Planning the Site

When you complete this chapter, you will be able to:

- Create a site specification
- Identify the content goal
- Analyze your audience
- Build a Web site development team
- Create conventions for filenames and URLs
- Set a directory structure
- Create a site storyboard
- Publish your Web site
- Test your Web site
- Refine and update your content
- Attract notice to your Web site

A good Web site design requires a detailed initial planning phase. Before starting to code your site, pick up a pencil and paper and sketch out your site design. Creating the stylistic conventions and conceptual structure of your site beforehand saves time during development. Whether you are creating a single personal Web site or working on a professional Web development team, you save time and improve quality by thoroughly planning the site before you start developing it. This chapter walks you through planning and building a framework for your site, resulting in less recoding when you actually sit down at the computer.

Create a Site Specification

What are your objectives for building a Web site? You may want to increase communication among employees, gain visibility, provide a service, attract new customers, or simply show the world you can code HTML. Because properly maintained Web sites take a lot of work, make sure you have valid and achievable goals for your site.

Start your planning by creating a site specification; this is the design document for your site. If you completed the Hands-on Projects and Case Project at the end of Chapter 1, you created a basic draft of a project proposal. You can use some of that information in your site specification. After you read this chapter, you will be able to answer a number of additional questions about your site. You can return to the site specification as you build your site to help maintain your focus.
If you are providing Web site design to a client, the site specification is the first document the client sees that establishes the basic site design. You can visit the Online Companion Web site for this book to look at some sample site specification documents. Answer the following questions in your site specification:

- Why are you building the Web site? Write a two- or three-paragraph mission statement that briefly states the site’s goals. What do you or your company or organization hope to gain from creating and maintaining a Web site?
- How will you judge the success of the site? What are the measuring factors you can use to assess the effectiveness of the site?
- Who is the target audience? What are some common characteristics? How can you find out more about your target audience?
- What are the limiting technical factors affecting your site?
- What is the budget? Is there a schedule or target delivery date?

Identify the Content Goal

Consider carefully what type of site you are building. What you want the Web site to accomplish and what your users want from your site may differ. For example, site designers are often concerned with the visual aspects of a Web site, such as the quality of the graphics and the use of animation. Your users probably care more about how quickly they can find information. Adopt your user’s perspective. Think about the type of content you are presenting and look to the Web for examples of how best to present it. The following types of Web sites demonstrate ways to focus your content.

- **Billboard**—These sites establish a Web presence for a business or commercial venture. In many cases they are informational and offer no true Web-based content, acting as an online brochure rather than offering Web-based interaction. Many businesses build this type of site first and then slowly add functions such as online ordering and product demonstrations as they become more comfortable with the medium.
- **Publishing**—Most major newspapers and periodicals now publish both to print media and to the Web. These Web sites are some of the most ambitious in breadth and depth of content, often containing multiple levels of information with many page templates. Many publishing sites use special software to create Web pages, drawing content from the same databases that produce their paper-based versions. This allows their authors to write the article once, but have it published to multiple destinations, such as the daily newspaper and the Web site.
- **Portal**—Portals act as gateways to the Web and offer an array of services including searching, e-mail, shopping, news, and organized links to Web resources. Many of the major search engines have been converted into portals to attract more users. These sites are often heavy with advertising content, which is their main source of revenue.
- **Special interest, public interest, and nonprofit organization**—These sites include news and current information for volunteers, devotees, novices, a specific audience, or the general
public. Public-service Web sites contain links, information, downloadable files, addresses, and telephone numbers that can help you solve a problem or find more resources. Nonprofit organizations can state their manifestoes, seek volunteers, and foster grassroots virtual communities.

- **Blog**—Short for “Weblog,” a blog is a personal Web page that reflects the personality and interests of the author. No matter what your interest, a community of bloggers (blog authors) on the Web is devoted to it. Blog Web design varies greatly, reflecting the skills (or lack thereof) of the author. Take the time to visit some blogs and discover the wide range of expression and design. You can easily find blogs by using a blog directory, such as [www.blogcatalog.com](http://www.blogcatalog.com) or [www.blogarama.com](http://www.blogarama.com).

- **Virtual gallery**—The Web is a great place to show off samples of all types of art and design. Photographers and artists can display samples of their work; musicians can post audio files of their songs; writers can offer sections of text or complete manuscripts. However, keep in mind that any copyrighted material you display on a Web site can be downloaded to a user’s machine without your permission. As a solution to this problem, software companies such as Digimarc ([www.digimarc.com](http://www.digimarc.com)) offer digital watermarking technology that lets artists embed digital copyright information in their electronic files as a deterrent to piracy of proprietary content. This information cannot be seen or altered by the user.

- **E-commerce, catalog, and online shopping**—The Web has become a viable shopping medium that continues to expand as more users improve their Internet access and learn to trust the security of online commerce. Web commerce already has begun to compete successfully with traditional retailing, offering many advantages over mail-order shopping, such as letting the customer know immediately whether an item is in stock. Other types of commerce on the Web include stock trading, airline ticketing, online banking, and auctions. Many software vendors offer turnkey systems that can be integrated with existing databases to speed the development of a commerce site. A good e-commerce site provides users with quick access to the item they want, detailed product descriptions, and easy, secure ordering.

- **Product support**—The Web is a boon to consumers who need help with a product. Manufacturers can disseminate information, upgrades, troubleshooting advice, documentation, and online tutorials through their Web sites. Companies that provide product support information on the Web often find that the volume of telephone-based customer support calls decreases. Software companies especially benefit from the Web; users can download patches and upgrades and use trial versions of software before they buy.

- **Intranet and extranet**—An intranet is a smaller, limited version of the Internet on a company’s private local area network (LAN), accessible only to those who are authorized to use their network. Many companies have telecommuting employees who need access to company policies, documentation, parts lists, pricing information, and other materials. These employees can be reached via an extranet, which is a part of the private intranet extended outside the organization via the Internet. Many organizations mandate a particular browser for employee use, making the Web designer’s job a little easier, because they only have to code and test for one browser.
Analyze Your Audience

If possible, analyze your audience and produce an **audience definition**, a profile of your average user. If you are building a new site, work from your market research, look at sites with content similar to yours, and try to characterize your average user. If you have an existing user base, contact your typical users and try to answer the following questions:

- What do users want when they come to your site?
- How can you initially attract them and entice them to return?
- What type of computer and connection speed does your typical visitor have?

Obtaining answers to these questions is especially difficult when your medium is the Web. Though your users may fit no common profile, there are a few ways you can gather information about them. One way is to include an online feedback form in your site. Figure 3-1 shows a sample online survey from the State of Maine Web site (www.maine.gov/portal/survey.html).

The survey asks users about their experiences visiting the Web site. It uses both scaled and open-ended questions to elicit a variety of responses from the user concerning the visual and information design of the site.

If you cannot survey your users, or if you feel you are not getting good survey results, try to adopt a typical user’s perspective as you define your audience. Here are some questions to consider:

- Who are the typical members of your audience? Are they male or female? Do they have accessibility issues? What is their level of education? What is their reading and vocabulary level? What is their level of technical aptitude?
- Why do people come to your site? Do they want information? Do they want to download files? Are they looking for links to other Web sites?
- Do you have a captive audience, such as a base of loyal customers that want up-to-date information? Are you designing for an intranet, where users are employees of an organization?
- If users are unfamiliar with the site, will they know what you offer?
- How often will users return to your site? Why would they come back?
- What computing platform do your users have? What is their typical connection speed? What type of browser do they use? If you are on an intranet, is there a standard for browsers, connection, and screen resolution?
- Whose skills do you need to build the site? Who will create the graphics, code the pages, and write the text? Do you have the talent and economic resources that you need? Will the results meet the expectations of your users?

Refine your content and presentation even after your site is built and running. Continue soliciting user feedback to keep your site focused and the content fresh.
Identify Technology Issues and Constraints

Make your best effort to identify any technological factors—limitations or advantages—that members of your audience share. As you read in Chapter 1, you have to make assumptions about the user’s browser, connection speed, operating system, and screen resolution. If you think your user is the average person browsing the Web, you may have to adopt settings that represent the
lowest common denominator to satisfy the widest audience. If you feel that you have a primarily high-tech or computer-savvy audience, higher resolution or connection speed may apply. If you are designing an intranet site, you may have the luxury of knowing your users’ exact operating systems and browser versions. Whatever the particulars, make sure to design at an appropriate level, or you risk losing visitors.

Identify Software Tools
Determining the software requirements for your Web site is important during the planning process. Try to choose software that matches the complexity and needs of your site so that you do not end up with a tool that is either underequipped or overspecialized. Simple Web sites, including many student sites, can be built with text editors such as Notepad or SimpleText. As your site and skills grow, you might choose to move up to more robust tools such as Adobe Dreamweaver or Adobe GoLive (www.adobe.com). These tools offer complete coding, design, and site management capabilities. You may also need graphics tools (discussed in Chapter 8), database software, and online credit and shopping programs, based on the skills and talents of the members of your Web site team, as described in the next section.

One popular type of software is shareware, programs that you can download and use for a trial period. After the trial period, users can register the software for a relatively small fee compared to commercially produced software. Because shareware is usually developed by individuals or small software companies, registering it is important to support future development efforts. Some of the most popular and commonly used programs are shareware, such as WinZip, at www.winzip.com. WinZip lets you work with .zip archive files, the PC standard for file compression and archiving. If you are sending or receiving files via e-mail, you need WinZip to compress and uncompress them. If you have a Macintosh, you can use Stuffit to compress your files. Stuffit Deluxe and Stuffit Lite, are available in shareware versions at the Aladdin Web site at www.stuffit.com. If you are a PC user and someone sends you a Stuffit file, you can expand it with Aladdin’s Expander program, which is available free of charge at the Aladdin site. Shareware programs are also available to help you with Web site development. Two great shareware sites that have WinZip as well as hundreds of other programs are Shareware.com (www.shareware.com) and Tucows.com (www.tucows.com).

NOTE
Although most shareware is created by responsible software developers, it is always best to get shareware from recognized repositories to ensure that you avoid viruses and spyware being transferred to your computer.

Build a Web Site Development Team
Although one person can maintain small Web sites, larger sites require groups of people filling a variety of roles. Of course, the line between these roles can be blurred, and many aspects of site design require collaboration to solve a problem. The following are examples of the types of talent necessary to build a larger, well-conceived site.
- **Server administrators**—Get to know and appreciate the technical people who run your Web server. They take care of the sticky technical issues such as firewalls, ports, internal security, file administration, and backup procedures. Consult with them to determine your Web site's default filename and directory structure. They also can generate reports of how many visitors your site is attracting, where the visitors are coming from, and what pages they like best.

- **HTML coders**—These are the people responsible for creating the HTML code, troubleshooting the site, and testing the site across different operating systems and Web browsers. Most HTML coders are now using editing programs to create code, but it is a valuable skill to know how to open the HTML file in a text editor and code by hand. Knowing how to work directly with the code frees you from dependency on one particular authoring tool and makes you more desirable to companies hiring HTML authors.

- **Designers**—Designers are the graphic artists responsible for the look of the site. They use graphic design software, such as Adobe PhotoShop or Adobe Fireworks. Designers are responsible for the page template design, navigation icons, color scheme, and logos. If your site uses photographic content, the designers are called upon to prepare the photos for online display. They might also create animations and interactive content using Adobe Flash.

- **Writers and information designers**—Writers prepare content for online display, including hypertext information and navigation paths. In addition, many writers are responsible for creating a site style guide and defining typographic conventions, as well as consistency, grammar, spelling, and tone. They also work closely with the designers to develop page templates and interactive content.

- **Software programmers**—Programmers write the programs you need to build interaction into your site. They may write a variety of applications, including Common Gateway Interface (CGI) scripts, Java scripts, and back-end applications that interact with a database. Commerce sites especially need the talents of a programming staff.

- **Database administrators**—The people who are responsible for maintaining the databases play an important role in commercial Web sites. They make sure that your data is accessible and safe.

- **Marketing**—The Marketing Department can generate content and attract visitors to the site.

## Create Conventions for Filenames and URLs

Before you sit down at the keyboard, plan the filename conventions for your site. Find out from your system administrator what type of operating system your Web server uses. Typically you develop your Web site locally on a PC or Macintosh and upload the files to the Web server as the last step in the publishing process. If the Web server runs a different operating system from your local development system, any filename or directory structure inconsistencies encountered in transferring your files to the server may break local URL links.
Naming Files
A filename’s maximum length, valid characters, punctuation, and sensitivity to uppercase and lowercase letters vary among operating systems, as described in Table 3-1.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Filename Conventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9660 Standard</td>
<td>Maximum of eight letters followed by a period and a three-letter extension; allowed characters are letters, numbers, and the underscore ( _ )</td>
</tr>
<tr>
<td>DOS and Windows 3.x (FAT file system)</td>
<td>The same as ISO 9660 but with the following additional characters allowed: $ % · - @ ^ ! [ ] ( ) #</td>
</tr>
<tr>
<td>Macintosh</td>
<td>Maximum of 31 letters, all characters allowed except the colon ( ; )</td>
</tr>
<tr>
<td>UNIX</td>
<td>Maximum of 255 letters, all characters allowed except the forward slash ( / ) and spaces</td>
</tr>
</tbody>
</table>

Table 3-1  Filenaming conventions

Case Sensitivity
If you have an image file named Picture.gif, for example, and you reference that file as `<img src="picture.gif" />`, the image is displayed properly on a Macintosh or Windows machine. On a UNIX server, however, the image does not load properly because UNIX is case sensitive; “Picture.gif” and “picture.gif” are recognized as two different files. It is best to use lowercase letters for all filenames, including filenames in your HTML code.

Character Exceptions
Like case sensitivity, character use also is incompatible between operating systems. For example, the filename my stuff.htm is valid on a Windows PC or Macintosh, but not on a UNIX machine because of the space in the filename. If you transfer a Web site containing my stuff.htm to a UNIX server, the links to the file will not work. As another example, the filename <section2>.htm is valid on a Macintosh or UNIX machine, but the file would not be recognizable to a Windows NT server because the < > characters are not allowed. It is best when naming your files to leave out special characters such as <, >, /, \, &, *, and blank spaces.

File Extensions
You must use the correct file extensions to identify your file to the browser. HTML text files must end in .htm or .html; whichever you choose, set it as a standard convention for your site. Be careful to add this extension when you are working in your text editor, which may default to saving as .txt. You also must correctly identify image file formats in the file extensions. Joint Photographic Experts Group (JPEG) files must end in .jpg or .jpeg; Graphics Interchange Format (GIF) files must end in .gif; and Portable Network Graphic (PNG) files must end in .png.
**Solving the Filename Dilemma**

The best way to overcome the restrictions of case sensitivity, character exceptions, and file extensions is to use the convention specified by the International Standards Organization (ISO) for all your files. This convention (often called 8.3, pronounced “eight-dot-three”) specifies a maximum of eight characters followed by a period and a three-character extension. Allowed characters are letters, numbers, and the underscore character. Here are some examples of 8.3 filenames:

- mypage.htm
- chap_1.htm
- picture1.jpg
- logo.gif

If you use the 8.3 file-naming convention on your development system, you will have fewer filename problems when you transfer your files to the Web server, regardless of the server's operating system. By sticking with this filename format, you ensure that your files can be transferred across the greatest number of operating systems. Do not forget to use lowercase characters and omit special characters from your filenames to maximize compatibility.

**The Default Main Page Name**

Every Web site has a default main page that appears when the browser requests the directory of the site rather than a specific file. The URL for such a page always includes a trailing (forward) slash, as in www.mysite.com/. In this instance the Web server provides the index file, which usually is named index.htm. Windows NT, however, defaults to an index filename of default.htm, and other servers may be set to other names such as main.htm or home.htm. Before you start coding, check with your system administrator to verify the correct main page filename.

**Using Absolute or Relative URLs**

Although you may know that URLs are the addresses you type into your browser to access a site, you may not realize that there are two types of URLs: absolute and relative.

**Absolute URLs**

A Uniform Resource Locator (URL) is the unique address of a file’s location on the World Wide Web. A complete (or absolute) URL includes the protocol the browser uses, the server or domain name, the path, and the filename. Figure 3-2 shows an example of an absolute URL.

![Figure 3-2](http://www.yoursite.com/business/trends/laptop.htm)

In this example, http is the protocol, and www.yoursite.com is the domain name. The path shows that the destination file, laptop.htm, resides in the business/trends folder. Use complete URLs in your HTML code when linking to another server.
When you are browsing the Web, you do not need to enter the protocol because the browser defaults to http://. However, when creating links in your code, you must always include the protocol with a complete URL; otherwise, the browser does not know how to connect to the location you specify.

**Relative URLs**
Use a relative URL when you are linking to a file that resides on your own computer or server. **Relative URLs** omit the protocol and domain or server name, and specify the path to the file on the same server. Files that reside in the same directory need no path information other than the filename. The following code shows an example of a partial URL.

```html
<a href="laptop.htm">link text</a>
```

**Set a Directory Structure**
When you complete your site, you publish your files on the Web by transferring them to a Web server. A typical Web server has a user area that contains folders for each user; your files are stored in your user area, and files from other Web sites are stored in their user areas. The directory structure of the Web server affects the format of your site’s URL.

Figure 3-3 shows a typical Web server directory structure. If you do not register a domain name for your site, you will have a URL that reflects your path in the public area of the Web server. A user enters the following address in the browser to access User2’s Web site: **www.webserver.com/user2/**.

![Figure 3-3](image)

A domain name is an alias that points to your actual location on the Web server, as shown in Figure 3-4. User2 has purchased the domain name **www.mysite.com**. The actual path to User2’s content has not changed, but the visitor to the site sees only the domain name. Now User2 can advertise the Web site with a URL that’s easy to remember.
Relative versus Absolute Paths

You will probably build your Web site on a computer that is different from the computer that hosts your site. Keep this in mind when you are designing the directory and file structure. Because your files will be transferred to another computer, any URLs you specify to link to other pages in your site must include paths that are transferable. This is why you should never specify an absolute path in your partial URLs. An absolute path points to the computer’s root directory, indicated by a leading (forward) slash in the file path:

/code/graphics/logo.gif

If you include the root directory in your partial URLs, you are basing your file structure on your development machine. If the files are moved to another machine, the path to your files will not apply, and your site will include links that do not work because the browser cannot find the files.

To avoid this problem, use relative paths. Relative paths tell the browser where a file is located relative to the document the browser currently is viewing. Because relative paths are not based on the root directory, they are transferable to other computers.

Building a Relative File Structure

The easiest way to ensure that all your path names are correct is to keep all of your HTML and image files in the same directory. Because all files are kept together, the only information you need to put in the src or href attribute is the filename itself. In Figure 3-5, User2 has simplified the directory structure. To reference the file logo.gif, User2 adds the following code in one of the HTML files:

<image src="logo.gif" />

The simple directory structure shown in the preceding example is fine for a small Web site, but as your site grows you may want to segregate different types of content into separate folders for ease of maintenance. Take a look at the relative file structure for User2’s Web site as depicted in Figure 3-6. Notice that User2’s Web folder contains three HTML files and one subfolder named images, which contains the graphics and pictures for the Web site.
To include the image file logo.gif in index.htm, User2 adds the following code to index.htm:

```html
<img src="images/logo.gif" />
```

The path in the `src` value tells the browser to look down one level in the directory structure for the images folder and find the file logo.gif. The path to the file is relative to the file the browser is viewing. This type of relative file structure can be moved to different machines; the relationship between the files does not change, because everything is relative within the Web folder.

User2’s Web site may need a more segregated directory structure, as shown in Figure 3-7. In this example, common files such as the index (the home page) and site map reside in the top-level folder. Multiple subfolders contain chapter and image content. Two linking examples are illustrated in this figure:

- **Example 1**—To build a link from page1.htm (in the chapter1 folder) to index.htm, use `../` in the path statement to indicate that the file resides one level higher in the directory structure, as shown in the following code:

```html
<a href="../index.htm">Home</a>
```
Example 2—To include the image file logo.gif in page1.htm, use ../ to indicate that the file resides in the images folder, which is one level higher in the directory structure, as shown in the following code:

```html
<img src="../images/logo.gif" />
```

Create a Site Storyboard

Plan your site by creating a storyboard flowchart that shows the structure and logic behind the content presentation and navigation choices you offer. You can sketch your site with paper and pencil or create it using flowcharting software. Sometimes it is helpful to use sticky notes or cards to plan the structure visually. This method lets you easily move pages from one section or level to another. Whichever method you choose, this preliminary planning step is one of the most important in planning your site. You can move pages and whole sections of content freely, plan navigation paths, and visualize the entire site. This is the stage at which to experiment and refine your designs. Once you have started coding the site, it is much more difficult and time consuming to go back and make major changes. Remember to adhere to the filenaming conventions for each of your pages.

Organize the Information Structure

Think about your users’ information needs and how they can best access the content of your site. How should your information design map look? Review the sample structures provided in this section and judge how well they fit your information. Your design may incorporate several different structures, or you may have to adapt the structures to your content. Each sample structure is a template; you may have more or fewer pages, sections, topics, or links. You may choose to
use bidirectional links where only single-direction links are indicated. Use these examples as starting points and design from there.

**Linear Structure**
The linear information structure, illustrated in Figure 3-8, guides the user along a straightforward path. This structure lends itself to booklike presentations; once into the content, users can navigate backward or forward. Each page can contain a link back to the main page if desired. Pages may also contain links to a related subtopic. If the users jump to the subtopic page, they only can return to the page that contains the subtopic link. This structured navigation returns them to the same point in the content path.

![Figure 3-8](image)

**Tutorial Structure**
The tutorial structure illustrated in Figure 3-9 is perfect for computer-based training content such as lessons, tutorials, or task-oriented procedures. The tutorial structure builds on the simple linear structure in Figure 3-8. The user navigates the concept, lesson, and review pages in order. Because the lessons use hypertext, users can leave the lesson structure and return at any time. They also can choose the order of lessons and start anywhere they want. Notice that the table of contents, index, and site map pages are linked to—and from—all pages in the course. Within each lesson users can navigate as necessary to familiarize themselves with the content before they review. This structure can be adapted to fit content needs; for example, the group of pages in the illustration could be one section of a larger training course.

![Figure 3-9](image)
**Web Structure**
Many smaller Web sites follow the Web-type content structure illustrated in Figure 3-10, which is nonlinear, allowing the user to jump freely to any page from any other page. If you choose to use this type of content structure, make sure that each page includes clear location information and a standardized navigation bar that not only tells users where they are, but where they can go.

**Hierarchical Structure**
The hierarchical structure illustrated in Figure 3-11 is probably the most commonly used information design. It lends itself to larger content collections because the section pages break up and organize the content at different levels throughout the site. Navigation is primarily linear within the content sections. Users can scan the content on the section page and then choose the content page of their choice. When they finish reading the content, they can return to the section page. The site map allows users to navigate freely throughout the site. A navigation bar on each page lets the user jump to any section page, the main page, and the site map.
Cluster Structure
The cluster structure illustrated in Figure 3-12 is similar to the hierarchical structure, except that every topic area is an island of information, with all pages in each cluster linked to each other. This structure encourages exploration within a topic area, allowing the user to navigate freely through the content. All pages contain a navigation bar with links to the section pages, main page, and site map.

Figure 3-12
Cluster structure

Catalog Structure
The catalog structure illustrated in Figure 3-13 is ideally suited to electronic shopping. The user can browse or search for items and view specific information about each product on the item pages. Users can add items to their shopping cart as they shop. When they are finished, they can review the items in their shopping cart and then proceed to checkout, where they can enter credit card information and finalize the order.

Figure 3-13
Catalog structure
This type of Web site requires back-end data transaction processing to handle the shopping cart tally, process credit card information, and generate an order for the warehouse. Businesses that want to set up an electronic commerce site can purchase ready-made commerce software packages or develop their own from scratch.

**Publish Your Web Site**

To make your Web site live, you transfer your Web site files to a **Web server**, a computer connected to the Internet and running server software. The software lets the computer use the Hypertext Transfer Protocol (HTTP) to serve HTML files to Web browser clients. Unless your company or organization has a Web server and hosts its own content, you must use the services of a Web hosting provider. After you choose a server to host your files, you need to select file transfer software and upload the Web site files from your development machine to the Web server.

**Choose a Web Hosting Service Provider**

One of the most important choices you will make is your Web hosting service. This is the company that hosts your Web pages on a Web server, making them available to anyone who knows your URL. Most **Internet service provider (ISP)** companies offer Web hosting services for both personal and business use. The ISP provides you with Internet access, e-mail accounts, and space for a personal or business Web site. If you are building a Web site for business use, your ISP can register a personalized domain name for your Web site.

ISPs provide broadband and dial-up access and most offer Web server space as part of the access package. Small Web sites (around 15–20 pages of content) do not need much more than 1 or 2 MB of server space to hold all of the HTML pages and graphics. Your ISP should provide at least 10 MB of space so your Web page has room to grow. Larger or more complex sites need more server space, especially if you have downloadable files, archives, lots of graphic content, or databases. If you are building a business Web site, seek out larger hosting services that are more appropriate for hosting a complex commercial site.

**NOTE**

Many ISPs offer proprietary design tools and templates to assist you in building a Web site. It’s best to avoid these types of tools as they tend to tie you to the ISP and make it difficult for you switch hosting services and post your Web site elsewhere.

Shopping for an ISP can be a confusing experience, as no two are exactly alike. Do some research and learn about offerings from different vendors. The following sections discuss the features you should seek in an ISP.

**DSL and Cable Access**

Most Internet users now have access to high-speed, broadband connection services through a Digital Subscriber Line (DSL) or cable modem. To take advantage of DSL or cable access to the Web, you need a network card for your computer and a DSL or cable modem. These providers usually supply a cable modem with the service. Check to make sure that the monthly fee does
not include the equipment costs for the modem. Because DSL and cable are “always-on” connections, they introduce an increased security risk that can make your network vulnerable to hackers. If your provider does not offer network security, you must purchase a network security device, known as a gateway router, to protect your computer with a security firewall. The router allows multiple computers in your home or business to share the high-speed Internet connection, while the firewall software blocks intruders from accessing your network.

**Dial-Up Access**

If you access the Internet using phone lines and a modem, choose an ISP that allows you to connect to its network by placing a local phone call. Make sure that your provider has enough points of presence to make dialing easy. Points of presence (POPs) are dial-up access points to your service provider’s network. Your service provider should have at least one POP available so you can dial a local number to access the network. Major ISPs, such as AT&T, have POPs throughout the United States. A local ISP covers only the area that includes its subscriber base. Try to match the size of your ISP to the size of your company—a local company does not need the services of a national ISP.

You should not receive a busy signal when you dial up to get Internet access. Unfortunately, you probably will not find out about access problems until after you have become a customer. Do not hesitate to change ISPs if you are not satisfied with ease of access.

**Free Utility Software**

Your ISP should provide you with a File Transfer Protocol (FTP) application for uploading files. (FTP is a standard communications protocol for transferring files over the Internet.) Some ISPs provide HTML editors and other software as well. Some of this software may be shareware, so if you decide to keep it, remember to register with the author.

**Accessible Technical Support**

Technical support is not a feature, but an absolute necessity. Make sure that your ISP has competent, accessible customer service. When you are checking into ISPs, call and talk with the companies’ customer service representatives. Tell them how experienced you are with computers, and let them know what you hope to accomplish (such as set up a Web site or transfer files). Note how long you are on hold when waiting to speak with customer service. Local ISPs may not have a large staff, but they probably have fewer subscribers. National ISPs have so much volume that they may keep you on hold for an unacceptable length of time.

**Additional E-mail Addresses**

All access accounts come with at least one e-mail address, called a Post Office Protocol 3 (POP3) account. If you are part of a group, you may want an account that has more than one mailbox so that each person can receive his or her own e-mail.

**Personal versus Commercial Accounts**

Personal ISP accounts generally are less expensive than business accounts. However, you have less disk space, fewer features, and a more complex URL, such as www.Webserver.com/users/
yourname/. Once you buy a domain name, your ISP usually upgrades you to a commercial account. Commercial accounts pay more for services, so make sure you do receive more, such as some of the following features.

**SQL Database Support**
If you are planning on any type of electronic commerce or customized data presentation, you need database support. Databases that understand **Structured Query Language (SQL)**, a programming language that lets you select information from a database, are the most common and powerful type of database.

**Secure Socket Layer (SSL) Support**
The **Secure Socket Layer (SSL)** is an Internet communications protocol that allows encrypted transmission of data between the user and the server. SSL is necessary if you are planning to set up an electronic commerce site or transmit other sensitive data. Encrypting the data ensures the information cannot be read if the transmission is intercepted.

**Register a Domain Name**
Domain names are managed by the Internet Corporation for Assigned Names and Numbers (ICANN). ICANN has agreements with a number of vendors to provide domain name registration services. Until recently, Network Solutions was the only vendor of domain names. As more vendors become available, the market for domain names has become more competitive. You can visit Network Solutions to see whether a domain name is available, but you may want to shop around to get the best price. The site (www.networksolutions.com) contains a simple form that lets you check to see whether a domain name is already registered. If the domain name is available, you can register online. For an additional fee, your ISP often can register your Web site. If you prefer, you can save the cost of doing this by filling out the online forms yourself, but you still need to contact your ISP to get the IP addresses.

**ISP Comparison Checklist**
Use the following checklist when you compare ISPs:

- Is the ISP local or national?
- If you are using dial-up Internet access, does the ISP have enough local POPs in your area code?
- Is space available on the ISP’s Web server for your Web site?
- Does the ISP offer technical support? When is support staff available?
- How many e-mail addresses do you get with an account?
- Does the ISP provide software, such as an FTP client?
- Does the ISP support the latest connection technologies? (See the “Considering Connection Speed Differences” section in Chapter 1.)
- Does the ISP offer enhanced services, such as SQL database support, Secure Socket Layer (SSL), CGI scripting, and streaming audio and video support?
NOTE
Always keep a backup of your Web site files in case you have any problems during FTP transmissions, or if you accidentally delete or overwrite existing files. Of course, if you ever accidentally delete or overwrite files on your local computer, you can use your Web site files as a backup.

Upload Files with the File Transfer Protocol
To publish your pages on the Web, you must send your HTML code, image, and other files to the Web server. To do this, you need FTP software, often called an FTP client. Some HTML authoring software, such as Microsoft Expression Web and Adobe Dreamweaver, include built-in software packages that let you upload files to your Web server if your ISP supports these features. You also can choose from many shareware FTP programs to upload your files. Visit your favorite shareware site, such as Shareware.com, and search for FTP clients.

NOTE

When you have decided which FTP software to use, contact your ISP’s customer service department and ask for the correct FTP address for the Web server. You also need your account name and password, which in most cases automatically points your FTP program to the proper directory on the server.

To upload your files, start your FTP program and connect to your Web server using the FTP information provided by your service provider. Your password allows you write access to your directory on the Web server. Once the FTP client has connected to the Web server, you have the option of choosing the files you want to transfer. The FTP client usually displays directories on both the local and remote computers.

Select the files that you want to upload in your local directory listing and transfer them to the Web server. You also can transfer files from the Web server to your computer. The first time you go live with your Web site, you must transfer all the files. Later you will need to upload only the files that you have updated. Once the files have reached the Web server, they are available for access immediately on the Web.

After you find an ISP and publish your Web site to the World Wide Web, it is time to test your Web site in the real-life Internet environment.

NOTE
As discussed earlier in this chapter, make sure that you maintain the exact directory structure on the Web server that you used on your development computer to ensure that all relative file paths are correct.
Test Your Web Site

Even though you performed tests throughout the development of your Web site, you need to continue testing after you post your files live on the Web. If possible, load your files to the Web server and test them before making your URL available for users to access the Web site. If you have enough server space, you may want to establish a testing area on the Web site. You can do this by creating a subdirectory in your public HTML directory. Do not publicize the URL so that your testing area can remain private.

Testing Considerations

Always test in as many different environments as possible. Remember to test for the following Web design variables:

- **Multiple browsers**—Test your site using as many browsers as you can to make sure your work is portable and is displayed consistently.
- **Multiple operating systems**—If you can, test your site from different operating systems. If you have a PC as a development machine, use a Macintosh for testing, and vice versa. You even can run different versions of UNIX on a PC, if necessary. Because computer chip development moves at a lightning pace, machines become outdated quickly. You can find discounted and used machines that often are Internet-capable as long as they have a good Internet connection. Because you won’t use these machines to **develop** Web sites (only to **view** them), you do not need the latest or most powerful hardware.
- **Connection speeds**—Do not rely on the same connection speed when testing your Web site, especially if you work in a corporate environment where the connection to the Internet usually is faster than the average user’s. Go to a friend’s house, library, or Internet café and access your Web site from there. Test for download times at different connection speeds.
- **Display types**—Test at different screen resolutions and color-depth settings to make sure your colors are displayed consistently. Make sure to test different color depths: 8-bit 256 color, 16-bit high color, and 24-bit true color.

In addition, continually test your links. Click through all the links on your Web site, making sure every one takes the user to the intended destination. Any pages that link outside of your Web site need to be tested on a regular basis to make sure that the destination site has not moved, shut down, or posted content different from what you expect.

User Testing

User testing can be as simple as asking a few colleagues to look at your Web site, or as complex as conducting extensive formalized testing. Some companies invest in special user testing labs with videotaping and one-way mirrors to record user behavior, or software that can track users’ mouse movements and eye coordination as they look at your Web site. Even if you do not need this level of sophisticated testing, you should perform some type of user assessment of your work. The goal of user testing is to determine whether your Web site is easy to navigate and provides easy access to content. Following are some considerations to take into account when planning for user testing of your site.
Vary Your Subjects
Draw your test subjects from a variety of backgrounds, if possible. Gather test subjects who are representative of your target audience. Find users with varying computing skills and familiarity with the information. Avoid using friends as test users, as they may only compliment your work. You might choose to let users look at the Web site on their own time, but you can learn a lot by watching users interact with your Web site. Make sure to let them navigate and use the Web site without any outside help from you. Just stand back and watch.

Formalize Your Testing
Formalize your testing by creating replicable methods of testing your Web site. Prepare a series of questions that users have to answer after viewing the Web site. Give them a specific task to complete or have them find a particular piece of information. Let them rate the ease of completing such tasks. Compare the results from different users to find any problem areas in navigation. Administer the same testing methods to a variety of users, and watch for trends and consistencies. This lets you compare results or focus on a particular feature of the Web site.

Develop a Feedback Form
Develop a feedback form that users can fill out after they have tested the Web site. Include a set of criteria and let them rate the Web site on a progressive scale, or ask them a series of open-ended questions. You also may want to provide the feedback form online, letting users offer feedback directly from the Web site. Here are some sample questions you might ask:

- Did you find the information you needed?
- Was it easy or difficult to access the information you needed?
- Did you find the Web site visually attractive?
- Did you find the content easy to read?
- Did you find the Web site easy to navigate?
- Did you think the information was presented correctly?
- Did the information have enough depth?
- What area of the Web site did you like the best? Why?
- What area of the Web site did you like the least? Why?
- Would you recommend the Web site to others?

Refine and Update Your Content
Refine your content and presentation based on your user's feedback. When you are evaluating user feedback, look for trends rather than individual aberrations, such as one person’s vehement dislike of your color scheme. Pay particular attention to the ease of access to your information. Users should be able to find what they want quickly.

If you have a commercial site, ask your system administrator to set up a program that analyzes your visitors and their preferences when they visit. This type of reporting program, available on most Web servers, reads the communication logs created by the server and extracts information
in a report format. These statistical reports vary from program to program, but they can tell you how often users visit, which pages they request the most, and how your Web site traffic varies from month to month.

Plan for ongoing maintenance of your Web site. This is vital to the success of the Web site. Plan to add new links, information, and featured content continually. The Web is a live, immediate medium, and you want your Web site to stay fresh. Test your links to other Web sites regularly to make sure they are active. You annoy your users if you send them to linked content that no longer exists. When you update your pages, inform users on your top-level page or on any page that promises up-to-date information.

Plan for major Web site design changes on a regular basis. Some Web sites reorganize their look on a yearly basis. You can perform ongoing testing and improve your test site while maintaining your live Web site. Pay attention to the trends in the industry by visiting lots of other Web sites. Consider new technologies as they become available and when the bandwidth or browser variables allow you to incorporate them.

**Attract Notice to Your Web Site**

After you set up your live Web site, it is time to attract visitors. With the millions of pages on the Web, it can be difficult to get your Web site noticed. It is likely that you are trying to attract specific users to your site—people who use your product or who are interested in the same information. Within this narrow audience, publicize your URL as much as possible, in every collateral medium that you can, including business cards, letterhead, catalogs, mailings, and other media. Give users a reason to visit your Web site by offering something they cannot get in any other medium, such as up-to-the-minute pricing or technical information. Give them a reason to come back to your Web site by making your information accessible and useful.

**Leveraging Search Engines**

Other than knowing your URL, consider how visitors will find your Web site. Many who are interested in a specific topic or information will use a search engine Web site to look for sites on a related topic. Search engines are software programs that search out and index Web sites into a catalog format. The way search engines perform searches and arrange their catalogs differs greatly. You can enhance your Web site to take advantage of search engine behavior. Although the following tips can help, there is no guarantee that your Web site will rise to the top of a search engine listing.

For more information on search engine details, visit the Web site www.searchenginewatch.com. This site has search engine listings, reviews, ratings, and tests, as well as hints and tips to get your site listed properly with the major search engines.

**Use Meaningful Titles**

All the pages of your Web site need pertinent information in the `<title>` element. Some search engines read only the contents of the `<title>` for Web site information. Also, the contents of the `<title>` show up in the user’s bookmarks or favorites list. Make sure to use meaningful titles that provide information to the user and accurately reflect your site.
Use alt Text with Images
Always add alt information to all of the graphics on your page. Some search engines read the contents of the alt attribute, which is especially useful if you start your page with a graphic. Refer to Chapter 8 for more information on the alt attribute.

Submit URLs to Search Engines
One way to have search engines list your URL is to submit it to each of the popular search engine sites. The site’s search engine scans your Web site and indexes the information. Periodically return to the search engine site and search for your Web site name or pertinent search terms. Some search engines are much faster at this process than others, so you may have to resubmit your URL if you do not see your page listed.
Chapter Summary

A successful Web site is the result of careful planning. The steps you take before you actually start coding the site save you time, energy, and expenses in the long run. Remember these guidelines for successful planning:

► Start with pencil and paper; your ideas are less restricted and you can easily revise and recast without recoding.
► Write a site specification document. You will find it invaluable as a reference while building your site.
► Identify the content goal by adopting your users’ perspective and learning what they expect from your site.
► Analyze your audience and create an audience profile. Focus your site on the users’ needs and continue to meet those needs by adapting the site based on user feedback.
► An effective site is most commonly the result of a team effort. Leverage different skill sets and experience to build a Web site development team.
► Plan for successful implementation of your site by creating portable filename conventions. Build a relative file structure that can be transferred to your Web server without a hitch.
► Select a basic information structure for your site and then manually diagram it, customizing it to the needs of your site.
► Shop carefully and compare features when you are looking for an ISP or Web host. Consider the future disk space and technology needs of your content.
► Download and learn to use an FTP client for use in the often-repeated task of transferring files to your Web site.
► After your Web site is live, test it against the basic Web variables of browser, operating system, display resolution, and connection speed.
► Test your Web site with a variety of users. Listen carefully to their feedback to identify trouble spots in your information design.
► Plan for the maintenance, upkeep, and redesign of your Web site. Keep your content up to date. Let users know when you have made updates to the Web site.
► Attract notice to your Web site by taking advantage of search engine technology, using meaningful titles, including alt text with images, and submitting URLs to search engines.
Key Terms

absolute URL  points of presence (POPs)
audience definition  search engine
complete URL  Secure Socket Layer (SSL)
extranet  shareware
File Transfer Protocol (FTP)  site specification
Internet service provider (ISP)  Structured Query Language (SQL)
intranet  Uniform Resource Locator (URL)
partial URL  Web server

Review Questions

1. List three technology constraints that can affect the way a user views your Web site’s content.
2. Consult your Web server administrator when you need to determine the ____________ and ____________ for your site.
3. Name two inconsistencies that can cause broken links when you upload your files to a Web server.
4. List three characteristics of filenames that vary by operating system.
5. The international standard for filenames often is called ____________.
6. Which computer operating system is case sensitive?
7. Rename the following files so that they are compatible across all operating systems:
   My file.htm ____________
   case:1.htm ____________
   #3rdpage.htm ____________
8. What is the default main page filename for a Web site?
9. What are the two types of URLs?
10. What are the four parts of a complete URL?
11. What type of URL links to another server?
12. What type of URL links within a server?
13. What affects the format of the URL for your Web site?
14. What is the benefit of purchasing a domain name?
15. Why should you never specify an absolute path in partial URLs?
16. What is the benefit of building a site with relative paths?
17. Files that reside in the same directory need only the ____________ to refer to each other.
18. List two benefits of diagramming your site before you start coding.
19. How does a Web site become live?
20. List the four variables to consider when testing your Web site.
Hands-On Projects

1. Browse the Web and find a site you like. Write a brief statement of the Web site’s goals.

2. Browse the Web and find Web sites that fit the following content types:
   a. Billboard
   b. Publishing
   c. Special interest
   d. Product support

   Write a short summary of how the content is presented in each Web site and describe how each site focuses on its users’ needs.

3. Browse the Web and find a site that does not contain a user survey form. Write a 10- to 15-question user survey that you would use on the site. Tailor the questions to the site’s content and goals.

4. Find a billboard-type Web site. Write an analysis of the site that includes functions and features you would add to extend the site’s effectiveness for its users.

5. Visit www.winzip.com and download the latest version of WinZip. If you have a Mac, visit www.aladdinsys.com and download the shareware version of Stuffit. Practice using the software to archive and compress multiple files into a single file.

6. Browse the Web to find examples of the following site structures and describe how the content fits the structure. Think about how the chosen structure adds to or detracts from the effectiveness and ease of navigation of the site. Determine whether the site provides sufficient navigation information. Print examples from the site and indicate where the site structure and navigation information is available to the user.
   a. Linear
   b. Hierarchical

7. Browse the Web to find a site that uses more than one structure type and describe why you think the site’s content benefits from multiple structures. Consider the same questions as in Project 3-6.

8. Are there other structure types that are not described in this chapter? Find a site that illustrates a different structure content. Create a flowchart for the site and determine how it benefits from the different structure type.

9. Write a test plan for your Web site.
   a. Create a section for each design variable.
   b. Spell out the exact steps of the test and the different variables to be tested. State explicitly which browsers and version should be used, and on which operating system. Detail the different screen resolutions and connection speeds. List the exact pages that should be tested.
   c. Walk through the test procedure to test its validity.

10. Write a sample user feedback questionnaire.
11. Write a maintenance plan for your Web site.
   a. Include a schedule of content updates for the different sections of the Web site.
   b. Include a schedule of design reviews.
   c. Plan for link maintenance.

**Individual Case Project**

Write a site specification for the site you defined in Chapters 1 and 2. Include as much information as possible from the project proposal you completed at the end of Chapter 1. Make sure to include a mission statement. Determine how you will measure the site’s success in meeting its goals. Include a description of the intended audience. Describe how you will assess user satisfaction with the site. Include technological issues that may influence the site’s development or function.

Prepare a detailed flowchart for your site using the preliminary flowchart you created at the end of Chapter 2. Create a filename for each page that matches the ISO 9660 standard. Indicate all links between pages. Write a short summary that describes the flowchart. Describe why you chose the particular structure, how it suits your content, and how it benefits the user.

**Team Case Project**

Collaborate to write a site specification for the site you defined in Chapters 1 and 2. Include as much information as possible from the project proposal you completed at the end of Chapter 1. Make sure to include a mission statement. Determine how you will measure the site’s success in meeting its goals. Include a description of the intended audience. Describe how you will assess user satisfaction with the site. Include technological issues that may influence the site’s development or function.

Work individually to determine the information structure you think is optimal for the type of content your site will contain. Then meet and work as a team to determine the information structure using the best pieces of each team member’s information structure plan. Prepare a detailed flowchart for your site using the preliminary flowchart you created at the end of Chapter 2. Create a filename for each page that matches the ISO 9660 standard. Indicate all links between pages. Write a short summary that describes the flowchart. Describe why you chose the particular structure, how it suits your content, and how it benefits the user.