

The Internet, the Web, and Electronic Commerce



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Competencies

After you have read this chapter, you should be able to:

- 1 Discuss the origins of the Internet and the web.
- 2 Describe how to access the web using providers and browsers.
- 3 Discuss Internet communications, including e-mail, text messaging, instant messaging, social networking, blogs, microblogs, webcasts, podcasts, and wikis.
- 4 Describe search tools, including search engines and specialized search engines.
- 5 Evaluate the accuracy of information presented on the web.
- 6 Discuss electronic commerce, including B2C, C2C, B2B, and security issues.
- 7 Describe cloud computing, including the three-way interaction of clients, Internet, and service providers.
- 8 Describe web utilities including plug-ins, filters, file transfer utilities, and Internet security suites.

Why should I read this chapter?

The beginning of the Internet can be traced to 1969 when mainframe computers located in different parts of the United States were linked to one another. It was used exclusively to facilitate communication between researchers and was limited to text. That was then and this is now. Now, emerging Internet technologies are changing the way the world works and the way you interact with the world.

This chapter discusses these technologies including the web; wireless Internet access; and social networking including Facebook, Google+, and LinkedIn. Additionally, you'll learn about webcasts, streaming technology, podcasts, Twitter, cloud computing, and much more. To be competent and to be competitive in today's professional workplace, you need to know and understand these things.



chapter 2



Introduction



Hi, I'm Sue, and I'm a webmaster. I'd like to talk with you about the Internet, the web, and electronic commerce, things that touch our lives every day. I'd also like to talk with you about the role the Internet plays with Facebook, Google+, LinkedIn, Twitter, and cloud computing.



Explorations

Many individuals and institutions played a part in the development of the Internet and the web.

To learn more about the history of the Internet and web, visit our site at www.computing2014.com and enter the keyword [history](#).

Want to communicate with a friend across town, in another state, or even in another country? Looking for a long-lost friend? Looking for travel or entertainment information? Perhaps you're researching a term paper or exploring different career paths. Where do you start? For these and other information-related activities, most people use the Internet and the web.

The Internet is often referred to as the Information Superhighway. In a sense, it is like a highway that connects you to millions of other people and organizations. Unlike typical highways that move people and things from one location to another, the Internet moves ideas and information. The web provides an easy-to-use interface to Internet resources. It has become an everyday tool for all of us to use.

Competent end users need to be aware of the resources available on the Internet and the web. Additionally, they need to know how to access these resources, to effectively communicate electronically, to efficiently locate information, to understand electronic commerce, and to use web utilities.

The Internet and the Web

As mentioned earlier, the **Internet** was launched in 1969 when the United States funded a project that developed a national computer network called **Advanced Research Project Agency Network (ARPANET)**. The Internet is a large network that connects together smaller networks all over the globe. The **web** was introduced in 1991 at the **Center for European Nuclear Research (CERN)** in Switzerland. Prior to the web, the Internet was all text—no graphics, animations, sound, or video. The web made it possible to include these elements. It provided a multimedia interface to resources available on the Internet.

The first generation of the web, known as **Web 1.0**, focused on linking existing information. In 2001, the second generation, **Web 2.0**, evolved to support more dynamic content creation and social interaction. Facebook is one of the best-known Web 2.0 applications. Some suggest that we have entered into the next generation, **Web 3.0**. It focuses on computer-generated information requiring less human interaction to locate and to integrate information.

It is easy to get the Internet and the web confused, but they are not the same thing. The Internet is the actual network. It is made up of wires, cables, satellites, and rules for exchanging information between computers connected to the network. Being connected to this network is often described as being **online**. The Internet connects millions of computers and resources throughout the world. The web is a multimedia interface to the resources available on the Internet. Every day over a billion users from nearly every country in the world use the Internet and the web. What are they doing? The most common uses are the following:

- **Communicating** is by far the most popular Internet activity. You can exchange e-mail, photos, and videos with your family and friends from

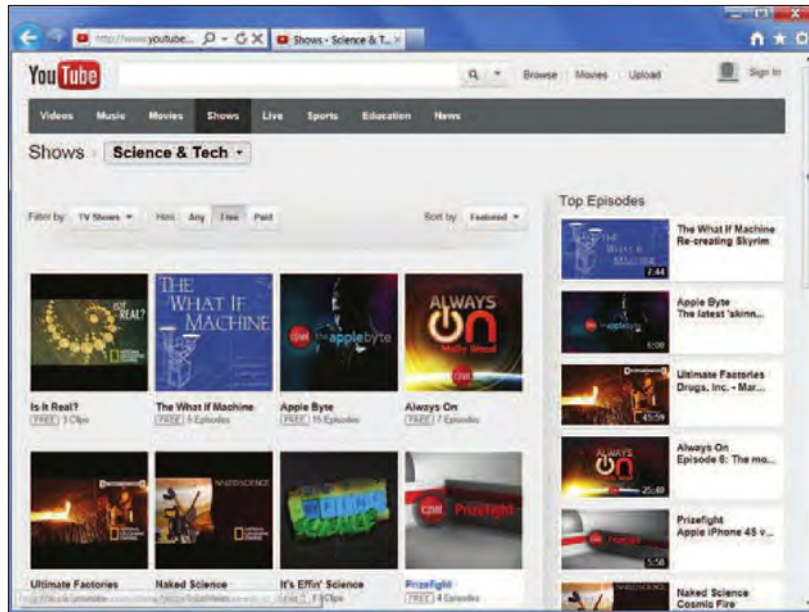


Figure 2-1 Entertainment site

almost anywhere in the world. You can locate old friends and make new friends. You can join and listen to discussions and debates on a wide variety of special-interest topics.

- **Shopping** is one of the fastest-growing Internet applications. You can window shop, look for the latest fashions, search for bargains, and make purchases.
- **Searching** for information has never been more convenient. You can access some of the world's largest libraries directly from your home computer. You can find the latest local, national, and international news.
- **Education or e-learning** is another rapidly emerging web application. You can take classes on almost any subject. There are courses just for fun, and there are courses for high school, college, and graduate school credit. Some cost nothing to take and others cost a lot.
- **Entertainment** options are nearly endless. You can find music, movies, magazines, and computer games. You will find live concerts, movie previews, book clubs, and interactive live games. (See Figure 2-1.) To learn more about online entertainment, see Making IT Work for You: Online Entertainment on pages 30 and 31.

The first step to using the Internet and the web is to get connected, or to gain access to the Internet.



concept check



- Describe how the Internet and the web started. What are the three web generations?
- What is the difference between the Internet and the web?
- List and describe five of the most common uses of the Internet and the web.

Making IT work for you

ONLINE ENTERTAINMENT

Are you one of the millions of people who regularly use their computers to watch their favorite television programs, movies, and other video content? Many have “cut the cord” from their cable or satellite TV providers and have turned to online content. It’s easy and convenient. Typically, the content is provided by a subscription or a pay-as-you-go service. Users watch the content on their TVs or their computers (including tablets and smartphones).

Subscription Services These services provide access to their library of videos for a fee. You can select and view as many of these videos as you want. Three of the most popular subscription services are Netflix, Hulu Plus, and Amazon Prime.

- 1 ● Netflix offers the largest library of movies and TV programs for a low monthly fee. Additionally, it offers DVD/Blu-ray disc rental plans with postal delivery.



- 2 ● Hulu Plus focuses on current TV programs. Although it does use limited advertising, Hulu Plus's low monthly subscription and current content makes it attractive.



- 3 ● Amazon Prime is a newer service with annual billing. Like Netflix, it offers a variety of online content, albeit with a more limited library. However, the plan comes with additional benefits such as free two-day shipping throughout the store.



Pay-As-You-Go Services These services provide online access to specific titles in their libraries for a charge. Amazon, iTunes, and Vudu are just a few of the companies that let you rent or purchase movies and TV programs. Movie rentals cost only a few dollars and can be viewed several times over a 24-hour period. The price can increase by one or two dollars for HD quality.

Viewing Video Content Many people own Internet-ready TVs that will directly accept content from the Internet. Most Blu-ray disc players and many gaming consoles also provide this access. You can also purchase specialized devices like Roku, which will connect TVs to many of the services listed above.

Many viewers use their computer and a browser to display the video content. Also, many services provide apps for tablet and smartphone viewing.

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Access

The Internet and the telephone system are similar—you can connect a computer to the Internet much like you connect a phone to the telephone system. Once you are on the Internet, your computer becomes an extension of what seems like a giant computer—a computer that branches all over the world. When provided with a connection to the Internet, you can use a browser program to search the web.

Providers

The most common way to access the Internet is through an **Internet service provider (ISP)**. The providers are already connected to the Internet and provide a path or connection for individuals to access the Internet. Your college or university most likely provides you with free access to the Internet while you are on campus.

The most widely used commercial Internet service providers use telephone lines, cable, and/or wireless connections. Some of the best-known providers are AT&T, Comcast, Sprint, T-Mobile, and Verizon.

As we will discuss in Chapter 8, users connect to ISPs using one of a variety of connection technologies including **DSL**, **cable**, and **wireless modems**.

Browsers

Browsers are programs that provide access to web resources. This software connects you to remote computers; opens and transfers files; displays text,

images, and multimedia; and provides in one tool an uncomplicated interface to the Internet and web documents. Browsers allow you to explore, or to **surf**, the web by easily moving from one website to another. Four well-known browsers are Apple Safari, Google Chrome, Microsoft Internet Explorer, and Mozilla Firefox. (See Figure 2-2.)

For browsers to connect to resources, the **location** or **address** of the resources must be specified. These addresses are called **uniform resource locators (URLs)**. All URLs have at least two basic parts. (See Figure 2-3.)

- The first part presents the protocol used to connect to the resource. As we will discuss in Chapter 8, **protocols** are rules for exchanging data between computers. The protocol *http* is used for web traffic and is the most widely used Internet protocol.
- The second part presents the **domain name**. It indicates the specific address where the resource is located. In Figure 2-3 the domain is identified as *www.mtv.com*. (Many URLs have additional parts specifying directory paths, file names, and pointers.) The last part of the domain name following the dot (.) is the **top-level domain (TLD)**. Also known as the **web suffix**, it typically identifies the type of organization. For example, *.com* indicates a commercial site. (See Figure 2-4.)

Once the browser has connected to the website, a document file is sent back to your computer. This document typically contains **Hypertext Markup Language (HTML)**, a markup language for

tips

Are you getting the most out of your web browser? Here are a few suggestions to make you faster and more efficient.

- 1 **Bookmarks/Favorites Bar:** Most browsers have a bookmarks or favorites bar just below the address bar. Add your top 5 or 10 most often visited websites here. The next time you want to visit one of these sites, select it from the bookmarks/favorites list rather than entering the site's URL.
- 2 **Shortcuts:** Keyboard shortcuts are often faster than using a mouse. Use the following: F5 (refresh); Alt+left arrow (back); Ctrl+T (new tab); Ctrl+W (close tab); Ctrl+Enter (adds "www" and ".com" to any domain name you type in the address bar).
- 3 **Extensions/Add-Ons:** Many browsers, such as Chrome and Firefox, allow users to install small, third-party programs that extend, or add to, the capabilities of the browser. These programs can perform a variety of tasks, from providing easy access to your cloud services to making it easier to capture information on a web page.
- 4 **Configure Settings:** All browsers have a settings or options page that provide many time-saving options. For example, you can set all the web pages that should open when you start your browser, or you can configure autocomplete options that help you to quickly fill out web forms.

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Figure 2-2 Browser

displaying web pages. The browser interprets the HTML formatting instructions and displays the document as a **web page**. For example, when your browser first connects to the Internet, it opens up to a web page specified in the browser settings. Web pages present information about the site along with references and **hyperlinks** or **links** that connect to other documents containing related information—text files, graphic images, audio, and video clips. (See Figure 2-5.)

There are various technologies used to provide highly interactive and animated websites. These technologies include

- **Cascading style sheets (CSS)** are separate files referenced by or lines inserted into an HTML document that control the appearance of a web page, including layout, colors, and fonts. CSS help ensure that related web pages have a consistent presentation or look.
- **JavaScript** is a language often used within HTML documents to trigger interactive features, such as opening new browser windows and checking information entered in online forms.
- **AJAX**, an advanced use of JavaScript, is used to create interactive websites that respond quickly.
- **Applets** are programs that can be downloaded quickly and run by most browsers. They are used to present animation, display graphics, provide interactive games, and much more.

Today it is common to access the Internet from a variety of mobile devices like smartphones and tablets. Special browsers called **mobile browsers** are designed to run on these portable devices. Unlike a traditional web browser that is typically displayed on a large screen, a mobile browser is displayed on a very small screen and special navigational tools are required to conveniently view web content. The Apple iPhone, for example, enables you to “pinch” or “stretch” the screen with two fingers to zoom web content in and out. (See Figure 2-6.)

To learn more about browsers, visit our website at www.computing2014.com and enter the keyword **browsers**.



Figure 2-3 Basic parts of a URL

Domain	Type
.com	Commercial
.edu	Educational
.gov	Government
.mil	U.S. military
.net	Network
.org	Organization

Figure 2-4 Traditional top-level domains

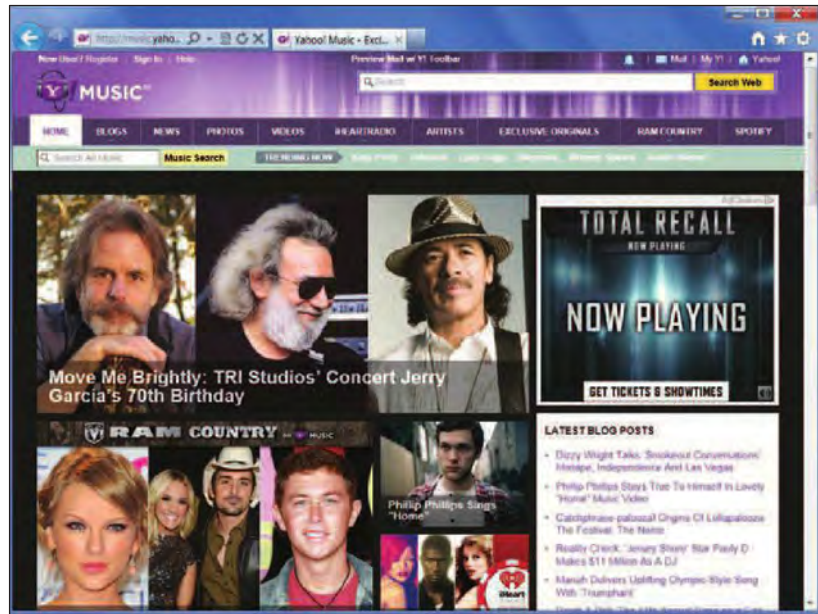


Figure 2-5 Web page



Figure 2-6 Zoom web content



concept check



What is the function of an ISP? Describe two types of ISPs.

What is the function of a browser? What is the function of a mobile browser?

What are URLs, HTML, web pages, hyperlinks, CSS, JavaScript, AJAX, and applets?

Communication

As previously mentioned, communication is the most popular Internet activity, and its impact cannot be overestimated. At a personal level, friends and family can stay in contact with one another even when separated by thousands of miles. At a business level, electronic communication has become a standard, and many times preferred, way to stay in touch with suppliers, employees, and customers. Some popular types of Internet communication are e-mail, messaging, social networking, blogs, microblogs, webcasts, podcasts, and wikis.

E-mail

E-mail or **electronic mail** is the transmission of electronic messages over the Internet. There are two basic types of e-mail accounts: client-based and web-based.

- **Client-based e-mail accounts** require a special program known as an **e-mail client** to be installed on your computer. Before you can begin e-mailing, you need to run the e-mail client from your computer, which communicates with the e-mail service provider. Two of the most widely used e-mail clients are Apple's Mail and Microsoft's Outlook.
- **Web-based e-mail accounts** do not require an e-mail program to be installed on your computer. Once your computer's browser connects to an e-mail service provider, a special program called a **webmail client** is run on the e-mail provider's computer and then you can begin e-mailing. This is known as **webmail**. Most Internet service providers offer webmail services. Three free webmail service providers are Google's Gmail, Microsoft's Hotmail, and Yahoo!'s Yahoo!Mail.

For individual use, webmail is more widely used because it frees the user from installing and maintaining an e-mail client on every computer used to access e-mail. With webmail, you can access your e-mail from any computer anywhere that has Internet access.

A typical e-mail message has three basic elements: header, message, and signature. (See Figure 2-7.) The **header** appears first and typically includes the following information:

- **Addresses:** E-mail messages typically display the addresses of the person or persons to whom the e-mail is sent. The e-mail message in Figure 2-7 is to dcoats@usc.edu, with a copy sent to aboyd@wsu.edu. Additionally, there may be copies sent to others. These are blind copies, meaning that their addresses do not appear on any other copies of the e-mail. E-mail addresses have two basic parts. (See Figure 2-8.) The first part is the user's name and the second part is the domain name, which includes the top-level domain. In our example e-mail, *dcoats* is Dan's user name. The server providing e-mail service for Dan is *usc.edu*. The top-level domain indicates that the provider is an educational institution.
- **Subject:** A one-line description, used to present the topic of the message. Subject lines typically are displayed when a person checks his or her mailbox.
- **Attachments:** Many e-mail programs allow you to attach files such as documents and images. If a message has an attachment, the file name typically appears on the attachment line.

The letter or **message** comes next. Finally, the **signature** provides additional information about the sender. This information may include the sender's name, address, and telephone number.

E-mail can be a valuable asset in your personal and professional life. However, like many other valuable technologies, there are drawbacks too. Americans receive billions of unwanted and unsolicited e-mails every year. This unwelcome

environment

Did you know that using e-mail is good for the environment? Writing letters and attaching files using e-mail reduce the amount of paper sent via postal mail. In addition, managing your financial and utilities accounts on the web is also healthy for the environment as it reduces the amount of paper bills you receive at home. To see more environmental facts, visit our website at www.computing2014.com and enter the keyword **environment**.

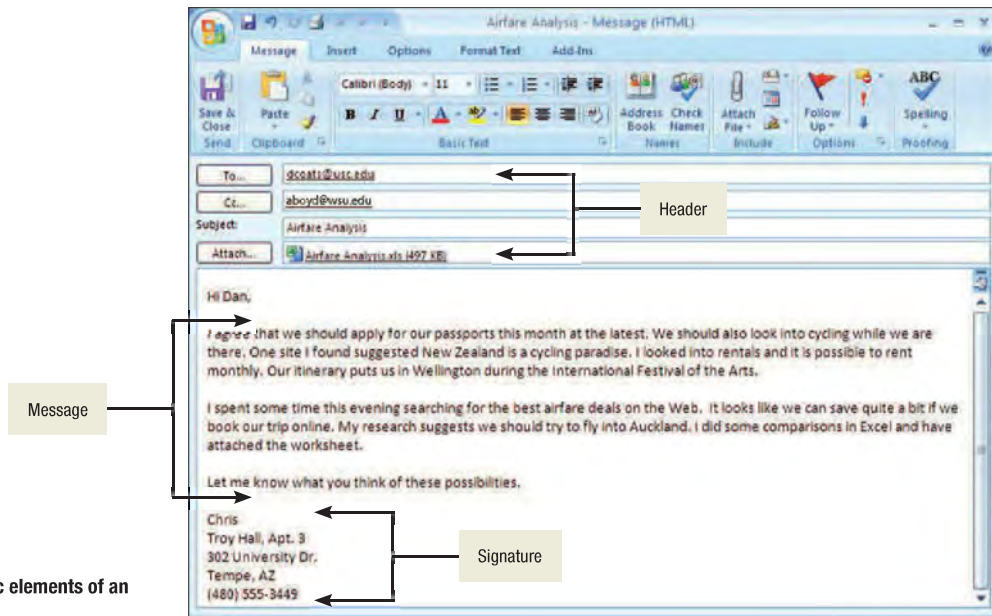


Figure 2-7 Basic elements of an e-mail message

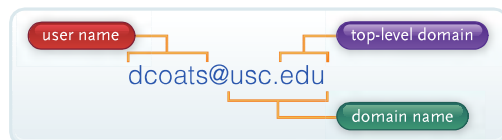


Figure 2-8 Two parts of an e-mail address

mail is called **spam**. While spam is indeed a distraction and nuisance, it also can be dangerous. For example, computer **viruses** or destructive programs are often attached to unsolicited e-mail. Computer viruses and ways to protect against them will be discussed in Chapter 4.

In an attempt to control spam, antispam laws have been added to our legal system. For example, CAN-SPAM requires that every marketing-related e-mail provide an opt-out option. When the option is selected, the recipient's e-mail address is to be removed from future mailing lists. Failure to do so results in heavy fines. This approach, however, has had minimal impact since over 50 percent of all spam originates from servers outside the United States. A more effective approach to controlling spam has been the development and use of **spam blockers**, also known as **spam filters**. Most e-mail programs provide limited spam-blocking capabilities. Additionally, powerful specialized spam-blocking programs are available. Many of these programs are free, including SPAMfighter and Intego Personal Antispam for Mac.

tips

Are you tired of sorting through an inbox full of spam? Here are a few spam-reducing suggestions:

- 1 Keep a low profile.** Many spammers collect e-mail addresses from personal web pages, social networking sites, and message boards. Be cautious when posting your address.
- 2 Use caution when giving out your address.** Many companies collect and sell e-mail addresses to spammers. Be sure to read the privacy policy of a site before providing your address.
- 3 Don't ever respond to spam.** Many are a trick to validate active e-mail addresses. These addresses are worth more to spammers, who then sell the addresses to other spammers.
- 4 Use antispam and filter options.** Most e-mail programs and web-based e-mail services have antispam and filter options that can be configured. Use them.
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Messaging

While e-mail was one of the first and is one of the most popular electronic messaging systems, other messaging systems have followed. Two of the best known are text messaging and instant messaging.

- **Text messaging**, also known as **texting**, is the process of sending a short electronic message, typically less than 160 characters, using a wireless network to another person who views the message on a mobile device such as a smartphone. Today, billions of people send text messages every day. It has become one of the most widely used ways to send very short messages from one individual to another. A great deal of attention has been directed

toward texting while driving. A study by *Car and Driver* concluded that texting while driving had a greater negative impact on driver safety than being drunk. Several states have passed laws prohibiting texting while driving.

- **Instant messaging (IM)** allows two or more people to contact each other via direct, live communication. To use instant messaging, you register with an instant messaging server and then specify a list of **friends**. Whenever you connect to the Internet, special software informs your messaging server that you are online. In response, the server will notify you if any of your friends are online. At the same time, it notifies your friends that you are online. You can then send messages directly back and forth to one another. Most instant messaging programs also include video conferencing features, file sharing, and remote assistance. Many businesses routinely use these instant messaging features. To see how instant messaging works, visit our website at www.computing2014.com and enter the keyword [im](#).

Social Networking

Social networking is one of the fastest-growing and most significant Web 2.0 applications. Social networking sites focus on connecting people and organizations that share a common interest or activity. These sites typically provide a wide array of tools that facilitate meeting, communicating, and sharing. There are hundreds of social networking sites. Three of the best known are Facebook, Google+, and LinkedIn.

- **Facebook** was initially launched by a student at Harvard University for college students in 2004. By 2008 it was the most widely used social networking site. It now has a billion users worldwide. Facebook provides a wide array of features and applications including instant messaging, photo and video sharing, games, and much more.

There are three basic categories of Facebook users: individuals, businesses, and communities. Individuals create **Facebook Profiles**, which may include photos, lists of personal interests, contact information, and other personal information. (See Figure 2-9.)

In general, these profiles are available to friends, family members, and others who may be searching for old friends, lost relatives, or people who share a common interest. Businesses create **Facebook Pages** to promote products and services. Public figures such as politicians and entertainers frequently use Facebook Pages to connect to their constituents and fans. Communities of individuals who share a common interest create **Facebook groups** to share information. Typically, groups are organized around topics, events, or ideas. Groups allow a number of people to come together online to share information and discuss specific subjects.

- Google Inc. launched **Google+**, also known as **Google Plus**, in 2011. It is a combination of some of Google Inc.'s previously existing services with some new services. These new services include **Circles** for grouping individuals according to common interests or other criteria, **Hangouts** for communicating with up to 10 people at a time, and **Sparks**, which automatically provides news on selected topics of interest and facilitates sharing this information with others to *spark* further discussion.

tips Have you ever seen one of those funny or not-so-funny and embarrassing personal videos on the Internet? Unless you are careful, you could be starring in one of these videos. Many of these videos started by individuals posting them to their personal Facebook or YouTube sites. Without explicit privacy settings, images and videos posted to these sites can be viewed and potentially reposted for all to see. To avoid becoming an unwanted video star, protect your privacy by controlling access to your images.

1 If you use Facebook, select Account/Privacy Settings from your Facebook page to review and edit your privacy settings.

2 If you use YouTube, go to www.youtube.com/account#privacy/search to specify who can have access to your posted images and videos.

To see other tips, visit our website at www.computing2014.com and enter the keyword [tips](#).



Figure 2-9 Facebook Profile

Organization	Site
Facebook	www.facebook.com
Google+	plus.google.com
LinkedIn	www.linkedin.com

Figure 2-10 Social networking sites

ethics

There are many blogs written by individuals who are experts in their field and whose opinions are valued and considered credible. These blogs are widely used by consumers and others as a source for knowledgeable and reliable product information. However, some bloggers are paid by companies or advertising agencies to post favorable reviews of their products or services. Do you think these bloggers are acting unethically when they accept payment for writing favorable reviews? To see other ethical issues, visit our website at computing2014.com and enter the keyword **ethics**.

Google+ and Facebook offer similar services. Facebook, however, has been around longer and has many more users. Google+, however, is growing very fast and has over 100 million users. Some project that Google+ will continue to grow and their number of users will approach Facebook's.

- **LinkedIn** started in 2003 and has become the premier business-oriented social networking site. Although not nearly as large as Facebook or Google+, it is the largest social networking site focusing on business professionals. It has well over 100 million users. LinkedIn provides tools to maintain business contacts, develop extended business networks, research individual businesses, search for job opportunities, and more.

For a list of some of the most popular social networking sites, see Figure 2-10.

Blogs, Microblogs, Webcasts, Podcasts, and Wikis

In addition to social networking sites, there are other Web 2.0 applications that help ordinary people communicate across the web including blogs, microblogs, webcasts, podcasts, and wikis.

Many individuals create personal websites, called **blogs** or **web logs**, to keep in touch with friends and family. Blog postings are time-stamped and arranged with the newest item first. Often, readers of these sites are allowed to comment. Some blogs are like online diaries with personal information; others focus on information about a hobby or theme, such as knitting, electronic devices, or good books. Although most are written by individual bloggers, there are also group blogs with multiple contributors. Some businesses and newspapers also have started blogging as a quick publishing method. Several sites provide tools to create blogs. Two of the most widely used are Blogger and WordPress. (See Figure 2-11.)

A **microblog** publishes short sentences that only take a few seconds to write, rather than long stories or posts like a traditional blog. Microblogs are designed

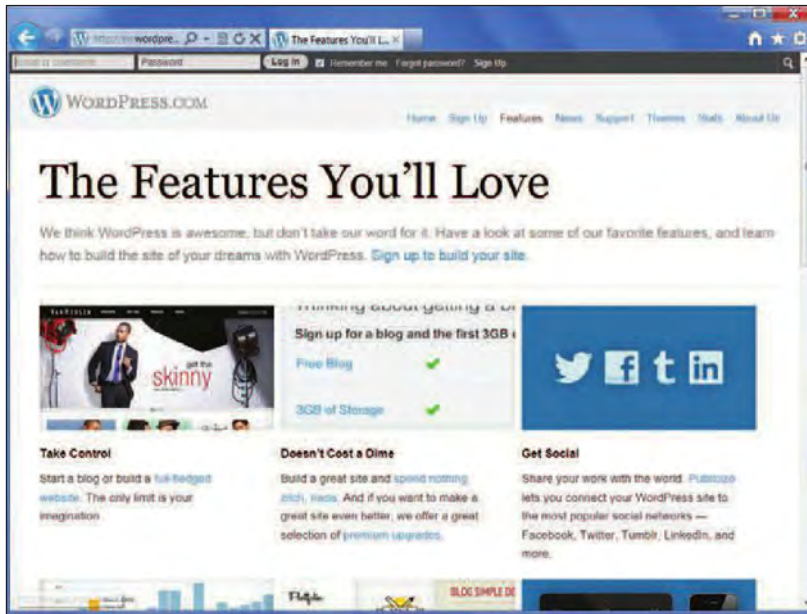


Figure 2-11 Blog creation site

to keep friends and other contacts up to date on your interests and activities. The most popular microblogging site, **Twitter**, enables you to add new content from your browser, instant messaging application, or even a mobile phone. To learn more about Twitter, see *Making IT Work for You: Twitter* on pages 40 and 41.

Both webcasts and podcasts deliver media content such as music and movies over the Internet to your computer. **Webcasts** use **streaming** technology in which audio and video files are continuously downloaded to your computer while you are listening to and/or viewing the file content. After a webcast has been completed, there are no files remaining on your computer. Webcasts typically broadcast live events. For example, the popular website YouTube.com as well as other sites routinely webcast live movie premiers and sporting events.

Podcasts do not use streaming technology. Before a podcast can be run, the media files have to be downloaded and saved to your computer. Once downloaded, the files can be run to listen to music or watch a movie as often as you would like. The media files can also be transferred from your computer to a media player such as an iPod. Podcasts are widely used to download music, tutorials, and educational training.

A **wiki** is a website specially designed to allow visitors to use their browser to add, edit, or delete the site's content. "Wiki" comes from the Hawaiian word for *fast*, which describes the simplicity of editing and publishing through wiki software. Wikis support collaborative writing in which there isn't a single expert author, but rather a community of interested people that builds knowledge over time. Perhaps the most famous example is **Wikipedia**, an online encyclopedia, written and edited by anyone who wants to contribute, that has millions of entries in over 20 languages. (See Figure 2-12.)

Creating blogs and wikis are examples of web authoring. We will discuss web authoring software in detail in Chapter 3. To learn more about creating your own personal website, visit us at www.computing2014.com and enter the keyword **blog**.

Making IT work for you

TWITTER

Have you used Twitter? Did you know that you can follow friends, businesses, and celebrities, as well as discover breaking news and emerging trends? It's an easy and powerful application.

Sign Up To create a new Twitter account:

- 1 Visit <http://twitter.com/signup>.
- 2 Follow the on-screen instructions to create an account.
- 3 Complete the brief tutorial from which you will choose a few users to follow.

The user name you choose will be a unique identifier for your Twitter account. For example, if your user name is "computing2014," then you will be referred to as @computing2014 and your tweets can be viewed at <http://twitter.com/computing2014>.

Reading Tweets Your Twitter home page will contain posts from everyone you follow (those whose tweets, or messages, you would like to read regularly), starting with the newest. For each tweet you can do the following:

- 1 Move your mouse over a specific tweet to see several options.
- 2 Click *Reply* to post a public reply to this tweet.
- 3 Click *Retweet* if you want to share this post with your followers.
- 4 Click *Favorite* to save this tweet to your favorites list.
- 5 Click *Expand* to see more information about this tweet.



Some tweets have links to web pages, photos, and videos, while others have links to topics (#) or other Twitter members (@).

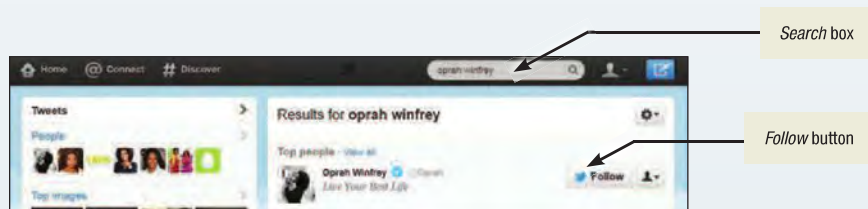
Composing a Tweet To create a new message:

- 1 ● Click the *Compose new Tweet* box.
- 2 ● Type a message, noting the 140-character limit (abbreviations are encouraged). You may add a photo and/or your current location by clicking the related icons.
- 3 ● Click the *Tweet* button to post the message.

Normally, only your followers will be reading your tweets on a regular basis, as the tweets will appear in their home pages or on their smartphones. However, unless you have set your account to private, keep in mind that all your tweets can be viewed by anyone on the web. Therefore, be mindful what you write.

Following Others Twitter members can be people or organizations. There are several ways to find members to follow:

- 1 ● If you know the name of the member, just type it in the *Search* box at the top.
- 2 ● In the results area, click the *Follow* button next to the member you were looking for.



Alternatively, you can click any *mention* (@) link in a Tweet to bring up that member's profile, or you can use the # *Discover* area discussed below.

Trends and Stories One of the most powerful features of Twitter is its ability to inform us of trending topics and stories. It analyzes what members are posting about most often and which topics are creating the most buzz at the moment. To discover these trends and stories:

- 1 ● Click the # *Discover* button at the top of the page. Top stories appear on the right.
- 2 ● Click any of the trends on the left side to view all tweets that include that topic (this area also appears on your home page).

The web is continually changing, and some of the specifics presented in this Making IT Work for You may have changed. To learn about other ways to make information technology work for you, visit our website at www.computing2014.com and enter the keyword [miw](#).



Figure 2-12 Wikipedia



concept check



- Define e-mail. What is the difference between client- and web-based e-mail accounts? What is webmail?
- What is text messaging? What is instant messaging?
- What is social networking? Describe three well-known sites.
- Describe the differences between blogs, microblogs, webcasts, podcasts, and wikis.

Search Tools

The web can be an incredible resource, providing information on nearly any topic imaginable. Are you planning a trip? Writing an economics paper? Looking for a movie review? Trying to locate a long-lost friend? Information sources related to these questions, and much, much more, are available on the web.

With over 20 billion pages and more being added daily, the web is a massive collection of interrelated pages. With so much available information, locating the precise information you need can be difficult. Fortunately, a number of organizations called **search services** operate websites that can help you locate the information you need. They maintain huge databases relating to information provided on the web and the Internet. The information stored at these databases includes addresses, content descriptions or classifications, and keywords appearing on web pages and other Internet informational resources. Special programs called **spiders** continually look for new information and update the search services' databases. Additionally, search services provide



Figure 2-13 Google search engine

special programs called *search engines* that you can use to locate specific information on the web.

Search Engines

Search engines are specialized programs that assist you in locating information on the web and the Internet. To find information, you go to a search service's website and use its search engine. For example, see Figure 2-13 for Google's search engine.

To use a search website, you enter a keyword or phrase reflecting the information you want. The search engine compares your entry against its database and returns a list of **hits**, or sites that contain the keywords. Each hit includes a link to the referenced web page (or other resource) along with a brief discussion of the information contained at that location. Many searches result in a large number of hits. For example, if you were to enter the keyword *music*, you would get billions of hits. Search engines order the hits according to those sites that most likely contain the information requested and present the list to you in that order, usually in groups of 10. See Figure 2-14 for a list of commonly used search engines.

Since each search service maintains its own database, the hits returned by one search engine will not necessarily be the same hits returned by another search engine. Therefore, when researching a topic, it is best to use more than one search engine.

Specialized Search Engines

Specialized search engines focus on subject-specific websites. Specialized sites can potentially save you time by narrowing your search. For a list of just a few selected specialized search engines, see Figure 2-15. For example, let's say you are researching a paper about the fashion industry. You could begin with a general search engine like Yahoo!. Or you could go to a search engine that specializes specifically in fashion, such as www.shopstyle.com.

Search Service	Site
Ask	www.ask.com
Bing	www.bing.com
Google	www.google.com
Yahoo!	www.yahoo.com

Figure 2-14 Search engines

Topic	Site
Environment	www.ecoearth.info
Fashion	www.shopstyle.com
History	www.historynet.com
Law	www.findlaw.com
Medicine	www.webmd.com

Figure 2-15 Select specialized search engines

To locate other specialized search engines, use a search service and enter the topic area followed by *specialized search engine*. For example, entering *sports specialized search engine* will return several search engines dedicated specifically to sports information.

Content Evaluation

Search engines are excellent tools to locate information on the web. Be careful, however, how you use the information you find. Unlike most published material found in newspapers, journals, and textbooks, not all the information you find on the web has been subjected to strict guidelines to ensure accuracy. In fact, anyone can publish content on the web. Many sites, such as Wikipedia.org, allow anyone to post new material, sometimes anonymously and without critical evaluation. To learn how you can publish on the web, visit our website at www.computing2014.com and enter the keyword [blog](#).

To evaluate the accuracy of information you find on the web, consider the following:

- **Authority.** Is the author an expert in the subject area? Is the site an official site for the information presented, or is the site an individual's personal website?
- **Accuracy.** Has the information been critically reviewed for correctness prior to posting on the web? Does the website provide a method to report inaccurate information to the author?
- **Objectivity.** Is the information factually reported or does the author have a bias? Does the author appear to have a personal agenda aimed at convincing or changing the reader's opinion?
- **Currency.** Is the information up to date? Does the site specify the date when the site was updated? Are the site's links operational? If not, the site is most likely not being actively maintained.



concept check



What are search services, spiders, and search engines?

Compare search engines and specialized search engines.

What are the four considerations for evaluating website content?

Electronic Commerce

Electronic commerce, also known as **e-commerce**, is the buying and selling of goods over the Internet. Electronic commerce is fast-growing and widely used in part because it provides incentives for both buyers and sellers. From the buyer's perspective, goods and services can be purchased at any time of day or night from any location that has an Internet connection. From the seller's perspective, the costs associated with owning and operating a retail outlet can be eliminated. Another advantage is reduced inventory. Traditional stores maintain an inventory of goods in their stores and periodically replenish this inventory from

warehouses. With e-commerce, there is no in-store inventory and products are shipped directly from warehouses.

While there are numerous advantages to e-commerce, there are disadvantages as well. Some of these disadvantages include the inability to provide immediate delivery of goods, the inability to “try on” prospective purchases, and questions relating to the security of online payments. Although these issues are being addressed, very few observers suggest that e-commerce will replace bricks-and-mortar businesses entirely. It is clear that both will coexist and that e-commerce will continue to grow.

Just like any other type of commerce, electronic commerce involves two parties: businesses and consumers. There are three basic types of electronic commerce:

- **Business-to-consumer (B2C)** commerce involves the sale of a product or service to the general public or end users. It is the fastest-growing type of e-commerce. Whether large or small, nearly every existing corporation in the United States provides some type of B2C support as another means to connect to customers. Because extensive investments are not required to create traditional retail outlets and to maintain large marketing and sales staffs, e-commerce allows start-up companies to compete with larger established firms. The three most widely used B2C applications are for *online banking*, financial trading, and shopping. Amazon.com is one of the most widely used B2C sites.
- **Consumer-to-consumer (C2C)** commerce involves individuals selling to individuals. C2C often takes the form of an electronic version of the classified ads or an auction. **Web auctions** are similar to traditional auctions except that buyers and sellers seldom, if ever, meet face to face. Sellers post descriptions of products at a website, and buyers submit bids electronically. Like traditional auctions, sometimes the bidding becomes highly competitive and enthusiastic. One of the most widely used auction sites is eBay.com. For a list of some of the most popular web auction sites, see Figure 2-16.
- **Business-to-business (B2B)** commerce involves the sale of a product or service from one business to another. This is typically a manufacturer-supplier relationship. For example, a furniture manufacturer requires raw materials such as wood, paint, and varnish.

Organization	Site
eBid	www.ebid.net
QuiBids	www.quibids.com
eBay	www.ebay.com
uBid	www.ubid.com

Figure 2-16 Auction sites

Security

The two greatest challenges for e-commerce are (1) developing fast, secure, and reliable payment methods for purchased goods and (2) providing convenient ways to submit required information such as mailing addresses and credit card information.

The two basic payment options are by credit card and by digital cash:

- Credit card purchases are faster and more convenient than check purchases. Credit card fraud, however, is a major concern for both buyers and sellers. We will discuss this and other privacy and security issues related to the Internet in Chapter 9.
- **Digital cash** is the Internet’s equivalent to traditional cash. Buyers purchase digital cash from a third party (a bank that specializes in electronic currency) and use it to purchase goods. (See Figure 2-17.) Sellers convert the digital cash to traditional currency through the third party. Although not as convenient as credit card purchases, digital cash is more secure. For a list of digital cash providers, see Figure 2-18.

Explorations



Some companies have developed payment systems known as digital wallets that store your credit cards, coupons, and gift cards on your smartphone.

To learn more about these new digital wallets, visit our website at www.computing2014.com and enter the keyword **wallet**.



Figure 2-17 PayPal offers digital cash

Organization	Site
Amazon	payments.amazon.com
Google	wallet.google.com
Serve	www.serve.com
PayPal	www.paypal.com



concept check



What is electronic commerce?

What are the three basic types of e-commerce?

What are the two basic payment options?

Figure 2-18 Digital cash providers

environment

Did you know that the move to cloud computing could benefit the environment? Large computers, such as servers and mainframes, use a significant amount of energy for both their operation and their cooling. Using large cloud computing data centers, which are shared by many companies, can be more energy efficient than having the individual companies using their own servers. To see more environmental facts, visit our website at www.computing2014.com and enter the keyword [environment](#).

Cloud Computing

Typically, application programs are owned by individuals or organizations and stored on their computer system's hard disks. As discussed in Chapter 1, **cloud computing** uses the Internet and the web to shift many of these computer activities from the user's computer to other computers on the Internet.

While some suggest that *cloud computing* is merely a marketing term designed to promote new products, many others see cloud computing as a new model for computing that frees users from owning, maintaining, and storing software and data. It provides access to these services from anywhere through an Internet connection. Several prominent firms are aggressively pursuing this new concept. These firms include Google, IBM, Intel, and Microsoft to name just a few.

The basic components to cloud computing are clients, the Internet, and service providers. (See Figure 2-19.)

- Clients are corporations and end users who want access to data, programs, and storage. This access is to be available anywhere and anytime that a connection to the Internet is available. End users do not need to buy, install, and maintain application programs and data.

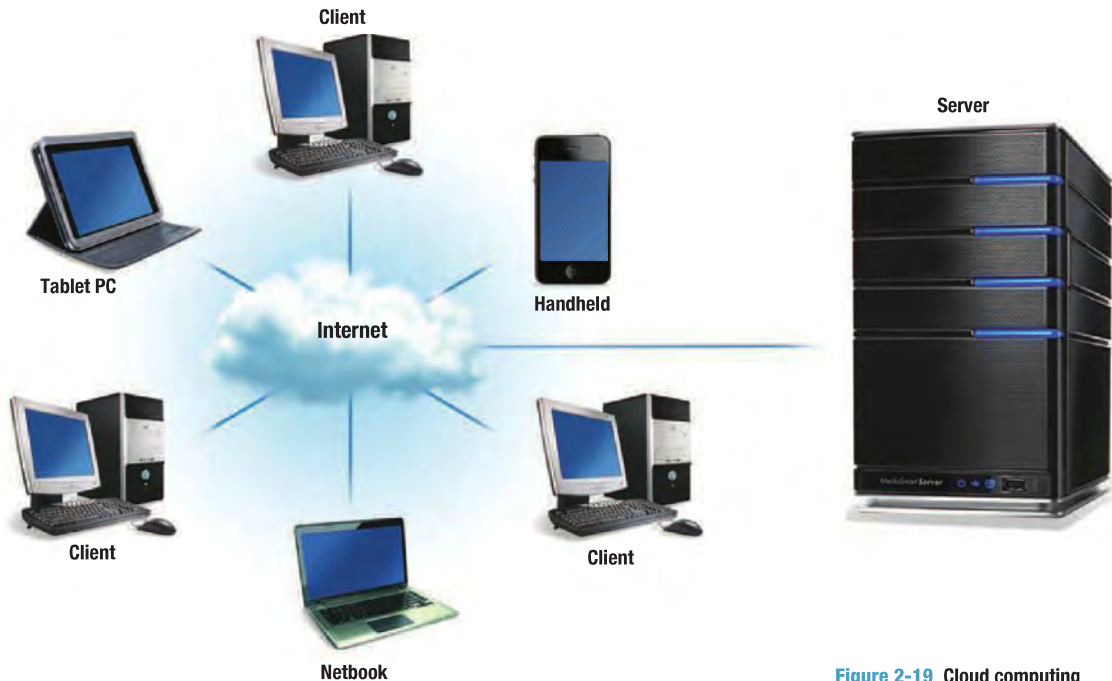


Figure 2-19 Cloud computing

- The Internet provides the connection between the clients and the providers. Two of the most critical factors determining the efficiency of cloud computing are (1) the speed and reliability of the user's access to the Internet and (2) the Internet's capability to provide safe and reliable transmission of data and programs.
- Service providers are organizations with computers connected to the Internet that are willing to provide access to software, data, and storage. These providers may charge a fee or may be free. For example, Google Apps provides free access to programs with capabilities similar to Microsoft's Word, Excel, and PowerPoint. (See Figure 2-20.)

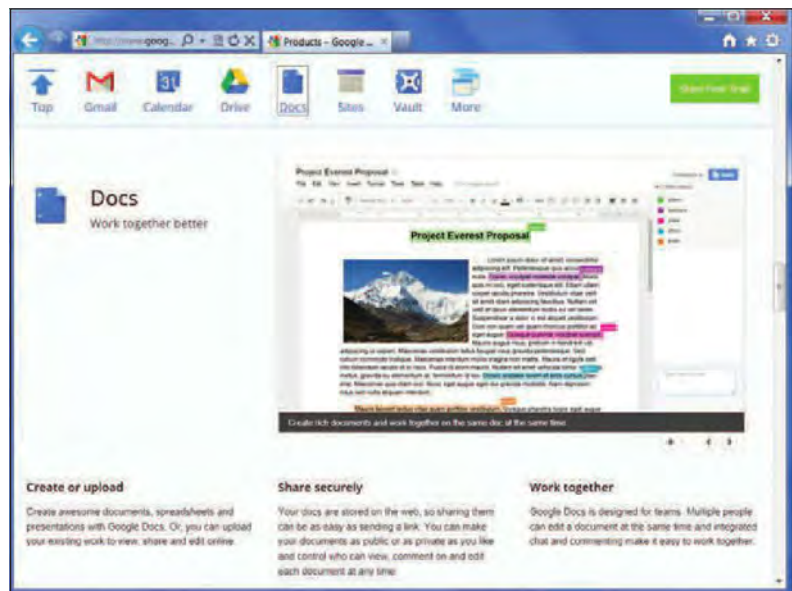


Figure 2-20 Web-based service (Google Apps)

In the following chapters, you will learn more about the services provided through cloud computing. You will also learn about security and privacy challenges associated with cloud computing.



concept check



What is cloud computing?



What are the three basic components of cloud computing?



What are the two most critical factors that determine the efficiency of cloud computing?

Web Utilities

Utilities are programs that make computing easier. **Web utilities** are specialized utility programs that make using the Internet and the web easier and safer. Some of these utilities are browser-related programs that either become part of your browser or are executed from your browser. Others are designed to protect children from dangerous and inappropriate website material. File transfer utilities allow you to efficiently copy files to and from your computer across the Internet.

Plug-ins

Plug-ins are programs that are automatically started and operate as a part of your browser. Many websites require you to have one or more plug-ins to fully experience their content. Some widely used plug-ins include

- Acrobat Reader from Adobe—for viewing and printing a variety of standard forms and other documents saved in a special format called PDF.
- Flash Player from Adobe—for viewing videos, animations, and other media.
- QuickTime from Apple—for playing audio and video files. (See Figure 2-21.)
- Windows Media Player from Microsoft—for playing audio files, video files, and much more.
- RealPlayer from RealNetworks—for playing audio and video files.

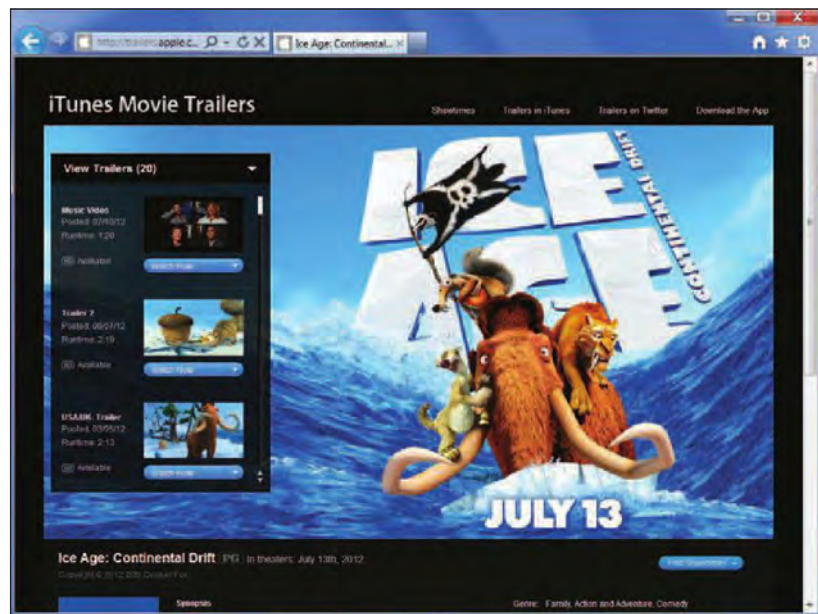


Figure 2-21 QuickTime movie at Apple.com

Some of these utilities are included in many of today's browsers and operating systems. Others must be installed before they can be used by your browser. To learn more about plug-ins and how to download them, visit some of the sites listed in Figure 2-22.

Filters

Filters block access to selected sites. The Internet is an interesting and multifaceted arena. But one of those facets is a dark and undesirable one. Parents, in particular, are concerned about children roaming unrestricted across the Internet. Filter programs allow parents as well as organizations to block out selected sites and set time limits. (See Figure 2-23.) Additionally, these programs can monitor use and generate reports detailing the total time spent on the Internet and the time spent at individual websites. For a list of some of the best-known filters, see Figure 2-24.

File Transfer Utilities

Using file transfer utility software, you can copy files to your computer from specially configured servers. This is called **downloading**. You also can use file transfer utility software to copy files from your computer to another computer on the Internet. This is called **uploading**. Three popular types of file transfer are FTP, web-based, and BitTorrent.

Plug-in	Source
Reader	get.adobe.com/reader
Flash Player	get.adobe.com/flashplayer
QuickTime	www.apple.com/quicktime
Silverlight	www.microsoft.com/silverlight

Figure 2-22 Plug-in sites

ethics

Most agree that it is ethical and prudent to shield young children from violent or sexual Internet content by using software that filters such content. Some parents of older children have installed computer monitoring software that records all their children's Internet activity. They believe this is warranted because they need to know what their kids are doing online. Do you believe it is ethical of parents to do this? To see other ethical issues, visit our website at www.computing2014.com and enter the keyword **ethics**.



Figure 2-23 Net Nanny is a web filter

Filter	Site
CyberPatrol	www.cyberpatrol.com
Pearl Echo	www.pearlsw.com
Norton Online Family	onlinefamily.norton.com
Net Nanny	www.netnanny.com
Symantec Web Gateway	symantec.com/web-gateway

Figure 2-24 Filters

eliminates the need for any custom software to be installed. A popular web-based file transfer service is Dropbox.com.

- **File transfer protocol (FTP) and secure file transfer protocol (SFTP)** allow you to efficiently copy files to and from your computer across the Internet, and are frequently used for uploading changes to a website hosted by an Internet service provider. FTP has been used for decades and still remains one of the most popular methods of file transfer.
- **Web-based file transfer services** make use of a web browser to upload and download files. This eliminates the need for any custom software to be installed. A popular web-based file transfer service is Dropbox.com.
- **BitTorrent** distributes file transfers across many different computers for more efficient downloads, unlike other transfer technologies where a file is copied from one computer on the Internet to another. A single file might be located on dozens of individual computers. When you download the file, each computer sends you a tiny piece of the larger file, making BitTorrent well-suited for transferring very large files. Unfortunately, BitTorrent technology often has been used for distributing unauthorized copies of copyrighted music and video.

Internet Security Suites

An **Internet security suite** is a collection of utility programs designed to maintain your security and privacy while you are on the web. These programs control spam, protect against computer viruses, provide filters, and much more. You could buy each program separately; however, the cost of the suite is typically much less. Two of the best-known Internet security suites are McAfee's Internet Security and Symantec's Norton Internet Security. (See Figure 2-25.)

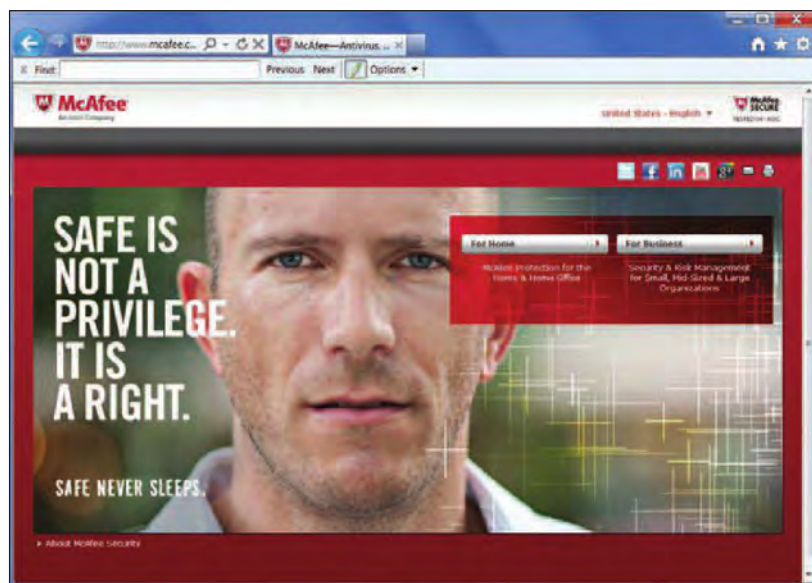


Figure 2-25 McAfee security suite



concept check



What are web utilities?



What are plug-ins and filters used for?



Describe file transfer utilities and internet security.

Careers in IT

Webmasters develop and maintain websites and resources. The job may include backup of the company website, updating resources, or development of new resources. Webmasters are often involved in the design and development of the website. Some webmasters monitor traffic on the site and take steps to encourage users to visit the site. Webmasters also may work with marketing personnel to increase site traffic and may be involved in development of web promotions.

Employers look for candidates with a bachelor's or associate's degree in computer science or information systems and knowledge of common programming languages and web development software. Knowledge of HTML and CSS is considered essential. Those with experience using web authoring software and programs like Adobe Illustrator and Adobe Flash are often preferred. Good communication and organizational skills are vital in this position.

Webmasters can expect to earn an annual salary of \$56,000 to \$80,000. This position is relatively new in many corporations and tends to have fluid responsibilities. With technological advances and increasing corporate emphasis on a web presence, experience in this field could lead to managerial opportunities. To learn about other careers in IT, visit us at www.computing2014.com and enter the keyword [careers](#).



Now that you've learned about the Internet, the web, and electronic commerce, I'd like to tell you about my career as a webmaster.

A LOOK TO THE FUTURE

Your Car's Dashboard as a Powerful, Internet-Connected Computing Device

Do you often wish that your car could provide information as quickly and easily as your computer? Today, many of your car's functions are already governed by a computer located within the vehicle. That computer is responsible for various safety and diagnostic features. However, compared to activities and conveniences that you enjoy on your notebooks, tablets, and smartphones, cars have fallen way behind. Even fancy \$2000 navigation systems that many manufacturers offer are limited in comparison to modern computing devices.

Imagine if Apple or Google created a partnership with automobile manufacturers to place iPad or Android devices into the center of the main console. Cars could connect to Wi-Fi access points or 4G networks to reach the Internet as the modern smartphone does. These developments would allow your vehicle to provide many services that normally require a smartphone but in a safer and more integrated manner.

One of the immediate benefits involves quick access to information. Drivers would get real-time traffic data, weather, store hours, and much more. Next is the access to all the apps that you expect to have. One example is the Pandora service, which allows you to stream free, ad-supported music from stations you create yourself. Why pay for satellite radio or listen to stations that you don't enjoy when you can access your favorite online music services right from your dashboard? Another benefit is the entertainment of your passengers or children. Some vehicles include screens that face the back seats, allowing parents to play DVDs for their children. Since many individuals already pay for an online streaming video service, wouldn't it be

more convenient to give your children access to this enormous library of cartoons and movies instead of sliding DVDs in and out each time you enter the vehicle? In fact, with a tabletlike interface, your child could choose from a preset selection of movies or educational games, depending on their mood.

Now, such a tool at your fingertips has the risk of becoming a distraction while you're driving. There is no question that safety features must be built in to prevent accidents from occurring. Luckily, there is already a piece of technology that will prevent the driver from ever having to touch the dashboard: voice recognition.

In the same way that Apple's "Siri" has revolutionized the way individuals interact with their iPhones, a similar system could be installed in the new dashboards. Drivers will simply speak their commands to get the information they need and to use the vehicle's controls. Furthermore, this computer system could

use existing technologies that recognize and speak English to the user. This will allow the driver to hear e-mail messages, social network updates, and today's news and weather while driving to work.

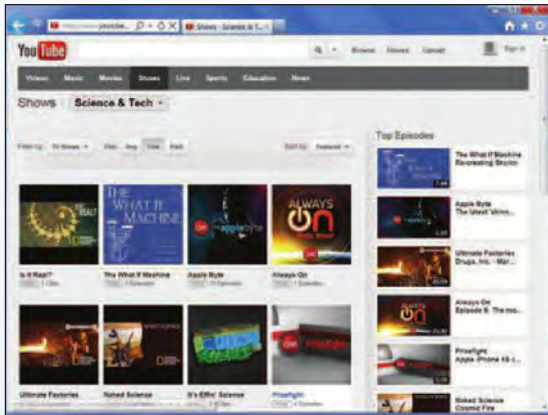
Some companies have already taken a step in implementing this future technology. Ford uses voice recognition in some of its vehicles with a feature called Sync with MyFord Touch. Audi has added 3G connectivity in its new A7 model. However, the real breakthrough will come when your car's dashboard becomes as useful and versatile as an iPad or Android tablet and the vehicle itself can reliably connect to Wi-Fi and 4G networks. According to *Car and Driver* magazine, this may happen within the next five years. When it does, do you see yourself paying for this upgrade in your next car? Are you willing to pay for it if it requires another monthly data plan from a wireless provider?



VISUAL SUMMARY

The Internet, the Web, and Electronic Commerce

INTERNET AND WEB



Internet

Launched in 1969 with ARPANET, the Internet consists of the actual physical network.

Web

Introduced in 1991 at CERN, the web provides a multimedia interface to Internet resources. Three generations: Web 1.0 (existing information), Web 2.0 (content creation and social interaction), Web 3.0 (computer-generated information).

Common Uses

The most common uses of the Internet and the web include

- Communication—the most popular Internet activity.
- Shopping—one of the fastest-growing Internet activities.
- Searching—access libraries and local, national, and international news.
- Education—e-learning or taking online courses.
- Entertainment—music, movies, magazines, and computer games.

ACCESS



Once connected to the Internet, your computer seemingly becomes an extension of a giant computer that branches all over the world.

Providers

Internet service providers are connected to the Internet, providing a path for individuals to access the Internet. Connection technologies include DSL, cable, and wireless modems.

Browsers

Browsers access the web allowing you to surf or explore. Some related terms are

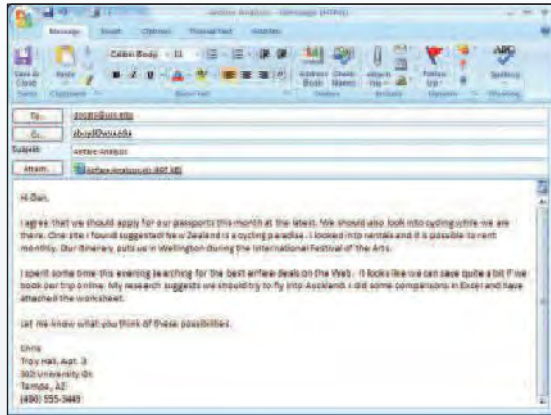
- URLs—locations or addresses to web resources; two parts are protocol and domain name; top-level domain (TLD) or web suffix identifies type of organization.
- HTML—commands to display web pages; hyperlinks (links) are connections.

Technologies providing interactive, animated websites include cascading style sheets, or CSS (to control the appearance of web pages); JavaScript (to trigger interactive features); AJAX (to create quick response interactive websites); and applets (to present animation, display graphics, provide interactive games, and more).

Mobile browsers run on portable devices.

To be a competent end user, you need to be aware of resources available on the Internet and web, to be able to access these resources, to effectively communicate electronically, to efficiently locate information, to understand electronic commerce, and to use web utilities.

COMMUNICATION



E-mail

E-mail (electronic mail) is the transmission of electronic messages. There are two basic types of e-mail accounts:

- **Client-based e-mail accounts** use e-mail clients installed on your computer.
- **Web-based e-mail accounts** use **webmail clients** located on the e-mail provider's computer. This is known as **webmail**.

A typical e-mail has three basic elements: header (including address, subject, and perhaps attachment), message, and signature.

Spam is unwanted and unsolicited e-mail that may include a *computer virus* or destructive programs often attached to unsolicited e-mail. **Spam blockers**, also known as **spam filters**, are programs that identify and eliminate spam.

Messaging

While e-mail is the most widely used, two other messaging systems are

- **Text messaging**—sending short electronic messages between mobile devices.
- **Instant messaging (IM)**—supports live communication between friends.

COMMUNICATION



Social Networking

Social networks connect individuals to one another. Many sites support a variety of different activities. Three of the best known are Facebook (provides access to Facebook Profiles, Facebook Pages, and Facebook groups), Google+ (provides access to Circles, Hangouts, and Sparks), and LinkedIn.

Blogs, Webcasts, and Wikis

Other sites that help individuals communicate across the web are blogs, microblogs, webcasts, podcasts, and wikis.

- **Blogs (web logs)** and **microblogs** are online journals that support chronological postings. Unlike blogs that often contain detailed postings, microblogs publish short, concise sentences. Twitter is the most popular microblogging site.
- **Webcasts and podcasts** deliver audio, video, and other media content over the Internet. Unlike podcasts, webcasts use **streaming technology**.
- A **wiki** is a website designed to allow visitors to use their browsers to add, edit, or delete the site's content. Wikis are often used to support collaborative writing in which there is a community of interested contributors. Wikipedia is one of the most popular wikis.

SEARCH TOOLS



Search services maintain huge databases relating to website content. Spiders are programs that update these databases.

Search Engines

Search engines are specialized programs to help locate information. To use, enter a keyword or phrase and a list of hits or links to references is displayed.

Specialized Search Engines

Specialized search engines focus on subject-specific websites.

Content Evaluation

To evaluate the accuracy of information found on the web, consider the following:

- **Authority.** Is the author an expert? Is the site official or does it present one individual's or organization's opinion?
- **Accuracy.** Has the information been critically reviewed? Does the site provide a method to report inaccurate information?
- **Objectivity.** Is the information factual or does the author have a bias? Does the author appear to have a personal agenda to convince or form a reader's opinion?
- **Currency.** Is the information up to date? Does the site specify when information is updated? Are the site's links operational?

Topic	Site
Environment	www.ecoearth.info
Fashion	www.shopstyle.com
History	www.historynet.com
Law	www.findlaw.com
Medicine	www.webmd.com

ELECTRONIC COMMERCE



Electronic commerce, or e-commerce, is the buying and selling of goods over the Internet. Three basic types of e-commerce are **business-to-consumer**, **consumer-to-consumer**, and **business-to-business**.

- **Business-to-consumer (B2C)** commerce involves sales from business to the general public. It is the fastest-growing type. Three of the most widely used applications are online banking, financial trading, and shopping.
- **Consumer-to-consumer (C2C)** commerce involves sales between individuals, often as the electronic version of classified ads or an auction. **Web auctions** are similar to traditional auctions except buyers and sellers rarely, if ever, meet face to face.
- **Business-to-business (B2B)** commerce involves sales from one business to another, typically a manufacturer-supplier relationship.

Security

The two greatest challenges for e-commerce are the development of

- Safe, secure payment methods. Two types are credit cards and **digital cash** (third party sells digital cash to buyers and redeems for sellers).
- Convenient ways to provide required information such as mailing addresses and credit card information.

Organization	Site
eBid	www.ebid.net
QuiBids	www.quibids.com
eBay	www.ebay.com
uBid	www.ubid.com

CLOUD COMPUTING



Cloud computing uses the Internet and the web to shift many computer activities from the user's computer to other computers on the Internet.

Components

There are three basic components to cloud computing:

- Clients are corporations and end users who want access to data, programs, and storage.
- The Internet provides the connection between the clients and providers. Two critical factors are the speed and reliability of the user's access and the Internet's capability to provide safe and reliable access.
- Service providers are organizations with computers connected to the Internet that are willing to provide access to software, data, and storage.



WEB UTILITIES

Plug-in	Source
Reader	get.adobe.com/reader
Flash Player	get.adobe.com/flashplayer
QuickTime	www.apple.com/quicktime
Silverlight	www.microsoft.com/silverlight

Web utilities are specialized utility programs that make using the Internet and the web easier and safer.

Plug-ins

Plug-ins are automatically loaded and operate as part of a browser. Many websites require specific plug-ins to fully experience their content. Some plug-ins are included in many of today's browsers; others must be installed.

Filters

Filters are used by parents and organizations to block certain sites and to monitor use of the Internet and the web.

File Transfer Utilities

File transfer utilities copy files to (downloading) and from (uploading) your computer. Three types are

- File transfer protocol (FTP) and secure file transfer protocol (SFTP) allow you to efficiently copy files across the Internet.
- Web-based file transfer services make use of a web browser to upload and download files.
- BitTorrent distributes file transfers across many different computers.

Internet Security Suite

An Internet security suite is a collection of utility programs designed to protect your privacy and security on the Internet.

CAREERS IN IT

Webmasters develop and maintain websites and web resources. Bachelor's or associate's degree in computer science or information systems and knowledge of common programming languages and web development software are required. Salary range is \$56,000 to \$80,000.

KEY TERMS

- address (32, 35)
- Advanced Research Project Agency Network (ARPANET) (28)
- AJAX (33)
- applets (33)
- attachment (35)
- BitTorrent (50)
- blog (38)
- browser (32)
- business-to-business (B2B) (45)
- business-to-consumer (B2C) (45)
- cable (32)
- cascading style sheets (CSS) (33)
- Center for European Nuclear Research (CERN) (28)
- Circles (37)
- client-based e-mail account (35)
- cloud computing (46)
- consumer-to-consumer (C2C) (45)
- digital cash (45)
- domain name (32)
- downloading (49)
- DSL (32)
- e-commerce (44)
- e-learning (29)
- electronic commerce (44)
- electronic mail (35)
- e-mail (35)
- e-mail client (35)
- Facebook (37)
- Facebook groups (37)
- Facebook Pages (37)
- Facebook Profile (37)
- file transfer protocol (FTP) (50)
- filter (49)
- friend (37)
- Google Plus (37)
- Google+ (37)
- Hangouts (37)
- header (35)
- hit (43)
- hyperlink (33)
- Hypertext Markup Language (HTML) (32)
- instant messaging (IM) (37)
- Internet (28)
- Internet security suite (50)
- Internet service provider (ISP) (32)
- JavaScript (33)
- link (33)
- LinkedIn (38)
- location (32)
- message (35)
- microblog (38)
- mobile browser (33)
- online (28)
- plug-in (48)
- podcast (39)
- protocol (32)
- search engine (43)
- search service (42)
- secure file transfer protocol (SFTP) (50)
- signature (35)
- social networking (37)
- spam (36)
- spam blocker (36)
- spam filter (36)
- Sparks (37)
- specialized search engine (43)
- spider (42)
- streaming (39)
- subject (35)
- surf (32)
- texting (36)
- text messaging (36)
- top-level domain (TLD) (32)
- Twitter (39)
- uniform resource locator (URL) (32)
- uploading (49)
- virus (36)
- web (28)
- Web 1.0 (28)
- Web 2.0 (28)
- Web 3.0 (28)
- web auction (45)
- web-based e-mail account (35)
- web-based file transfer services (50)
- webcasts (39)
- web log (38)
- webmail (35)
- webmail client (35)
- webmaster (51)
- web page (33)
- web suffix (32)
- web utility (48)
- wiki (39)
- Wikipedia (39)
- wireless modem (32)

To test your knowledge of these key terms with animated flash cards, visit our website at www.computing2014.com and enter the keyword [terms2](#). Or use the free *Computing Essentials 2014* app.

MULTIPLE CHOICE

Circle the correct answer.

1. The network that connects computers all over the world.
 - a. CERN
 - b. Internet
 - c. LAN
 - d. web
2. The rules for exchanging data between computers.
 - a. DSL
 - b. protocols
 - c. web
 - d. WWW
3. Client-based e-mail accounts require this special program to be installed on your computer.
 - a. e-mail client
 - b. hyperlink
 - c. JavaScript
 - d. utility
4. Communities of individuals who share a common interest typically create Facebook:
 - a. clients
 - b. groups
 - c. Pages
 - d. Profiles
5. E-mail that does not require an e-mail program installed on a user's computer is known as:
 - a. a blog
 - b. a podcast
 - c. webmail
 - d. a utility
6. A very well-known microblog.
 - a. LinkedIn
 - b. Google+
 - c. Twitter
 - d. Wikipedia
7. These programs continually look for new information and update search services' database programs.
 - a. filters
 - b. IM
 - c. spiders
 - d. wikis
8. Using a keyword, a search engine returns a list of related sites known as:
 - a. blogs
 - b. hits
 - c. podcasts
 - d. strikes
9. This is the Internet's equivalent to traditional cash.
 - a. digital cash
 - b. e-commerce
 - c. icash
 - d. Internet dollars
10. Using file transfer utility software, you can copy files to your computer from specially configured servers on the Internet. This is called:
 - a. downloading
 - b. filtering
 - c. blogging
 - d. uploading

For an interactive multiple-choice practice test, visit our website at www.computing2014.com and enter the keyword **multiple2**. Or use the free *Computing Essentials 2014* app.

MATCHING

Match each numbered item with the most closely related lettered item. Write your answers in the spaces provided.

- | | |
|--------------------|---|
| a. communicating | ___ 1. The most popular Internet activity. |
| b. C2C | ___ 2. The most common way to access the Internet is through a(n) ____. |
| c. e-mail | ___ 3. Transmission of electronic messages over the Internet. |
| d. Internet | ___ 4. Type of instant messaging service that supports a variety of different IM services. |
| e. ISP | ___ 5. The premier business-oriented social networking site. |
| f. LinkedIn | ___ 6. Another name for a blog. |
| g. microblog | ___ 7. Publishes short sentences that only take a few seconds to write. |
| h. search services | ___ 8. Maintain huge databases relating to information provided on the web and the Internet. |
| i. universal | ___ 9. Electronic commerce involving individuals selling to individuals. |
| j. web log | ___ 10. The basic components of cloud computing are clients, service providers, and the ____. |

For an interactive matching practice test, visit our website at www.computing2014.com and enter the keyword **matching2**. Or use the free *Computing Essentials 2014* app.

OPEN-ENDED

On a separate sheet of paper, respond to each question or statement.

1. Discuss the Internet, including its origins, the three generations of the web, and the most common uses.
2. Describe how to access the Internet. What are providers? Define browsers and discuss URLs, HTML, CSS, JavaScript, AJAX, applets, and mobile browsers.
3. Discuss Internet communications including client-based and web-based e-mail, instant and text messaging, social networking, blogs, microblogs, webcasts, podcasts, and wikis.
4. Define search tools including search services. Discuss search engines and specialized search engines. Describe how to evaluate the content of a website.
5. Describe electronic commerce including business-to-consumer, consumer-to-consumer, and business-to-business e-commerce, and security.
6. What is cloud computing? Describe the three basic components of cloud computing.
7. What are web utilities? Discuss plug-ins, filters, file transfer utilities, and Internet security suites.

DISCUSSION

Respond to each of the following questions.

1 Making IT Work for You: ONLINE ENTERTAINMENT

Are you one of the millions of people who regularly use streaming technology to watch favorite television programs, movies, and other video content? Review the Making IT Work for You: Online Entertainment on pages 30 and 31 and then respond to the following: (a) Do you currently have a subscription to Netflix, Hulu Plus, or another service that allows you to stream movies and TV shows? If so, which ones? If not, do you plan on using one in the future? Why or why not? (b) Name at least three TV shows that you currently watch or are interested in watching. Next, list a few services that include these shows as part of a subscription. If none does, list a few online stores where you can purchase and stream these episodes. (c) What device do you use most often to watch video content from the web? Would you consider purchasing a dedicated streaming device such as the Roku? Why or why not? (d) Could ever see yourself canceling or “cutting the cord” from your current cable or satellite service? Why or why not?

2 Making IT Work for You: TWITTER

Did you know that Twitter can be used to follow friends, businesses, and celebrities, as well as discover breaking news and emerging trends? Review the Making IT Work for You: Twitter on pages 40 and 41 and create a Twitter account if you do not already have one. Then respond to the following: (a) In your opinion, what are the primary benefits of Twitter? (b) List five users that you currently follow or would like to follow in the future. Why did you select those individuals or organizations? (c) If you have already posted your own tweets, briefly explain the type of content you typically post. If you have not posted anything, do you feel that you will in the future? Why or why not?

3 Explorations: INTERNET HISTORY

How much do you know about the history of the Internet and the web? Review the Explorations box on page 28 and then respond to the following: (a) What was the original Internet known as? In what year was it activated? How many locations did it connect? (b) In what year was TCP/IP created? Why was this development so important? (c) Who created the World Wide Web? In what year was it introduced to the public? What were some of the factors that allowed it to succeed? (d) What was the first graphical web browser? Who created it? Why was the browser so revolutionary?

4 Explorations: DIGITAL WALLETS

Did you know that your smartphone could be used to hold all your credit cards, coupons, and gift cards? Review the Explorations box on page 45 and then respond to the following: (a) What is the name of the digital wallet product? Which mobile operating systems is it compatible with? Does your smartphone need to have a specific technology to complete in-person transactions? If so, what? (b) How does this product work? Provide details on both the setup and use of the product. (c) Is this technology safe and secure? Support your answer with details. (d) Find three stores in your area that accept payments with this technology. If none exists in your area, list three online stores. (e) Would you use a digital wallet? Why or why not?

5 Ethics: BLOGS

Almost half a million people are paid to create blogs, and many of those are being paid to write favorable reviews of products and services. Review the Ethics box on page 38 and respond to the following: (a) Do you think it is unethical for bloggers to write positive reviews for the companies that pay them? Why or why not? (b) Should there be disclaimers on paid blog posts? If so, how can such a policy be enforced? Explain your answer. (c) If you found out that a particular company paid bloggers for favorable reviews, would you continue to buy its products? Why or why not? (d) If you were to use a blog for product information, what could you do to determine whether the content is unbiased?

6 Ethics: FILTERING AND MONITORING

Parents can use content filters and monitoring software to restrict or monitor their child's Internet behavior. Review the Ethics box on page 49 and respond to the following: (a) Is it ethical for parents to filter Internet content that they deem to be unsafe or inappropriate for their children? Does your answer depend on the age of the child? Defend your position. (b) Is it ethical for parents to monitor the Internet activity of their children? What if the monitoring software captures more than just web pages? What if it records instant messages, incoming e-mail, and even passwords? Explain your position. (c) Should parents inform their children that Internet activity is being filtered or monitored? Why or why not? (d) Do you feel that filtering or monitoring software is the best way to protect children? Do you feel that it hurts the trust between a parent and child? In your responses, be sure to include your opinion as to whether or not you would ever use such software.

7 Environment: E-MAIL

Did you know that using e-mail and managing your bills on the web are good for the environment? Review the Environment box on page 35 and then respond to the following: (a) When it comes to sending letters, holiday cards, and invitations to friends and family, do you mostly use e-mail or postal mail? What are your reasons for choosing one over the other? (b) Are there any situations where you feel that using e-mail would not be advantageous? (c) Have you signed up for paperless billing from your financial institutions and utility companies? Why or why not? (d) Go through all the paper mail you have received in the last week or two. Is there anything there that you could receive via e-mail or view on the web? List a few examples.

8 Environment: CLOUD COMPUTING

Did you know that the move to cloud computing could benefit the environment? Review the Environment box on page 46 and then use a search engine to find a cloud computing company that claims to offer energy-saving benefits. Respond to the following questions about your research: (a) How does this company's cloud services benefit the environment? (b) What steps has the cloud company taken to reduce their carbon emissions? (c) Do you believe that cloud computing is more energy efficient than having many companies running their own servers? Why or why not? (d) Is it possible that the expansion of cloud computing could actually increase the overall energy consumption of the planet? Explain your answer.