

Web Site Design and Development

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Web Technologies Overview

About the Internet

- Internet started as Department of Defense project meant to de-centralize communication to ensure that enemy attack would not cripple communications network
- To simplify, the Internet is made up of: servers, routers, and clients

Technological Variables

- Platform (Unix, NT, etc.)
- Server (Netscape, Microsoft, etc.)
- Browsers (Netscape, Microsoft, AOL, etc.)
- Other (HTML, Dynamic HTML, Java applets, Active Server Pages (ASP), Cold Fusion, etc.)

HTML

- HTML is tags embedded in a text file
- HTML tags continue to evolve
- W3 Consortium referee

Javascript and Java

- Making Web pages more active (for instance, rollovers)
- Speed certain functions (for instance, client-side image maps or form validation)
- Do things HTML can't do (Java applets such as CNN Custom News ticker)

Cascading Style Sheets

- With style sheets, you can specify point sizes, page margins, leading (spacing between lines) and more.
- CSS are compatible with IE 3.0 (or greater) and Netscape 4.0 (or greater)

Dynamic HTML

- With DHTML, pages can be more dynamic, including moving objects, layering, and style sheets.
- For more information, visit <http://www.dhtmlzone.com>
- DHTML example: www.webmonkey.com

XML (Extensible Markup Language)

- Lets you define your own customized markup languages.
- Not yet being used by many, but there is a lot of talk and excitement about it.

Dynamic Publishing Solutions

- Cold Fusion — Simple tags that allow you to quickly build web applications
- Active Server Pages (ASP) — Provides more advanced features (and complexity) when building web applications

Web Development Process

Development Process

- Design
- Production
- Launch
- Maintenance

Design

- **Define your goals.** (Summarize your messages. Know your audience. Define your objectives.)
- **Structure your information.** (Create the “skeletal” information structure of your site.)
- **Develop your look-and-feel.** Prototype your ideas (save time and money while you build better Web sites)
- **Develop your database.** (For sites that will rely on database, define and develop your database elements and structure if they are not already defined.)

Production

- **Develop content.**
 - Writing for the Web is very different from writing for print. See <http://www.sun.com/980713/webwriting/>
- **Build your site.**
 - Create HTML files
 - Add scripting
 - Create templates
- **Test your site.**
 - Do your own testing (different browsers, resolutions, platforms)
 - Ask a colleague or friend
 - Email the URL and survey questions
 - Conduct focus group testing
 - Actions speak louder than words

Launch

- **Moving files from development environment.**
 - Use a Staging server or directory to develop on
 - Publish files to Production server or directory after you've tested the site
 - Check your Production server one last time
- **Advertise your site.**
 - Corporate intranets: Get on "What's New" or "Site of the Week" on your company's intranet
 - Internet
 - ⇒ List with search engines
 - ⇒ Print advertising
 - ⇒ "Cool sites" sites

Maintenance

- **Keep your content current.**
 - Up-to-date information gives your site credibility
 - Establish a maintenance schedule, if necessary.
- **Add new content.**
 - Don't let your site "die on the vine."
 - Add new content regularly.
- **Check for broken links.**
 - Remember that while your site might not change, those sites you have linked to might.
 - Check your links frequently.
 - Use software, such as WebAnalyzer or FrontPage, can scan for broken links.
- **Incorporate user feedback.**
 - Review feedback.
 - Solicit feedback.
 - Make changes based on user feedback.

Web Design Basics

How to Structure Your Web Site Better

- Identify your content.
- Understand your audience.
- Prioritize information.
- Create distinguishable categories.
- Keep your structure simple.
- Consider site growth.
- Draw your site structure.
- Draft two *high-level* versions.
- Ask for feedback.

More on who we design for...

- Every web site has two audiences.
- Every web site has two information structures.
- Design your site structure for your end user.
- Design your file directory structure for those who maintain your site.

Designing Good Navigation

- Place navigation on every page.
- Limit choices.
- Be consistent.
- Provide users a context.
- Use familiar metaphors.
- Consider linear and non-linear paths.
- Create multiple paths to information.
- Keep it simple.
- Draw process flow.
- Don't rely on searches.
- Make use of technology.

Using Graphics Effectively

Know the Supported File Formats

- Use GIF for line art and graphics with large area of single colors. Use JPG for photos.
- GIF supports up to 256 colors. JPG supports millions of colors.
- All users do *not* have monitors that display millions of colors

Design for Speed

- Speed in an aesthetic on the Web
- Use graphics only when necessary
- Re-use images
- Reduce the number of images
- Use the minimal number of colors (to reduce file size)
- Experiment with lowest threshold of “looking good”

Design Effectively *without* Graphics

- Font faces, sizes, and colors
- Colored tables cells
- Horizontal rules, blockquotes, and other formatting tags

Designing for Users of All Sizes

Know the Key Variables

- Browser (Netscape, Microsoft, AOL, etc.)
- Screen resolution (640x480, 800x600, etc.)
- Type of PC (Mac, PC, other)
- Dynamic data
- Other design considerations

Understand Browsers Compatibility

- Different browsers support different HTML versions
- Different browsers support different Javascript (or Jscript) versions
- See: www.hotwired.com/webmonkey/browsekit/

Design for Lowest Screen Resolution

- Most users use 640x480
- Usable space (in worst case) 580x268
- Mac users can print up 520 pixels

What You Can Do To Help “Non-Scrollers”

- Place important elements at top of page
- Use intra-page links at top of page to introduce elements at the bottom of the page
- Use frames for persistently visible elements

Consider the Type of PC

- On Mac, colors appear brighter (more saturated)
- On Mac, type is smaller (particularly important if you are using small type and you want to keep type legible)

Prepare for Dynamic Data

- Consider how your data may vary (in length, in content, etc.)
- View data in worst case (maximum and least amount of information that is likely)

Other Design Considerations

- Printability (dividing content into multiple pages vs. keeping it on one page)
- Users with vision difficulties (larger font size, color combinations)

Choosing a Development Tool

HTML Editors/Site Management

- Macromedia's Dreamweaver
- Adobe's PageMill
- Allaire's HomeSite
- Microsoft's FrontPage
- Microsoft's Visual InterDev
- Netscape Navigator/Communicator
- Any text editor

Other Development Tools

- Adobe Photoshop, Illustrator, CorelDraw
- Adobe Exchange/Acrobat (for PDF files)
- Macromedia Director (for Shockwave files)
- GIF animator
- Sound editor

Some Practical Do's and Don'ts

Do

- Create logical file directory structure that can be understood by others.
- Consider URL as a communication tool.
- Create Images directory - a commonly used convention.
- Use a consistent 8.3, all lowercase file naming convention.
- Use relative links rather than absolute links.
- Create a development work space separate from the "live" files.
- Create templates to give your site a consistent, well-designed look and feel.
- Test, test, and test more! In all target browsers, on all platforms, at lowest screen resolution.

Don't

- Don't make changes directly to your production files.
- Don't try to be too tricky to make a browser do something it doesn't want to do (for instance, with Javascript).
- Don't hesitate to ask a colleague or end user their opinion.
- Don't make pages slow to load -- you *will* lose visitors.

Where to Go for More Information

Web Sites

General Development

- <http://www.zdnet.com/devhead>
- <http://www.webmonkey.com>
- <http://www.microsoft.com/sitebuilder>
- <http://www.webdeveloper.com>
- <http://www.builder.com>
- <http://www.sun.com/styleguide>

HTML, CSS, DHTML, and XML

- <http://www.w3.org>
- <http://developer.netscape.com/docs/manuals/communicator/dynhtml/index.htm>
- <http://style.webreview.com>
- <http://www.dhtmlzone.com>

Javascript and VBScript

- <http://developer.netscape.com/docs/manuals/communicator/jsguide4/index.htm>
- <http://www.microsoft.com/scripting/default.htm>

Trade Publications and Magazines

- Internet World
- Inter@ctive Week
- Web Techniques

Books

- *The Design of Everyday Things* by Donald A. Norman
- *Envisioning Information* by Edward Tufte
- *Elements of Web Design* by Darcy DiNucci
- *Secrets of Successful Web Sites* by David Siegel