Discovering the Internet
Complete Concepts and Techniques, Fifth Edition

Chapter One: Into the Internet

A Guide to this Instructor's Manual:
We have designed this Instructor's Manual to supplement and enhance your teaching experience through classroom activities and a cohesive chapter summary.

This document is organized chronologically, using the same headings in **red** that you see in the textbook. Under each heading you will find (in order): Lecture Notes that summarize the section, Figures and Boxes found in the section, if any, Teacher Tips, Classroom Activities, and Lab Activities. Pay special attention to teaching tips, and activities geared toward quizzing your students, enhancing their critical thinking skills, and encouraging experimentation within the software.

In addition to this Instructor's Manual, our Instructor's Resources Online Companion also contains PowerPoint Presentations, Test Banks, and other supplements to aid in your teaching experience.

For your students:
Our latest online feature, CourseCasts, is a library of weekly podcasts designed to keep your students up to date with the latest in technology news. Direct your students to http://coursecasts.course.com, where they can download the most recent CourseCast onto their mp3 player. Ken Baldauf, host of CourseCasts, is a faculty member of the Florida State University Computer Science Department where he is responsible for teaching technology classes to thousands of FSU students each year. Ken is an expert in the latest technology and sorts through and aggregates the most pertinent news and information for CourseCasts so your students can spend their time enjoying technology, rather than trying to figure it out. Open or close your lecture with a discussion based on the latest CourseCast.

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Objectives

Students will have mastered the material in Chapter One when they can:

1. Define the Internet
2. Describe how individuals, businesses, educational institutions, and organizations use the Internet
3. Discuss the developments of the Internet and the World Wide Web
4. Explain how individuals and businesses connect to the Internet

TEACHER TIP
You may choose briefly to review the Chapter Review on page 25 in class or assign the Chapter Review to be read outside of class.

1: Introduction

LECTURE NOTES
In this chapter, students will learn to define several terms including Internet, email, web, Wi-Fi, RSS, VoIP, GPS, hotspots, blog, cloud computing, and social network. They will learn about ways that the Internet is used, the history of the Internet, who controls the Internet, and how individuals and businesses connect to the Internet.

2: Defining the Internet

LECTURE NOTES

- Define the terms Internet, host, online, protocol, and Transmission Control Protocol/Internet Protocol (TCP/IP) using Figure 1-1
- Describe the Internet as a worldwide network of networks
- Note that Internet communications travel across high-speed networks connected by fiber-optic cables, satellites, and other technologies. Communication carriers operate these high-speed networks, which provide the Internet framework.
- Emphasize that no one organization or entity owns or controls the Internet, although several groups attempt to oversee and standardize the development of Internet technologies and manage Internet processes, such as ICANN, IANA, and the ISOC

FIGURE: 1-1

BOXES
2: Q&A: *Who owns the Internet?* No single organization owns or controls the Internet. Several groups, such as the Internet Corporation for Assigned Names and Numbers (ICANN), the Internet Assigned Numbers Authority (IANA), and the Internet Society (ISOC), oversee and standardize the development of Internet technologies and manage some Internet processes. To learn more about each of these organizations, use a search engine to search for ICANN, IANA, or ISOC.

CLASSROOM ACTVITIES
1. Quick Quiz
   1. What is the Internet? (Answer: a global network of computers and mobile devices)
   2. What is a host? (Answer: a computer directly connected to the Internet)

3. What does being online mean? (Answer: connecting to the Internet to access or share information and services)
4. What is a protocol? (Answer: a standard or set of rules that computer network devices follow when transmitting and receiving data)
5. What is TCP/IP? (Answer: the protocol suite that makes it possible for different types of computers or devices, regardless of operating system or device type, to communicate with each other)

3: Using the Internet

LECTURE NOTES

- Define the terms blogs, blogging, video sharing, video blogging, microblogging, World Wide Web (web), web, webpages, website, markup language, Hypertext Markup Language (HTML), HTML tags, cascading style sheets (CSS), web authoring software, publish, web server, World Wide Web Consortium (W3C), web browser (browser), responsive web design (RWD), hyperlink (link), browsing (surfing the web), scripting language, script, app, Web 2.0, search tool, email, email program, server, download, upload, File Transfer Protocol (FTP), cloud computing, virtual private network (VPN), web conferencing, video calling, e-business, e-commerce, business-to-consumer (B2C), business-to-business (B2B), business-to-employee (B2E), and consumer-to-consumer (C2C)
- Use Figure 1-2 to describe how people use the Internet in many different ways: to search for information, send and receive email messages, and converse with others from their computers and mobile devices
- Describe various common Internet activities including browsing and searching for information, communicating with others through email, chat, social networking, and other media, downloading and uploading files, accessing remote computers or servers, conducting business activities, and online shopping and bill payment
- Mention the most popular web browsers: Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari. Tell students that this text features Internet Explorer 11 and to review Appendix A for more information about Firefox and other comparable browsers
- Use Figures 1-3 through 1-5 to describe the World Wide Web, webpages, websites, web servers, and markup languages
- Use Figure 1-6 to describe how the appearance and design of the same webpage differs between PC and mobile browsers
- Use Figure 1-7 to discuss the use of hyperlinks in connecting webpages at the same website and across different websites
- Use Figure 1-8 to discuss the use of search tools to find information on the web
- Use Figure 1-9 to describe the various Internet communication methods
- Use Figure 1-10 to discuss an example of a cloud computing resource
- Discuss the difference between e-business and e-commerce: e-business is sometimes used to refer to a broad scope of business activities taking place online; e-commerce is sometimes used to define conducting business transactions online
- Use Figure 1-11 to describe basic e-business models: B2C, B2B, B2E, and C2C

FIGURES: 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-10, 1-11

BOXES

4: Facts@Hand: As part of research to mark the 25th anniversary of the World Wide Web, in 2014 the Pew Research published the following statistics: Nearly all Americans who meet one or more of the following criteria have access to the Internet: those who live in households earning $75,000 or more, young adults ages 18-29, and those with college degrees.

4: Q&A: *Is the Internet's societal influence all good?* Being constantly connected has its price. In the past, employees' workdays were finished when they physically left the office, but now they can be expected to keep on top of work-related communication during what used to be personal, family, or leisure time. The compulsion to constantly check social media, sports scores, or text messages can have a negative effect on human relationships. To learn more, use a search engine to search for *Internet's negative effect*.

5: @Source: Although some people use the terms *Internet* and *web* interchangeably, the Internet and the web are not one and the same. The Internet is a worldwide public network that links private networks. The Internet gives users access to a variety of resources for communication, research, file sharing, and commerce. The web, a subset of the Internet, is just one of those resources.

6: Q&A: *What is the current HTML standard?* The most current HTML standard is HTML 4.01, which specifies, among other things, that HTML tags must be in lowercase, surrounded by brackets, and inserted in pairs. HTML 5 is in draft format and is on schedule for stable recommendation by the end of 2014.

6: Q&A: *What is the role of the W3C?* The World Wide Web Consortium (W3C) sets standards for the web. The W3C, through an HTML working group, continues to pursue advancements in the HTML standard. To learn more, use a search engine to search for *W3C*.

7: Q&A: *What is RWD?* Responsive web design (RWD) is a web design strategy. The goal of RWD is to create websites that adjust layout and, in some cases, content, to the device and screen displaying the webpages.

8: Q&A: *What is a scripting language?* Scripting languages are programming languages used to write short programs, called scripts, that execute in real time at the server or in the web browser when a webpage downloads. Scripts make webpages dynamic and interactive by adding such features as multimedia, animation, and forms or by connecting webpages to underlying databases.

8: Q&A: *What is an app?* An app (short for application) is a software program. The term, app, typically refers to programs that run on mobile devices (mobile apps), or the web (web apps). Apps are an integral part of Internet technology.

8: Q&A: *What is Web 2.0?* Web 2.0 technologies and practices are designed to make users' web experiences interactive by incorporating social media and user-driven content into web pages.

9: Facts@Hand: Perhaps the first person to send an email message who was not a computer scientist was Queen Elizabeth II, who sent an email message on March 26, 1976 from an Army base.

10: Facts@Hand: Peer-to-peer media file sharing became popular in the late 1990s by websites such as Napster that allowed individual users to upload music files and share them with others, without permission from, or reimbursement for, the copyright holder. Companies such as Rhapsody and Pandora offer subscription-based radio and downloadable music files that are licensed by the copyright holders and available to individual users.

11: Q&A: *What is Telnet?* Telnet is a standard or protocol that allows users to log in and to access a remote computer, usually one with significantly higher processing power. While the public typically does not use Telnet, it still has many valuable uses. Computer system administrators, for example, can use Telnet to log in to a remote computer to troubleshoot problems.

12: @ISSUE: Communicating with others online has its risks. Have students read the @Issue: The Dark Side of the Internet, and then discuss their views on the availability of adult-oriented websites, hate sites, hacking, and cyberstalking.

12: Q&A: *How can I keep safe while using the Internet?* Using the Internet is not without risks, including exposure to computer viruses, accidentally sharing personal information, and more. Be aware that others could share anything you type and any video or photo you post, even if you consider the exchange to be private. For more information, use a search engine to search for *Internet safety tips*.

TEACHER TIP
The use of social networking sites has become commonplace in society. You may choose to have students research and discuss the key features, advantages, and disadvantages of popular social networking sites.

CLASSROOM ACTIVITIES
1. Class Discussion: A transforming technology, such as the development of the printing press, is a technology that changes society as a whole and dramatically influences the way people conduct their everyday lives. Are Internet and web technologies transforming technologies? If yes, why? If no, why not?

2. Class Discussion: Ask how many students are already using the Internet and the web and to describe how they use both.

3. Class Discussion: Many people use the terms Internet and web interchangeably. Do these terms mean the same thing? If yes, how are they the same? If no, what is the difference between the Internet and the web?

4. Class Discussion: Email, chat, instant messaging, blogs, microblogs, newsgroups, mailing lists, and other Internet communication tools have changed the way you can communicate with others. Has this been a positive change? If "Yes," why? If "No," why not?

5. Assign a Project: Ask students to quickly write down at least three Internet activities with which they would like to become more familiar. Then have students select a partner and compare their lists of activities and discuss the reasons for their choices.

6. Assign a Project: Have each student draw a diagram that illustrates the Internet, the web, multiple websites, and multiple webpages at each site.

7. Assign a Project: Have each student describe an e-business they would like to start and identify it by an e-business model (B2C, B2B, or C2C).

8. Quick Quiz

1. What are the Internet and the World Wide Web? (Answer: the Internet is a global network that connects other networks; the World Wide Web is a subset of the Internet that supports documents, called webpages, which combine text with graphics and multimedia)
2. How do people communicate online? (Answer: email, IM, IRC or chat, newsgroups and mailing lists, social networking)
3. What is e-business? (Answer: businesses and other organizations using the Internet to generate a profit, promote their goods and services, or maintain goodwill with their partners, members, customers, or employees)
4. What is cyberstalking? (Answer: using threatening or harassing behavior over the Internet)

12: Impact of the Internet

LECTURE NOTES

- Define the terms Advanced Research Projects Agency (ARPA), circuit switching, packet switching, packets, ARPANET, Transmission Control Protocol (TCP), Internet Protocol (IP), mailing list, backbone, Gopher, hypertext, Hypertext Transfer Protocol (HTTP), spam, and Internet2
- Discuss the major scientists involved with the development of the Internet and their specific contributions
- Use Figure 1-12 to compare circuit and packet switching in terms of call setup, cost, bandwidth, and congestion
- Use Figure 1-13 to discuss why it is useful to understand the history of the Internet and the web
- Describe the factors that led to the growth of the Internet: became easier to use when computer host numbers were replaced with English-language names such as scsite.com; development of networks by the academic community, such as Usenet and BITNET; introduction of personal computers and increase in usage by the general public; introduction of email services

- Describe the National Science Foundation's NSFNet network as a high-speed network that connected five regional supercomputer centers at Princeton University; University of Pittsburgh; University of California, San Diego; University of Illinois; and Cornell University
- Discuss the early development of the Gopher directory-based system for accessing information stored on Gopher servers
- Use Figure 1-14 to describe the Gopher directory-based system
- Use Figure 1-15 to discuss Tim Berners-Lee and his work to develop HTML, HTTP, and the first browser
- Use Figure 1-16 to discuss the development of the web
- Describe the Internet2 initiative

FIGURES: 1-12, 1-13, 1-14, 1-15, 1-16

BOXES
13: Facts@Hand: The Public Switched Telephone Network (PSTN) used to be the main way all users connected to the Internet. PSTN still uses high-speed phone access, despite developments in mobile and broadband systems. Although initially built to handle voice communications, the phone network also is an integral part of computer communications. Data, instructions, and information can travel over the phone network over dial-up lines or dedicated lines. No longer a popular connectivity method because of its low bandwidth, PSTN remains in use in remote locations where other connection methods are not available.

19: Facts@Hand: Microsoft released its Internet Explorer browser for free in 1995, launching what became known as the Browser War between Microsoft and Netscape. Microsoft had an edge because it was able to integrate its browser using its Windows operating system. When Netscape lost its market share to Microsoft, Netscape then made its code open-source and became the foundation of Mozilla Firefox. To learn more, use a search engine to search for *browser wars*.

19: Q&A: *What is Internet2?* Internet2 is a major cooperative initiative among academia, industry, and government agencies to increase the Internet's capabilities and solve some of its challenges. The nonprofit initiative has more than 300 university, corporate, government, and international members and sponsors devoted to developing and using new and emerging network technologies that facilitate research and education.

TEACHER TIP
Book clubs are a popular way for people to share insights about books they have read. You may choose to break students into book club groups with specific reading assignments over the course of the term.

CLASSROOM ACTIVITIES
1. Class Discussion: Many people now believe that both the Internet and the web are indispensable. Ask students if they agree. If yes, why? If no, why not?

2. Class Discussion: The Cold War of the late 1950s was a driving force in the early development of networking. Why?

3. Class Discussion: The National Science Foundation played an important role in the early growth of the Internet. What was that role?

4. Class Discussion: Tim Berners-Lee is often described as the person who created the World Wide Web. Do you think this is true? If yes, why? If no, why not?

5. Class Discussion: The amount of information available on the web and the number of web users has grown dramatically since its early days. Why?

6. Group Activity: Many other scientists and researchers, such as Robert Taylor, Larry Roberts, Paul Baran, and Donald W. Davies, made important contributions to the early development of networking and ARPANET. Have students break into four teams and, using classroom or library resources, prepare a short report on one of these scientists. Then have each team present their report to the class.

7. Assign a Project: Have students read a book about the early development of networking, the Internet, and the web, and then present a report on the book to the class.

8. Quick Quiz

1. What are packets and what is packet switching? (Answer: small units of data sent over the Internet; breaking data into small packets and then sending the packets individually over different routes, and reassembling them at their destination)
2. Why was the development of packet switching technologies critical to the successful development of networking and the Internet? (Answer: packet switching technologies made data transmissions across a network more robust and less vulnerable to attack)
3. What are TCP and IP? (Answer: Transmission Control Protocol manages flow control over the Internet and error checking for lost packets; Internet Protocol (IP) addresses and sends packets)
4. What immeasurable contribution to networking and the development of the Internet was made by Ray Tomlinson? (Answer: developed the first email program to send and receive messages to and from remote computers)
5. What is the Internet backbone? (Answer: the main long-distance lines and hardware that connect computers to the Internet)
6. Who created the markup language used to create webpages, the first web browser, and the web addressing system that allows a browser to download webpages from a server? (Answer: Tim Berners-Lee with the help of colleague Robert Cailliau)
7. Who is Marc Andreessen and what role did he play in the development of the web? (Answer: part of team that created the original Mosaic web browser and co-founder of Netscape Communications)

19: Connecting to the Internet

LECTURE NOTES

- Define the terms local area network (LAN), Internet Service Provider (ISP), mobile service provider, regional ISP, national ISP, bandwidth, transfer rate, bits per second (Bps), kilobits per second (KBps), megabits per second (MBps), gigabits per second (GBps), bit, 3G, 4G, broadband, cable television (CATV) lines, line splitter, cable modem, Bluetooth, dial-up line, modem, dedicated line, streaming media, Integrated Services Digital Network (ISDN), multiplexing, digital subscriber line (DSL), asymmetrical digital subscriber line (ADSL), T-carrier line, T-1 line, fractional T-1 line, T-3 line, mobile wireless, wireless fidelity (Wi-Fi), hotspot, wireless access point, satellite Internet access, real time
- Discuss how individuals can connect to the Internet via libraries, schools, businesses, kiosks at airports, train stations, at home, and at coffee shops
- Describe how computers and devices are connected by cable and wireless technologies to a LAN and discuss how a LAN can provide an Internet connection to multiple computers
- Use Figures 1-17 and 1-18 to describe the considerations an individual must weigh when choosing an ISP
- Use Figure 1-19 to discuss cable Internet as well as its data transfer speeds, and the requirements for establishing and maintaining connectivity with a computer — line splitter, cable modem, and network expansion card
- Discuss a DSL line as a high-speed alternative to a dial-up Internet connection and the advantages and disadvantages of an "always on" ADSL Internet connection: advantages - fast speed and dedicated connection; disadvantages – available only in areas close to the telephone company's central office and more expensive than dialup
- Use Figure 1-20 to describe a wireless access point and how it is used to send and receive radio waves to and from notebook computers and other wireless devices
- Use Figures 1-21 to discuss the two varieties of satellite Internet access and the cost of equipment and monthly access fees

FIGURES: 1-17, 1-18, 1-19, 1-20, 1-21

TEACHER TIPS

You may choose to invite a representative from your school's IT department to describe how the school's computers connect to the Internet.

You may choose to invite a representative from a local ISP or cable company to discuss with the class the different types of ISP services available and the advantages and disadvantages of each type of service.

BOXES

21: Q&A: *What is a bit?* A bit, short for binary digit, is the smallest unit of electronic data. Bits are either the digit one (1) or zero (0). Thousands of bits flow each second, even over the slowest connection.

21: Q&A: *What do 3G and 4G mean?* Standards for mobile communications, including voice, mobile Internet access, video calls, and mobile TV, are classified by generation. 3G, the third generation, provides mobile broadband access to devices such as laptop computers and smartphones. 3G devices support speech and data services, as well as data rates of at least 200 KBps (kilobits per second). 4G systems improve on 3G standards by supporting services such as gaming and streamed multimedia.

21: Q&A: *What is broadband?* The term, broadband, defines high-speed data transmissions over a communication channel that can transmit multiple signals at one time. ISDN, ADSL, and CATV Internet access are all examples of broadband Internet access.

22: Q&A: *What is Bluetooth?* Bluetooth is a popular, short-range wireless connection that uses radio frequency to transmit data between two electronic devices, such as a smartphone and an earpiece.

22: Q&A: *What is a dial-up line?* A dial-up line is a temporary connection that uses analog phone lines. Because of its slow access speed, dial-up access is the least popular Internet access method, and today is used only in remote areas where cable and other methods are not available. Similar to using the phone to make a call, a modem at the sending end dials the phone number of a modem at the receiving end. When the modem at the receiving end answers the call, it establishes a connection enabling data to transmit.

24: Q&A: *What is the difference between Wi-Fi and cellular?* A smartphone and some other computers and mobile devices may offer both Wi-Fi and cellular connection capabilities. Both enable a user to connect to the Internet without wires. To use a Wi-Fi connection, a computer or device must connect to a wireless router. The user must be within range of the router, and may require a password for access to the Wi-Fi connection. Users without immediate Wi-Fi access can rely on cellular coverage, which does not require access to a router. To learn more about how ISPs monitor cellular and Wi-Fi data charges, search the Internet for *ISP cellular versus Wi-Fi data charges*.

CLASSROOM ACTIVITIES

1. Class Discussion: Individuals can connect to the Internet in many ways: dial-up, DSL, cable, satellite, and mobile wireless. Under what circumstances would you choose a dial-up connection, a DSL connection, a satellite connection, a cable connection, or a wireless connection?

2. Class Discussion: Assume you are purchasing a new smartphone. How important is it for you to be able to access the Internet for email, games, microblogging, and more from a smartphone? How much would you be willing to pay for Internet access from a smartphone?

3. Group Activity: Select a group of students to work together. Have the team compare satellite vs. microwave Internet access and select one method to be installed at a rural home. Have the team present their analysis and final choice to the class.

4. Group Activity: Break students into teams. Have each team research smartphones, cell phones, or PDA products that can be used to access the Internet. Then have each team choose a product/Internet service and report back to the class on the reasons for their selection.

5. Assign a Project: Ask students to determine the most appropriate Internet access method for each of the following scenarios.

(a) Professional person who travels extensively with a laptop
(b) Family of four using a home computer for school and entertainment
(c) Worker with a home office

6. Quick Quiz

1. What is a digital subscriber line (DSL)? (Answer: a digital line alternative, for the small business or home user, that transmits at fast speeds on existing standard copper phone wiring)
2. What are broadband transmissions? (Answer: high-speed data transmissions over a communication channel that can transmit multiple signals at one time)
3. How does a fractional T-1 line differ from a T-1 line? (Answer: a fractional T-1 line is less-expensive, has a slower connection speed, and does not have a single owner)
4. What are two mobile wireless technologies used to provide Internet access to people who are not physically connected to a network? (Answer: radio signals, wireless fidelity (Wi-Fi), cellular phones, and wireless providers' broadband networks)
5. What is a hotspot? (Answer: a specific geographic location in which a wireless access point provides public Internet access)

End of Chapter Activities

- **Chapter Review** summarizes the key points from the chapter.
- **Terms to Know** is an alphabetical list of the chapter's key terms with corresponding page numbers.
- **Test Your Knowledge** provides true or false and multiple choice questions to help solidify what students learned in the chapter.
- **Trends** provides exercises that encourage students to investigate current Internet developments.
- **@Issue** uses exercises to challenge students' perspectives of Internet technology.
- **Hands On** gives students an opportunity to gain hands-on experience working with the Internet and the Web.

Terms to Know

- 3G (21)
- 4G (21)
- Advanced Research Projects Agency (ARPA) (13)
- app (8)
- ARPANET (14)
- asymmetrical digital subscriber line (ADSL) (23)
- backbone (15)
- bandwidth (21)
- bit (21)
- bits per second (Bps) (21)
- blog (4)
- blogging (4)
- Bluetooth (22)
- broadband (21)
- browser (6)
- browsing the web (8)
- business-to-business (B2B) (12)
- business-to-consumer (B2C) (11)
- business-to-employee (B2E) (12)
- cable modem (22)
- cable television (CATV) line (22)
- cascading style sheet (CSS) (6)
- circuit switching (13)
- cloud computing (10)
- consumer-to-consumer (C2C) (12)
- cyberstalking (12)
- dedicated line (22)
- dial-up line (22)
- digital subscriber line (DSL) (23)
- download (10)
- e-business (11)
- e-commerce (11)
- email (9)
- email program (9)
- File Transfer Protocol (FTP) (10)
- fractional T-1 line (23)
- gigabits per second (GBps) (21)
- Gopher (16)
- host (2)
- hotspot (23)
- HTML tags (5)
- hyperlink (7)
- hypertext (17)
- Hypertext Markup Language (HTML) (5)
- Hypertext Transfer Protocol (HTTP) (17)
- Integrated Services Digital Network (ISDN) (22)
- Internet (2)
- Internet Protocol (IP) (14)
- Internet service provider (ISP) (20)
- Internet2 (19)
- kilobits per second (KBps) (21)
- line splitter (22)
- link (7)
- local area network (LAN) (19)
- mailing list (15)
- markup language (5)
- megabits per second (MBps) (21)
- microblogging (4)
- mobile service provider (20)
- mobile wireless (23)
- modem (22)
- multiplexing (22)
- national ISP (20)
- online (2)
- packet switching (13)
- packets (13)
- protocol (2)
- Published Switched Telephone Network (PSTN) (13)
- publish (6)
- real time (25)
- regional ISP (20)
- responsive web design (RWD) (7)
- satellite Internet access (24)
- script (8)
- scripting language (8)
- search tool (8)
- server (10)
- spam (18)
- streaming media (22)
- surfing the web (8)

- T-1 line (23)
- T-3 line (23)
- T-carrier line (23)
- transfer rate (21)
- Transmission Control Protocol (TCP) (14)
- Transmission Control Protocol/Internet Protocol (TCP/IP) (2)
- upload (10)
- video blogging (4)
- video calling (11)
- video sharing (4)
- virtual private network (VPN) (11)
- web (5)
- Web 2.0 (8)
- web authoring software (6)
- web browser (6)
- web conferencing (11)
- web server (6)
- webpages (5)
- website (5)
- wireless access point (23)
- wireless fidelity (Wi-Fi) (23)
- World Wide Web (5)
- World Wide Web Consortium (W3C) (6)

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