web pages that contain the information they are seeking
  - Typically use a **search engine** in conjunction with a database containing information about Web pages to locate appropriate Web pages
  - Search site databases are updated on a regular basis
  - Automated programs (often called spiders or web crawlers) use the hyperlinks to crawl (jump continually) from page to page to update the search database
  - To search, type the URL of a search site or search using the Address bar of your browser to use your default site

26

13

Methods for Searching the Internet

- **Keyword search**
  - **Keywords** are typed in a search box to locate Web pages (hits) matching those keywords
  - Clicking on a Web page name displays that page
  - Most common type of Internet search
- **Directory search**
  - Categories are selected to locate Web pages in those categories
- Search site tools vary by search site
  - Can search for music files, image files, news articles, maps, people, videos, etc.
  - Can do calculations, track packages, define words, etc.

27

Examples of Google Search Tools

FIGURE 8-13
Google search tools.

28

14

Search Strategies

- Phrase searching involves typing more than one keyword
  - Can often use quotation marks to limit hits to that phrase

SEARCH PHRASE USED	SEARCH SITE	NUMBER OF PAGES FOUND	TITLE OF FIRST TWO NONSPONSORED PAGES FOUND*
dogs	Google	750,000,000	Dog – Wikipedia, the free encyclopedia Dog Breeds | Browse 151 Dog Breeds | Petfinder
	Bing	35,100,000	Dog – Wikipedia, the free encyclopedia Dog Breeds, A-Z List of Small to Large Dog Breeds
hand signals	Google	15,300,000	Using Turn or Hand Signals - DriversEd.com Hand Signals – Wikipedia, the free encyclopedia
	Bing	12,000,000	List of gestures - Wikipedia, the free encyclopedia Hand Signals – Wikipedia, the free encyclopedia
dog hand signals	Google	1,870,000	Dog Training Hand Signals – A picture instructional guide Essential Hand Signals for Dogs | POPSUGAR Pets
	Bing	2,990,000	Dog Training Hand Signals – A picture instructional guide Utilize Dog Hand Signals In Your Training
"dog hand signals"	Google	5,460	Dog Training Hand Signals – A picture instructional guide Dog Training with Hand Signals - Purina® Dog Chow®
	Bing	16,900	Dog Training Hand Signals – A picture instructional guide Utilize Dog Hand Signals In Your Training

* Highlighted entries indicate Web pages about dog hand signals.

FIGURE 8-14
Examples of phrase searching. Using different search phrases and different search sites can significantly change the search results.

29

Other Search Strategies

- Using search operators
  - Putting a hyphen or minus sign before a word for a more specific search
  - Allowable operators vary from site to site
- Using multiple search sites
  - Different search sites can return different results
- Using synonyms: Different words that mean the same thing
- Using variations of your keywords and alternate spellings
- Using wildcards, such as *, to specify keyword patterns

30

Field Searching

- Field searches limit the search to a particular characteristic
  - Page title, page text, URL, top level domain, or Web site

FIELD TYPE	EXAMPLE	EXPLANATION
Title	title: "tax tips"	Searches for Web pages containing the words "tax tips" in the page title.
Text	text: "tax tips"	Searches for Web pages containing "tax tips" in the text of the page.
Site	forms site:irs.gov	Searches for Web pages associated with the keyword "forms" that are located only on the irs.gov Web site.
Domain	tax tips site:*.gov	Searches for Web pages associated with the keywords "tax tips" that are located on government Web sites (they can have anything for the first part of the domain name, but must have a .gov TLD).

FIGURE 8-15
Field searching.
Field searches limit
search results to just
those pages that
match specific field
criteria, in addition to
any specified search
criteria.

31

Evaluating Search Results

- Does the title and listed description sound appropriate for the information you are seeking?
- Is the URL from an appropriate company or organization?
- You should also evaluate:
  - The author
  - The source
    - Determine if reliable or biased
  - The currency of information
    - Many online articles are years old
- Verify online information with a second source

32

Citing Internet Resources

- To avoid plagiarism, proper citation procedures should be used for all Internet content used in a paper, book, or on a Web site
- Citations for online sources are similar to written sources:
  - Author
  - Date of publication
  - Article or Web page title
  - Date the article was retrieved from the Internet
  - URL used

33

Examples of Web Citations

TYPE OF RESOURCE	CITATION EXAMPLE*
Online magazine article	Kedmey, Dan. "Why Thieves Love the Apple Watch." *Time*. Time, 14 May 2015. Web. 30 March 2016. <http://time.com/3858762/apple-watch-theft/>.
Online journal article	Nix, Maria. "Legislation Claiming to Protect Workers Would Hurt RNs." American Journal of Nursing 115.7 (2015): 14. Web. 21 Apr. 2016. <http://journals.lww.com/ajnonline/Fulltext/2015/07000/Legislation_Claiming_to_Protect_Workers_Would_Hurt.7.aspx>.
Online news article	Wagstaff, Keith. "Amazon Unveils Flight Plan for Its Prime Air Delivery Drones." NBC News. 28 July 2015. Web. 26 May 2016. <http://www.nbcnews.com/tech/innovation/amazon-drones-n399771>.
Web page content (not an article)	"Spear Phishing: Scam, Not Sport." *Norton*. Web. 25 Mar. 2016. <http://us.norton.com/spear-phishing-scam-not-sport/article>.
E-mail	Rodriquez, M. "Re: Solar Powered Cars." Message to the author. 2 May 2016. E-mail.

* MLA does not require the use of a URL but it is acceptable to include the URL in your citation.

FIGURE 8-16

Citing Web sources.
These examples follow the Modern Language Association (MLA) format.

34

Quick Quiz (2)

1. To limit search results to just pages belong to a particular top-level domain (such as .gov), you should use a _____.
   - a. synonym search
   - b. variant search
   - c. field search
2. True or False: The search phrase *trailer -horse* should locate Web pages about horse trailers.
3. The program used by many search sites to retrieve matching Web pages from their database is called a(n) _____.

Answers:
1) c; 2) False; 3) search engine
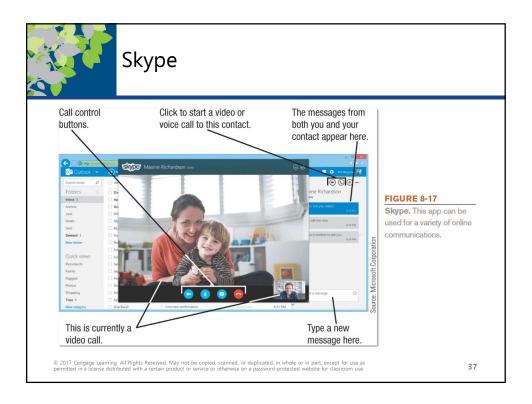
35

Beyond Browsing, Searching, and E-Mail

- Many other activities take place via the Web in addition to browsing, searching, and e-mail
- Today's online communications programs can typically be used for a variety of activities
  - Messaging
  - Voice and video calls
  - E-mail
  - Skype and Gmail, for example
- Online communication convergence is referred to as unified communications (UC)

36

18

Skype

Call control buttons.

Click to start a video or voice call to this contact.

The messages from both you and your contact appear here.

FIGURE 8-17
Skype. This app can be used for a variety of online communications.

Source: Microsoft Corporation

This is currently a video call.

Type a new message here.

37

Instant Messaging and Text Messaging

- **Instant messaging (chat)**
  - Exchanging real-time messages with your contacts
  - Instant messages (IMs) can be sent via computers and smartphones
  - Can be sent via social media
- **Text messaging**
  - Used by mobile phone users
  - SMS for text and MMS for multimedia messages
  - Beginning to replace e-mail for personal communication
  - Can be group messages

Source: WhatsApp Inc.
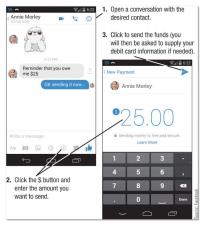
FIGURE 8-18
Group messaging. Works the same as traditional IM, just with more people.

38

19

How It Works

Social Commerce

- Use of social networks to perform financial transactions
- Free money transfers between individuals using messaging services
  - Snapchat (via Snapcash) and Facebook (via Facebook Messenger)

1. Open a conversation with the desired contact.

3. Click to send the funds (you will then be asked to supply your debit card information if needed).

2. Click the $ button and enter the amount you want to send.

Sending money via Facebook Messenger.

39

Twittering and Social Networking Updates

- **Twittering**: Users post short updates called tweets
  - Used in both business and personal lives
  - Can find tweets by following someone or searching for hashtags
- Similar status updates are available via some social networking sites

Click to see the tweets of the people you follow.

Type a hashtag or username here to display tweets corresponding to that hashtag or username.

Hashtag; click to view related tweets.

Click to follow State Dept. tweets.

FIGURE 8-19
Twitter.

40

Forums and VoIP

- A **forum** (discussion group or message board) is a Web page that enables individuals to post messages on a particular topic for others to read and respond to
  - Typically organized by topics (threads)
- **Voice over Internet Protocol (VoIP)** refers to making telephone calls over the Internet
  - Computer to computer
  - More permanent VoIP setups replace landline phones
  - Relatively inexpensive
  - Does not work when Internet connection or power is out

41

Example of Voice over IP (VoIP)

Source: Vonage; Ubee Interactive; S. Bonaime/Shutterstock.com

THE INTERNET
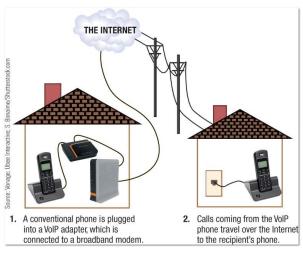
FIGURE 8-20
Voice over IP (VoIP). Permanent VoIP setups allow telephone calls to be placed via a broadband Internet connection using a conventional telephone.

1. A conventional phone is plugged into a VoIP adapter, which is connected to a broadband modem.

2. Calls coming from the VoIP phone travel over the Internet to the recipient's phone.

42

Web Conferences and Webinars

- A **Web conference** is a videoconferencing that take place via the Internet
  - Typically via a personal computer or mobile device
  - Used by individuals and businesses
  - Business Web conferencing is often used for meetings between individuals located in different geographical locations
    - May require a Web conferencing service
- **Webinar** is a seminar presented via the Web
  - Webcast is a completely one-way presentation

43

Example of Web Conferencing

Source: Polycom, Inc.

FIGURE 8-21
Web conferencing.
Allows individuals to talk with and see each other in real time.

44

Social Networking/Social Media

- **Social networking site**: A site that enables a community of individuals to communicate and share information
  - Facebook, Google +, etc.
- **Social media**: The collection of social networking sites and other communications channels used to share information with a broad audience
  - Media-sharing sites (YouTube and Flickr)
  - Microblogging sites (Twitter)
  - Social curation sites (Digg, Reddit, and Pinterest)
- For security and safety reasons, be careful not to reveal too much about yourself

45

Social Media Integration

- Integrated into other online activities
  - Can start a video call within Facebook
  - Can share a YouTube video via e-mail
  - Can often Like content on Web sites
  - Can use social media credentials to log on to Web sites

FIGURE 8-22
Social networks are integrated into many Web sites.

46

E-Commerce

- **E-commerce** is performing financial transactions over the Internet
  - More convenient and easier comparison shopping for individuals
  - Reduced costs and increased customer satisfaction for businesses
  - Be cautious to prevent fraud and identity theft
    - Enter sensitive data only on secure Web sites
    - Use a credit card or online payment service
  - **Online shopping**: Buying products or services over the Internet
  - **Online auctions**: Bids are placed for items and the highest bidder purchases the item
  - **Online banking**: Performing banking activities via the Web
  - **Online investing**: Buying and selling stocks or other types of investments via the Web
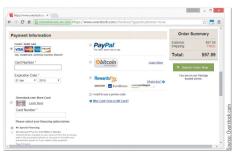
47

Inside the Industry

E-Commerce Payment Options

- Payment options vary
- Typically displayed on the checkout page
- Most common payment options are credit and debit cards
- Other options include online payment services (PayPal, Bill Me Later, etc.), Bitcoins, digital gift cards, etc.

Options for online payments include credit/debit cards, PayPal, Bitcoins, and gift cards/promo codes.

48

Online Entertainment

- **Online music**
  - Music played or obtained via the Web
- **Online TV**, **videos**, and **movies**
  - Live or recorded TV shows available via the Web
  - Videos watched or downloaded via the Web
  - Feature films available via the Web
  - **Video-on-demand (VOD**)
    - Selecting movies or TV television shows to be delivered on demand to your device
      - Rented movies can usually be viewed only for a limited time

49

Examples of Online Music and Video

ONLINE RADIO

ONLINE TV AND MOVIES

FIGURE 8-26
TV, videos, and movies are commonly watched online.

50

Online Gaming

- **Online gaming**
  - Playing games via the Web
    - Web-based games
    - Online multiplayer games
  - Can be played via PC, smartphone, gaming consoles, portable gaming devices, etc.
  - Often associated with Internet addiction
    - The inability to stop using the Internet or to prevent extensive use of the Internet from interfering with other aspect's of one's life

51
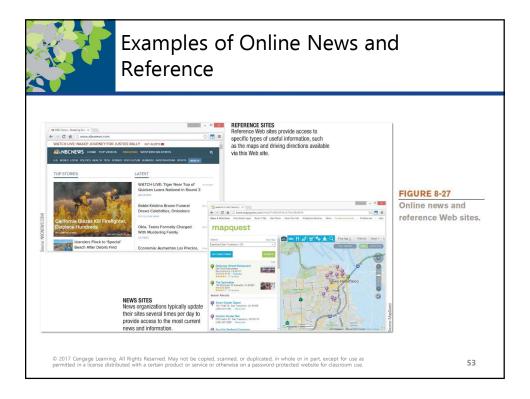
Online News and Reference

- Online news
  - Available through Web sites belonging to news organizations, television networks, newspapers, magazines, etc.
  - Usually updated on a continual basis
  - Growing trend is to abandon print subscriptions and provide Web-only service--mainly due to cost
  - News archives are often available (may require a fee)
- Reference sites
  - Provide access to specific types of useful information
  - Maps, weather, ZIP Code lookup, etc.

52

Examples of Online News and Reference

FIGURE 8-27
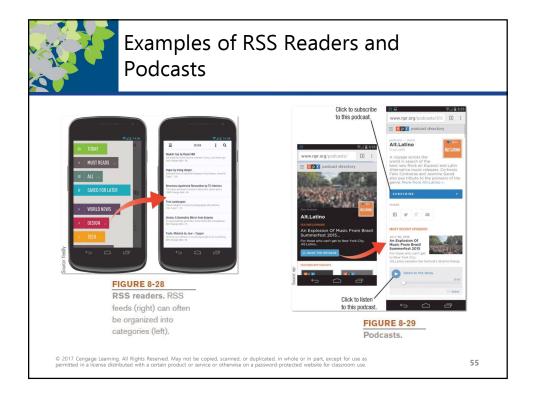Online news and reference Web sites.

53

RSS Feeds and Podcasts

- **RSS (Really Simple Syndication) feed**
  - News tool that delivers selected Web content to subscribers as the content is published to a Web site
- **Podcast**
  - Recorded audio or video file that can be played or downloaded via the Web
  - Prepared by individuals and businesses
  - Used to share knowledge, express opinions, share original poems, songs, or short stories
  - Typically uploaded to the Web on a regular basis

54

Examples of RSS Readers and Podcasts

Click to subscribe to this podcast.

FIGURE 8-28
RSS readers. RSS feeds (right) can often be organized into categories (left).

Click to listen to this podcast.

FIGURE 8-29
Podcasts.

55

Product, Corporate, Government, and Other Information

- Vast amount of product information available online
  - Product specifications
  - Instruction manuals
- Government information is also available online
  - Tax forms
  - Government publications
  - Legislative bills
- Wide variety of information from non-profit organizations, conservation groups, political parties, etc., is also available

56

Trend

Internet of Things (IoT)

- Everyday objects interconnected via the Internet
- Sensors in shoes and other objects, smart fitness devices, home automation systems, smart freeways and traffic lights, for example
- Devices will communicate with each other and provide feedback to users as needed

A home automation system.

57

Online Education and Writing

- Online education
  - Using the Internet to facilitate learning
  - Web-based learning management systems
    - Used to deliver course content, manage assignments and grades, and more
    - Blackboard, etc.
  - Student response systems
    - Students use a special device or their smartphone to respond to surveys or review questions during lectures

58

Web-Based Training and Distance Learning

- **Web-based training (WBT)** includes any instruction delivered via the Web
  - Used for both education delivery and employee training
  - Usually experienced individually and at each student's pace
  - Content can be updated as needed
  - Technological problems can be a disadvantage
- **Distance learning** occurs when students take classes from a different location from the one where the delivery of instruction takes place
  - Can be just one class or for an entire degree

59

Online Testing

- Online testing: Taking tests via the Internet
  - Growing trend in both distance learning and traditional classes
  - Can include objective, performance-based, or essay exams
    - Objective and performance-based are typically graded automatically
  - Strategies to avoid cheating
    - Require students to take test in person
    - Use smart cards, fingerprint scans, or other authentication method
    - Use an online proctoring service

60

Blogs, Wikis, and Other Types of Online Writing

- **Blog**: A Web page that contains short, frequently updated entries in chronological order, typically by just one individual
  - Typically created via a blogging site
  - Often published on school, business, and personal Web sites
- **Wiki**: A collaborative Web page designed to be edited and republished by a variety of individuals (e.g., Wikipedia)
  - Carefully evaluate content, as irresponsible individuals can enter erroneous information
- **E-portfolio (electronic portfolio or digital portfolio)**: A collection of an individual's work accessible via the Web
  - Can include papers, projects, résumés, etc.

61

Censorship and Privacy Issues

- Some countries attempt to regulate Internet content
  - To hinder spread of information from political opposition
  - To filter out material determined to be offensive
  - To protect national security
- In the United States:
  - Difficult to define "patently offensive" and "indecent"
    - Communications Decency Act
  - Difficult to find a fair balance between protection and censorship
    - Children's Internet Protection Act (CIPA)

62

Censorship and Privacy Issues (cont'd)

- **Internet filtering** can be used to block access to particular Web pages or types of Web pages
  - Via software or browser settings
  - Used by individuals, schools, employers, public computers, etc.
  - Can be used to restrict the hours the Internet can be used

FIGURE 8-34
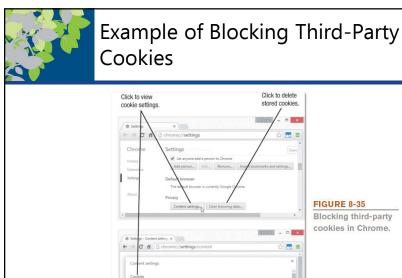Internet filtering.

63

Web Browsing Privacy: Cookies

- **Cookies** are small files stored on a hard drive by a Web server
  - Can be session-based or persistent cookies
  - Can be used to identify return visitors and their preferences (first-party cookies)
  - Can be tracking cookies used to track Web activity (third-party cookies)
  - Can include personally identifiable information (PII) or non-personally identifiable information (Non-PII)
  - Cookie data can be viewed or deleted
  - Cookie settings can be changed and/or managed with software

64

32

Example of Blocking Third-Party Cookies

FIGURE 8-35
Blocking third-party cookies in Chrome.

Source: Google Inc.

65

Spyware and Adware

- **Spyware:** Software installed without users knowledge that transmits data secretly through the user's Internet connection
  - Sometimes used by advertisers to gather marketing information
  - Can be used by criminals to gather personal data stored on your computer
- **Adware:** Software supported by onscreen advertising
  - Often included in free programs
  - Does not gather information
  - Is not installed without user's consent but may be installed without the user's direct knowledge

66

E-Mail Privacy

- Only encrypted e-mail can be transmitted privately
  - Unencrypted e-mail can be read by others if intercepted
  - Employers and ISPs have access to e-mails sent through those organizations
  - Businesses and ISPs typically archive e-mail messages

Chris,

The meeting is Monday at 2 pm. Please bring all related personnel files detailing the anticipated firing of Joe D.

Eve

To: cwilliams@abc.net
From: eve.s@abc.net

REGULAR (NONENCRYPTED E-MAIL) = POSTCARD

From: eve.s@abc.net

To: cwilliams@abc.net

CONFIDENTIAL

ENCRYPTED E-MAIL = SEALED LETTER

FIGURE 8-36
You cannot assume e-mail messages are private, unless they are encrypted.

67

Quick Quiz (3)

1. The process of ordering a movie or television show to be delivered via the Internet is referred to as _____.
   a. interactive TV
   b. online subscriptions
   c. video-on-demand (VOD)
2. True or False: When performing e-commerce activities, only secure Web pages should be used.
3. Blocking access to particular Web pages or types of Web pages using browser settings or special software is called Internet _____.

Answers:
1) c; 2) True; 3) filtering

68

34

Summary

- Evolution of the Internet
- Getting Set Up to Use the Internet
- Searching the Internet
- Beyond Browsing, Searching, and E-Mail
- Censorship and Privacy Issues

69