



Designing Dynamic Websites

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Introductions



- Who are you folks?
- Where are you from?
- What are your expectations of this session?
 - Do you have any specific questions?
 - Do you have any specific problems that you are trying to solve?



Why do we need a web site



- Provide information about your research program
- Promote your research activities
- Provide access to data
- Provide a public face for your station or organization
- Provide tools for scientists and researchers



Roadmap



- Creating pages - discussion
- Designing Sites - discussion
- Web technologies - discussion
- Developing web interface to Databases
- exercise



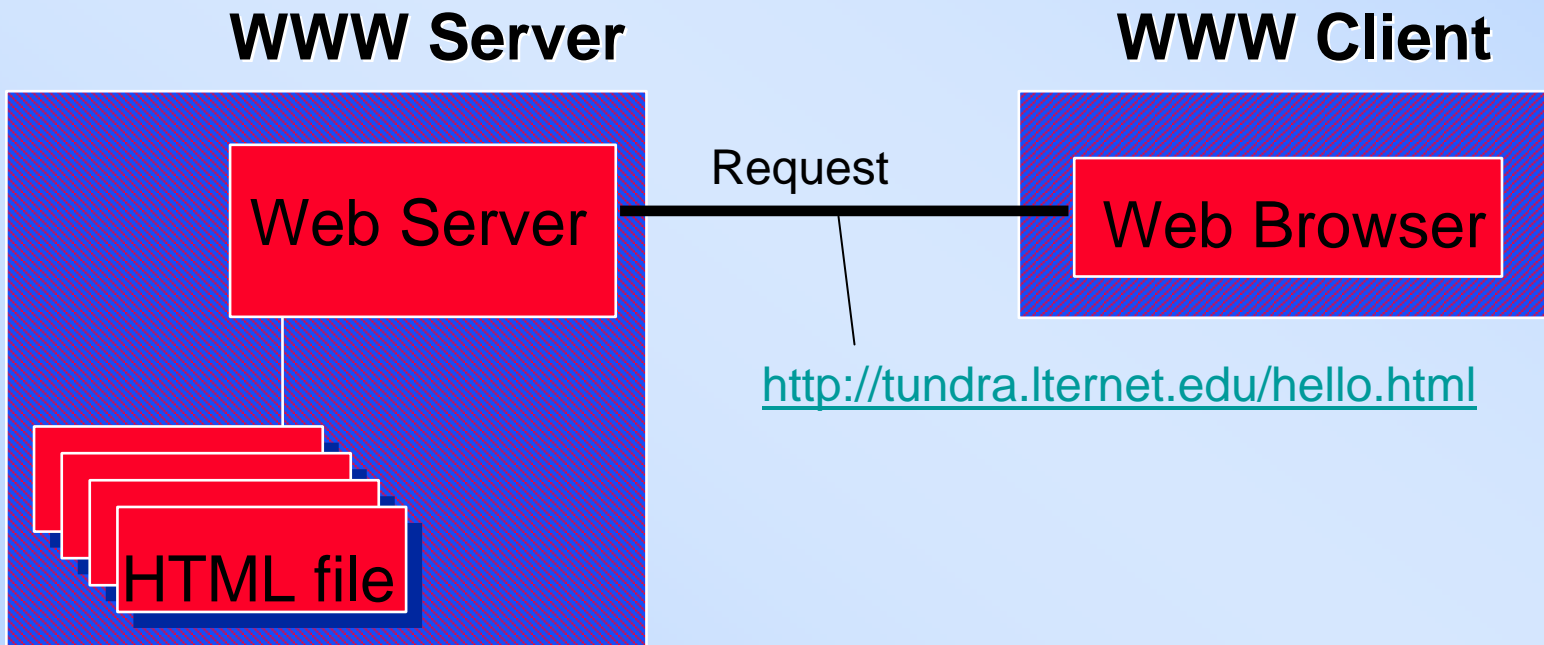
How does the WWW work?



- HTML Documents (pages) stored on a server
- The page is requested by browser from a client using a browser
- The page is fetched and returned to the client by the web server using the Hypertext Transfer Protocol (http)
- Note that a page is identified by a Uniform Resource Locator (URL)



How does the WWW work?





Standards for the WWW



- The World Wide Web Consortium (W3C <http://www.w3c.org>) is chief standards body for HTTP and HTML
- An international consortium of companies involved with the Internet and the Web.
- W3C was founded in 1994 by Tim Berners-Lee, the original architect of the World Wide Web
- Develop open standards so that the Web evolves in a single direction rather than being splintered among competing factions



Browsers



- Netscape and MSIE are the big two.
- They contributed to browser wars, non standard html tags (), substandard browsers (Netscape 4)
- Browser Alternatives
 - Mozilla Fire Fox – Open Source, Standards Based
 - Opera - Standards Based, lots of features
- Alternatives are better browsers, fast, and they Kick butt!



So what is HTML?



- HTML Stands for Hypertext Markup Language
- Markup language means that a specific parts of a document have marks around them, giving them special meaning
- An HTML Document is a text document that uses tags for markup.
- Tags fall between angel brackets and have an open tag and a close tag
`<p>this is paragrapgh text</p>`



What is HTML?



- Important to remember HTML tags were originally designed to define the content of a document
 <p>means this is a paragraph</p>
- Examples of tags

<html>	Defines an HTML document
<body>	Defines the document's body
<h1> to <h6>	Defines header 1 to header 6
<p>	Defines a paragraph
 	Inserts a single line break
<hr>	Defines a horizontal rule
<!-->	Defines a comment



Example HTML document



```
<html>
<head>
<title>Hello</title>
</head>
<body>
<h1>Hello World!!</h1>
<p>this is a simple HTML document</p>
<table width="100%" border="1" cellspacing="1" cellpadding="1">
  <tr>
    <th>Column 1 </th>
    <th>Column 1 </th>
  </tr>
  <tr>
    <td>data 1 </td>
    <td>data 1 </td>
  </tr>
</table>
</body>
</html>
```



Example HTML Document

A screenshot of a Mozilla Firefox browser window. The title bar reads "Hello - Mozilla Firefox". The menu bar includes "File", "Edit", "View", "Go", "Bookmarks", "Tools", and "Help". The address bar shows the URL "http://tundra.lternet.edu/hello.html". The main content area displays the text "Hello World!!" in a large, bold, black serif font. Below this, it says "This is a simple HTML document". At the bottom, there is a table with two columns and two rows. The first row has headers "Column 1" and "Column 2". The second row has data "Data 1" and "Data 2".

Column 1	Column 2
Data 1	Data 2



Web forms



- Forms are used to collect input from the client.
- A form is an area that can contain form elements.
- Form elements are elements that allow the user to enter information (like text fields, textarea fields, drop-down menus, radio buttons, checkboxes, etc.) in a form.
- A form is defined with the `<form>` tag.



Example form



```
<form action="example.php" method="post" name="example" id="example">
  <p>
    <input type="text" name="lastname">
    First Name</p>
  <p>
<input type="text" name="lastname">
  Last Name
</p>
  <p>Favorite Chile:   </p>
  <p>
    <input name="fav_chile" type="radio" value="red" checked>
    Red
    <input name="fav_chile" type="radio" value="green">
    Green</p>
  <p>
    <input type="submit" name="Submit" value="Submit">
    <input type="reset" name="Reset" value="Reset">
  </p>
</form>
```



Example form



Example Form - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

← → ↻ × 🏠 🔍

First Name

Last Name

Favorite Chile:

Red Green



Get vs Post



- With the Get method, the browser appends the data onto the URL
- With the Post method, the data is sent as "standard input." (as part of the header in the request)



Get vs Post



- Get example

```
<form action="example.php" method="POST" name="example"
  id="example"><form action="example.php" method="post" name="example"
  id="example">
```

- Post Example

```
<form action="example.php" method="GET" name="example"
  id="example"><form action="example.php" method="post" name="example"
  id="example">
```



What is XHTML?



- Extensible Hypertext Markup Language is a reformulation of HTML 4.0 in XML 1.0. proposed as a W3C Recommendation.
- XHTML is a stricter remaking of HTML as an application of XML.
- XHTML is the equivalent of HTML 5.0 but is fully XML compliant



What is XHTML?



Valid XHTML

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0  
  Transitional//EN"  
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-  
  transitional.dtd">  
<html xmlns="http://www.w3.org/1999/xhtml">  
<head>  
<meta http-equiv="Content-Type"  
  content="text/html; charset=iso-8859-1" />  
<title>Untitled Document</title>  
</head>  
<body>  
<h1>Hello world </h1>  
<p>This is XHTML<br />  
  cool!!!  
</p>  
</body>  
</html>
```

Not Valid XHTML

```
<html>  
<head>  
<meta http-equiv="Content-Type"  
  content="text/html; charset=iso-8859-1"  
  />  
<title>Untitled Document</title>  
</head>  
<body>  
<h1>Hello world </H1>  
<P>This is XHTML<br>  
  cool!!!  
</p>  
</body>  
</html>
```



Adding style to pages



- Cascading Style Sheets (CSS) is a W3C Recommendation
- Styles define how to display html
- Styles can be attached to or imbedded within HTML documents
- A single HTML document may use one or more stylesheets that are then applied according to specified priorities



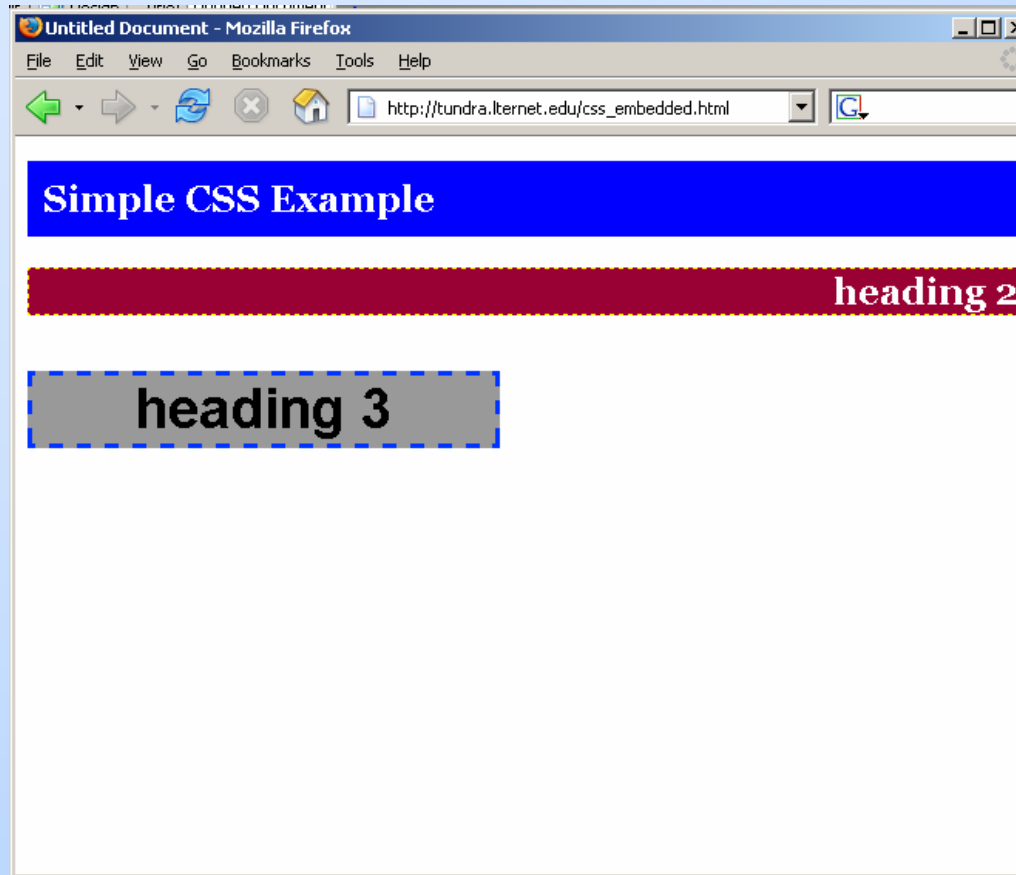
HTML with styles embedded



```
<html>
<head>
<title>Untitled Document</title>
<style type="text/css">
<!--
h1 {font-family: Georgia, "Times New Roman", Times, serif; font-size: 24px;
    color: #FFFFFF;background-color: #0000FF; padding: 10px;}
h2 {font-family: Georgia, "Times New Roman", Times, serif; font-size: 24px;
    color: #FFFFFF; background-color: #990033; text-align: right; border: thin dashed #FFFF00;}
h3 {font-family: Geneva, Arial, Helvetica, sans-serif; font-size: 36px;
    background-color: #999999; text-align: center; width: 300px; border: dashed #0033FF;}
-->
</style>
</head>
<body>
<h1>Simple CSS Example </h1>
<h2>heading 2</h2>
<h3>heading 3</h3>
<p>&nbsp;</p>
<p>&nbsp;</p>
</body>
</html>
```



HTML with styles embedded





CSS Document



```
h1 {
  font-family: Georgia, "Times New Roman", Times, serif;
  font-size: 24px;
  color: #FFFFFF;
  background-color: #0000FF;
  padding: 10px;
}
h2 {
  font-family: Georgia, "Times New Roman", Times, serif;
  font-size: 24px;
  color: #FFFFFF;
  background-color: #990033;
  text-align: right;
  border: thin dashed #FFFF00;
}
h3 {
  font-family: Geneva, Arial, Helvetica, sans-serif;
  font-size: 36px;
  background-color: #999999;
  text-align: center;
  width: 300px;
  border: dashed #0033FF;
}
```



HTML with CSS attached



```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>Untitled Document</title>

<link href="css.css" rel="stylesheet" type="text/css">
</head>

<body>
<h1>Simple CSS Example </h1>
<h2>heading 2</h2>
<h3>heading 3</h3>
<p>&nbsp;</p>
<p>&nbsp;</p>
</body>
</html>
```




HTML with CSS attached





Advantages of style sheets



- Style sheets separate content from presentation
- Greatly decrease the amount work required when changing the look of a website.



Conclusion



- Web pages are served to clients by web servers when a client requests a URL
- Requests are handled using HTTP
- HTML provides structure to web pages through the use of tags.
- CSS provides style to web pages. Style can be attached in separated documents or can be imbedded into an html document



Additional resources



- W3shools
 - <http://www.w3shools.com>
- HTML & XHTML: The Definitive Guide, 5th Edition – O’Reilly
 - <http://www.oreilly.com/catalog/html5/>
- Cascading Style Sheets: The Definitive Guide, 2nd Edition – O’Reilly
 - <http://www.oreilly.com/catalog/css2>



Website design

Information Architecture



What is a website



- A site (location) on the World Wide Web. Each Web site contains a home page, which is the first document users see when they enter the site. The site might also contain additional documents and files. Each site is owned and managed by an individual, company or organization.

– webopedia.com



Web site development essentials



- Web site development is a mix of various disciplines.
- Well designed websites are a combination art, science, and practicality



What is information architecture?



“Information architecture is the science of figuring out what you want your site to do and then constructing a blueprint before you dive in and put the thing together.”

– webmonkey.com



Information architecture overview



- Define the goals for your site
- Define the user experience
- Identify your site content
- Outline your site structure
- Prepare a visual design



IA – Define site goals



- First step define a mission or purpose for the web site
- Define the short and long term goals for your website
- You want everyone to agree on the contents and purpose of the site that you are going to build.
- You want to have some metric for success



IA - User experience



- After figuring out why a site should be built, the second most important thing is determining who the audience is.
- Audience is not defined by technology
- Defining the audience will help to determine how people will use your site



IA – Site content



- We know why you have a site and who it is for, now we need to know what it will contain
- Identify content and functional requirements for your website
 - What things do you need on your website and what do you need them to do?
- Group and label the contents



IA – Site structure



- Structure is the the skeleton for your website.
- Provides a basis for organization and navigation
- Is the foundation for all the things you will build.



IA – Site structure



Develop a site structure listing

Section 1

Section 1.1

Section 1.2

Section 2

Section 2.1

Section 2.2

Section 2.2.1

Section 2.2.2

Section 2.2.3

Section 2.3

Section 2.4

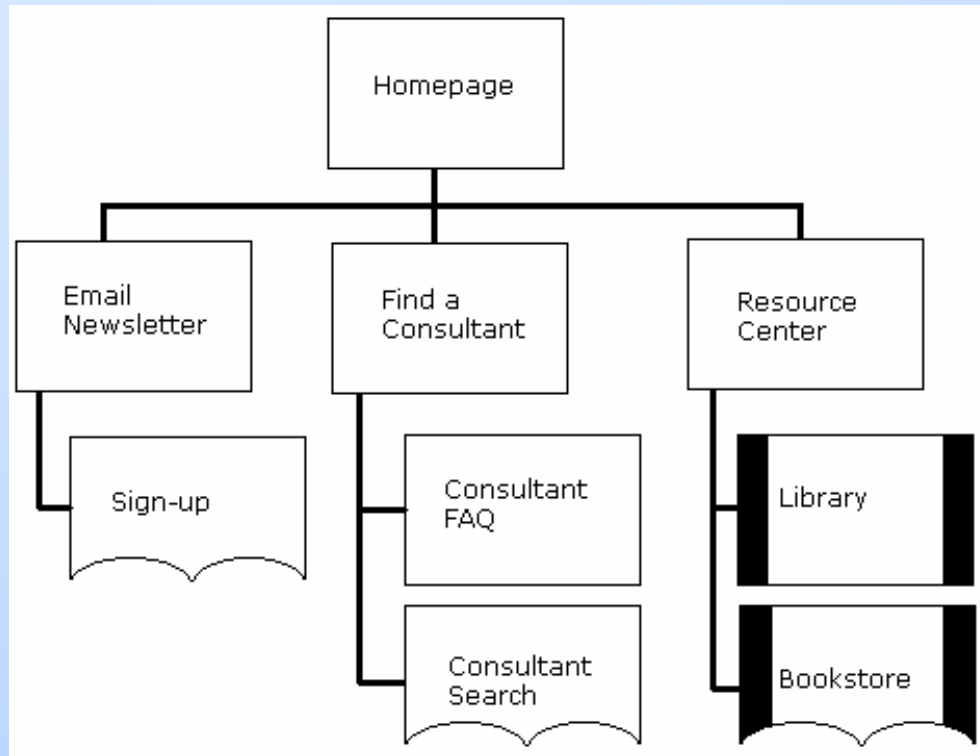
Section 3



IA – Site structure



- Develop Architectural Blueprint





IA – Visual design



- The last thing you need to do.
- A good design enables users to create a mental map of your website
- Serves several purposes
 - Provide a users with a sense of place
 - Provide a consistent look and feel
 - Promotes the level of professionalism



IA tutorial:



http://webmonkey.wired.com/webmonkey/design/site_building/tutorials/tutorial1.html

Information Architecture Tutorial - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://webmonkey.wired.com/webmonkey/design/site

LYCOS New Users: SIGNUP Members: LOGIN monster

Lycos Home Site Map My Lycos Lycos Mail October 21, 2004

webmonkey The Web Developer's Resource

SEARCH: webmonkey the web

home / design / site_building /

POSITIONS AVAILABLE IN HUNDREDS OF CITIES WITH NEW JOBS POSTED EVERY MINUTE.

Select your category and enter your zip code to start your search

Choose Job Category Enter Zip Code LET'S GO

Site Building

Information Architecture Tutorial

Overview
by [John Shiple](#)

John Shiple is the leader of Squishy Designs, an Internet consulting company in Venice, California, specializing in information architecture, collaborative system strategies, and advanced user interfaces for Internet-based content. He also helped found [Bigstep.com](#).

- **Overview**
- **Lesson 1**
Defining your goals
- **Lesson 2**
Audience and



Design considerations



Design considerations



- Templates
- Page Formatting
- Your Home Page
- Navigation
- Style
- Accessibility
- Separation of content from presentation
- Optimization
- Website components



Templates



- A template is simply a web page "shell" that contains your entire page design, logo, images, navigational links and a specific area for your content.
- Create a template that you can use to create subsequent pages of your web site.
 - Different ways to implement templates
 - Programmatically, through the web server, using software such as Macromedia Dreamweaver
- Use of templates allows for consistent look and feel



Example template



Organization of Biological Field Stations

Organizational Activities

- [Join OBFS](#)
- [OBFS News/Jobs](#)
- [Annual Meetings](#)
- [Publications/Reports](#)
- [Bylaws](#)
- [Operations Manual](#)
- [Gallery](#)
- [Newsletters](#)
- [Forums](#)

Directory

- [Stations](#)
- [People](#)

Research

- [Metadata Catalog](#)
- [Methods Bibliography](#)
- [NSF Support](#)

Education

- [Courses](#)
- [FIRST II](#)

{Body}

- Copyright 2003 Organization of Biological Field Stations-

Any opinions, findings, conclusions, or recommendations expressed in the material are those of the author(s).
Please contact stromber@socrates.berkeley.edu with questions, comments, or for technical assistance regarding this web site.



Page formatting



- How do you want to display your page?
 - 1 column, 2 column, 3 column
- Tables to layout your page
 - Most widely used
- Fixed versus flexible
- CSS to layout your page - standards compliant, not supported by all browsers



Your home page



- Your home page is the storefront
- It should specifically let your visitors know exactly what you're offering.
- Create Sections within the page
- Limit home page to essential elements and link to the detailed informational pages
- Less is more



Navigation



- Global and local navigation system
- Keep in mind, your visitors may enter your site from pages other than your Home Page.
- Include good navigational links on every page.
- Make sure navigation is consistent
- Try to keep the number of clicks required to get from your main page to any other page on your site down to three or four.
- Convention is to link your logo (In the upper left corner of the page) to your Home page



Style



- Use caution when selecting your background and text colors.
- Use contrast
- Don't rely on color to relate information
- Use white as a background for large chunks of text



Accessibility



- Section 508
- No worries if good markup
- Provide Alternatives
 - Flash, graphics, multimedia need an alternative
 - `<alt>` tag for images



Section 508



On August 7, 1998, President Clinton signed into law the Rehabilitation Act Amendments of 1998 which covers access to federally funded programs and services. The law strengthens section 508 of the Rehabilitation Act and requires access to electronic and information technology provided by the Federal government. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Federal agencies must ensure that this technology is accessible to employees and members of the public with disabilities to the extent it does not pose an "undue burden." Section 508 speaks to various means for disseminating information, including computers, software, and electronic office equipment. It applies to, but is not solely focused on, Federal pages on the Internet or the World Wide Web. It does not apply to web pages of private industry.

<http://www.access-board.gov/sec508/guide/act.htm>



Separation of content from presentation



- Allow designers to design content managers to manage content
- Cascading Style Sheets (CSS)
- Template Systems
- Content Management System (CMS)



Essential web site components



- Domain Name
 - Create an identity
- Search Feature
 - Find content.
- Timely Content
 - Content is updated regularly.
- Topic Based-Content
 - News, employment, a particular research project
- Professional Logo
 - Guiding principles



Essential web site components



- Policies
 - Data use/access, Disclaimers, Copyrights
- About Page
 - Digital brochure
- Feedback
 - Contact information, Technical support



Additional web site components



- Calendar
- Directory
- Forums
- Data Catalog
- Site map
- Personnel directory
- Blogs
- Login areas



Search engine preparation



- Selecting the most relevant keywords for each page
- Placing the META keyword and description tags within the head section of each page
- Using your primary keywords as your page title
- Placing keywords within your image ALT tags
- Placing your primary keywords within heading tags
- Using your primary keywords as image names
- Using your primary keywords as page names for hyperlinks
- Using keywords within your body text



Web page optimization



- Image optimization
 - Crop to the smallest area possible that still conveys your visual message
 - Choose and apply the image size (in pixels) that you will need for your final Web page
 - Reduce the resolution of the image to no more than 72 ppi (pixels per inch)
 - Reduce the number of colors to the minimum necessary for the particular image
 - GIF or PNG format for graphics JPG for photos.
 - Include width and height in IMG tag
 - ``



Web page optimization



- Limit the number of multimedia applications
 - Javascript, java applets, flash, shockwave
- Use consistent images and style sheets
- Use consistent navigation (text readers)



Web development tools



- Dreamweaver
 - <http://www.adobe.com/products/dreamweaver/>
 - A popular WYSIWYG (What you see is what you get) HTML editor. Great for beginners and advanced users alike.
- Coffee Cup
 - <http://www.coffeecup.com/html-editor/>
 - A popular HTML editor that's great for beginners as well as advanced users. Includes a built in browser that will enable you to instantly preview your HTML as you go.



Web development tools



- Hot Dog Professional
 - <http://sausage.com/products.html>
 - Three HTML editors, including HotDog Junior for children, PageWiz for the novice user and Professional for advanced and budding webmasters



Additional resources



- Information Architecture for the World Wide Web, 2nd Edition – O’Reilly
 - <http://www.oreilly.com/catalog/infotecture2>
- Web Design in a Nutshell, 2nd Edition
 - <http://www.oreilly.com/catalog/wdnut2>
- Web Monkey
 - <http://www.webmonkey.com>
 - http://webmonkey.wired.com/webmonkey/design/site_building/
 - http://webmonkey.wired.com/webmonkey/design/site_building/tutorials/tutorial1.html



Web technologies



Web technologies



- Basic Requirements
 - Web server, server side technology, database server
- Programming Languages
 - CGI, Embedded Languages
- Architectures
 - LAMP
- Third Party Solutions
 - Stand alone applications, Portals, Content Management Systems



Basic requirements for dynamic web sites



- Web server
 - A computer that delivers (serves up) Web pages.
 - Any computer can be turned into a Web server by installing server software and connecting the machine to the Internet.
 - Can use your own web server or a web server Provided by an Internet Service Provider



Web Servers



web server	Version	Operating System	Price(Approx.)/Remarks
ACME thttpd		FreeBSD, SunOS 4, Solaris 2, BSD/OS, Linux, OSF	Free
Amiga Web Server		Amiga	Free
Apache	1.3.17	NetBSD, Digital UNIX, AIX, OS/2, Windows 3.x, SCO, HPUX, Novell NetWare, Macintosh, Be OS, Windows NT, Linux, VMS, AS/400, Windows 95, FreeBSD, IRIX, Solaris	Free
CERNHttpd			
Commerce Server/400	1.0D	AS/400	\$4995 (suggested retail)
EMWAC HTTP Server	0.991	Windows NT	Free
GoAhead WebServer	2.1	HPUX, Embedded, Windows NT, Linux, Windows CE, QNX, Windows 95, Windows 98, IRIX	Free, embedded web server
Hawkeye	1.3.5	Linux	Private/educational use - free
Internet Information Server	5.0	Windows 2000	Free with Win2000 server
Jigsaw	2.1.2	Win95, WinNT and Solaris 2.x, OS/2, MacOS, BeOS, Linux, AS-400 and AIX with JDK1.2 and above	Free, W3 license
Lotus Domino Go Webserver	4.6.1	Digital UNIX, AIX, OS/2, HPUX, Windows NT, Windows 95, IRIX, Solaris	\$495; free demo
Netscape Enterprise (AOL) Webserver 6.0		Solaris 2.6, 7, 8 & Windows NT 4 SP6a, 2000 Server SP1 or later	N/A
RapidControl for Web(tm)	3.01	NetBSD, Digital UNIX, BSDI, Windows 3.x, SCO, HPUX, Windows NT, Linux, MS-DOS, Windows 95, FreeBSD, IRIX, Solaris	Write to sales@rapidlogic.com
Savant	2.1	Windows NT, Windows 95, Windows 98	Free
Spinnaker	3.0	Windows NT, Windows 95	\$249
Spyglass MicroServer	2.0	Embedded, Windows NT, Linux, Solaris	contact Spyglass
Stronghold Secure Web Server	3.0	NetBSD, Digital UNIX, BSDI, AIX, SCO, HPUX, Linux, FreeBSD, IRIX, Solaris	Contact c2.net
Sun ONE web Server		Sun Solaris[tm] 8, 7, and 2.6, Microsoft Windows NT 4.0 SP6a, Microsoft Windows 2000 SP1 or later, Red Hat Linux, Hewlett-Packard HP-UX, Compaq Tru64 UNIX 5.0a	\$1495
Sun Chili!Soft ASP Server		Sun Solaris[tm] 8, 7, and 2.6 (SPARC@ platform), Microsoft Windows NT and 2000, AIX 4.3.3, HP-UX 11.0	Plug-In/ \$495
Viking	1.06	Windows NT, Windows 95, Windows 98	\$100 for 90-day trial
WebBase	4.5	NT 4, 95, 98, 2000	\$995-\$1795
WebSTAR 5.0	5.0	MacOS X	\$399
WebSite Pro3.1.13.0	2.5.8	Windows NT, Windows 95, Windows 98	\$299 - \$1999
WebTen	2.1	Macintosh	\$495
Xitami 2.4d9		NetBSD, Digital UNIX, BSDI, AIX, OS/2, Windows 3.x, SCO, HPUX, Windows NT, Linux, VMS, QNX, Windows 95, FreeBSD, IRIX, Solaris	free/ \$250
Zeus Web Server	4.0	NetBSD, Digital UNIX, BSDI, AIX, SCO, HPUX, Linux, FreeBSD, IRIX, Solaris	\$1700

Note: The above table is prepared with the prices, specified in the corresponding websites on December 2002.

Source: http://www.macronimous.com/resources/web_servers_demystified.asp



Web servers



October Results			
Server	No. of Sites	Market Share	No. of Sites With .com domains
Apache	60,166,642	61.44%	31,555,632
Microsoft-IIS	30,701,294	31.35%	19,116,192
Unknown	2,444,413	2.50%	1,819,993
Zeus	522,311	0.53%	167,252
Netscape-Enterprise	292,543	0.30%	134,883
tigershark	224,163	0.23%	169,569
Rapidsite	192,644	0.20%	104,380
thttpd	171,541	0.18%	6,869
Lotus Domino	92,706	0.09%	30,231
Zope	46,276	0.05%	11,127
AOLServer	43,655	0.04%	3,248
Sun-ONE-Web-Server	36,824	0.04%	17,098
WebSTAR	32,729	0.03%	19,611
Stronghold	23,966	0.02%	14,427
WebLogic	23,803	0.02%	13,521
4D_WebSTAR_S	13,461	0.01%	6,307
Oracle-Application-Server-10g	13,401	0.01%	5,800
Squid	13,360	0.00%	3,503
WebSitePro	12,064	0.01%	6,030
WebSite	9,807	0.01%	4,267
Orion	5,971	0.01%	3,760
WebSphere	5,253	0.01%	1,433
Roxen WebServer	4,947	0.01%	1,633
Xitami	4,654	0.00%	3,217
Sambar	4,553	0.00%	1,828
Enterprise for NetWare	2,341	0.00%	652
Abyss	2,163	0.00%	1,076
Netscape FastTrack Server	1,894	0.00%	738
WN	1,411	0.00%	100
JRun	1,261	0.00%	822
NCSA HTTPd	1,008	0.00%	240

<http://www.serverwatch.com/stats/netcraft/article.php/3377261>



Web servers



- Apache web server - The Apache Project is a collaborative software development effort aimed at creating a robust, commercial-grade, featureful, and freely-available source code implementation of an HTTP (Web) server. (Open Source)
- Currently Dominates the web server market
- More Info <http://httpd.apache.org/>
- Very Secure
- Works on multiple platforms (Windows, Unix)



Server side technologies



- Software that connects two otherwise separate applications.
- There are a number of technologies that link a database system to a Web server to allow users to request data from the database using forms displayed on a Web browser,
- Technologies enable the Web server to return dynamic Web pages based on the user's requests
- In this example we mean programming languages



Stand alone languages



- Pattern Extraction and Regular expression Language – PERL
 - Especially designed for processing text
 - One of the most popular languages for writing CGI scripts
 - Common Gateway Interface CGI, a specification for transferring information between a World Wide Web server and a CGI program
- JAVA, – object oriented
 - a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web
- Python - object oriented
 - OpenSource
- All Require Large amounts of programming to output HTML



Embedded languages



- Embedded languages embed code directly with in HTML
- Active Server Pages – ASP
 - Works primarily with Microsoft products
 - Insert Microsoft Visual Basic into web pages
- Java Server pages - JSP
 - An extension to the Java servlet technology
 - Preated as an alternative to Microsoft's ASPs
- Coldfusion
 - Web pages include tags written in Cold Fusion Markup Language (CFML) that simplify integration with databases



Embedded languages



- PHP: Hypertext Preprocessor - PHP
 - Open source
 - Similar syntax to that of Perl or C
 - In an HTML document, PHP script is enclosed within special PHP tags author can jump between HTML and PHP (similar to ASP and Cold Fusion)
 - Works on a wide number of platforms
 - Work natively with the MySQL DB
 - PHP was created in 1994 by Rasmus Lerdorf
 - More info: <http://www.php.net/>



Database servers



- Microsoft SQL Server, Oracle
 - Are powerful full feature RDMSs
 - Provide lots of tools for managing databases
 - Have the ability to communicate with most all programming languages
 - MSSQL only runs on windows
 - Oracle runs on Windows and Unix
 - Both Are proprietary and require purchasing software licenses (\$\$\$\$)



Database servers



- MySQL
 - Open source RDBMS that relies on SQL for processing the data in the database.
 - MySQL is most commonly used for Web applications and embedded applications
 - Become a popular alternative to proprietary database systems because of its speed and reliability.
 - Can run on UNIX, Windows and Mac OS.
 - More info <http://www.mysql.com/>



MySQL tools



- Command Line
- From MySQL
 - MySQL Administrator
 - Administration console that allow you to administer your MySQL servers
 - MySQL Control Center
 - GUI client that works alongside the MySQL database server
 - <http://www.mysql.com/products/>



MySQL tools



- Other Products
 - PHP My admin –
 - Web based MySQL database administration tool (Free)
 - <http://www.phpmyadmin.net/>
 - MS Access
 - MS Access can be used as a front end for MySQL
 - This is done by creating an ODBC Connection to the MySQL database and then linking the tables within access



MySQL tools



- Other Products
 - Navicat - PremiumSoft
 - Has a nice set of features for administering you databases
 - Can connect to remote databases
 - Proprietary educational version costs \$85
 - More info <http://www.navicat.com/>



LAMP – Putting it together



- Linux, Apache, MySQL and PHP – LAMP
 - Can substitute the PERL or Python for PHP
- LAMP has become a de facto development standard.
- “LAMP is the platform of choice for the development and deployment of high performance web applications”
 - Onlamp at O’Reilly



LAMP



- LAMP is Open Source – Free
- There's an extensive support network for all LAMP components.
 - <http://www.onlamp.com>
- LAMP works well and is secure
 - Its component technologies offer tremendous flexibility, rapid development, high performance, and fewer security and stability problems than many far-costlier proprietary solutions.

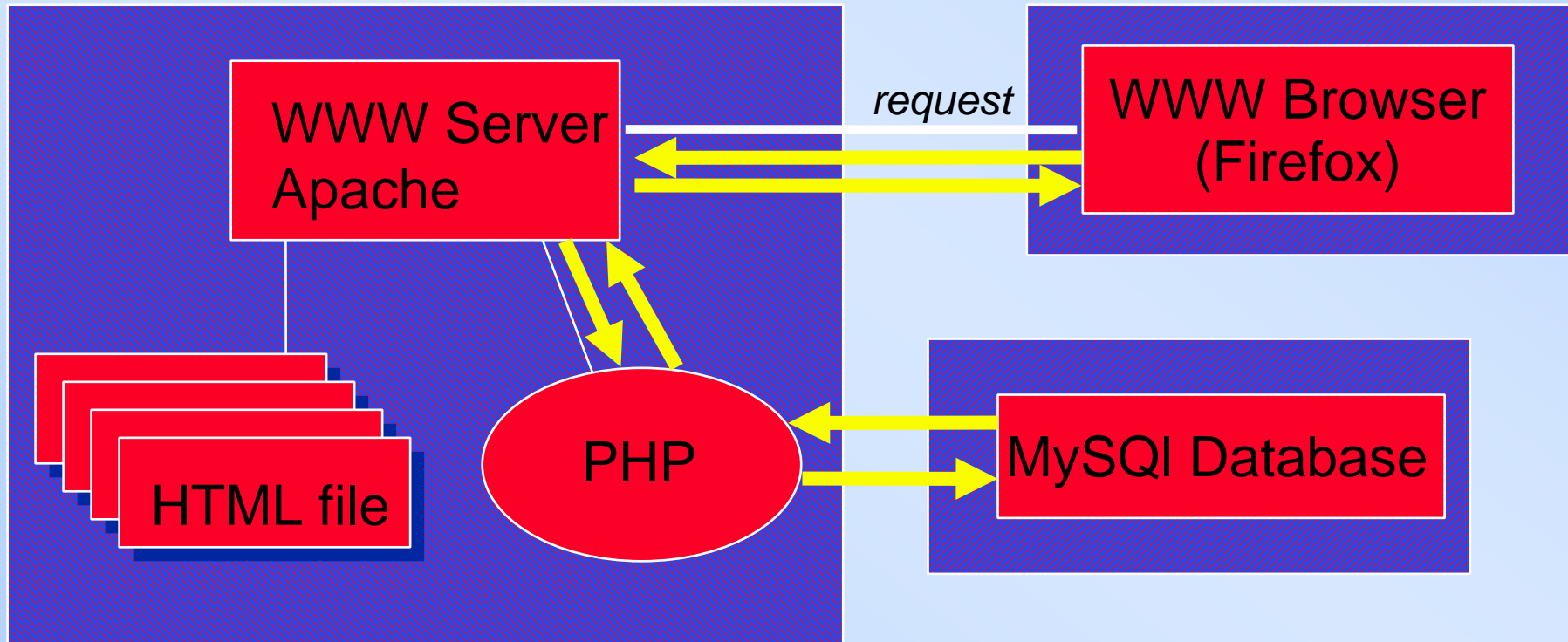


How it works



Linux Server

WWW Client





Third party solutions



- Stand alone applications
 - Calendars
 - Forums
 - Wikis
 - Blogs
 - Photo Gallery – PHP Gallery
- Where can I get these
 - On the web <http://www.hotscripts.com/>



Portals/CMS's



- Portals/Content Management Systems (CMS)
 - Store ALL the web content in a database (not just data and metadata)
 - Provide pre-written “modules” containing
 - Web form-based interfaces
 - Associated database programs
 - These modules are designed to be easy to use by even novice webmasters to provide specific functions on a web page
- PHP Examples are PostNuke, Komplete Lite, phpSlash, XOOPS



Some examples



- <http://www.obfs.org>

- <http://sev.lternet.edu>



Portals/CMSs



- Advantages
 - Easy to configure and use
 - Allow input from users (subject to login)
 - Many pre-existing modules
- Disadvantages
 - Existing modules may not meet your needs
 - May be difficult to extract content or transition to other systems



Other resources



- Learning php 5 – O’Reilly
 - <http://www.oreilly.com/catalog/learnphp5>
- Programming PHP – O’Reilly
 - <http://www.oreilly.com/catalog/progphp/>
- PHP Builder.com
 - <http://www.phpbuilder.com/>
- W3Schools
 - <http://www.w3schools.com/php/>
- OSCOM - Open Source Content management
 - <http://www.oscom.org/>