

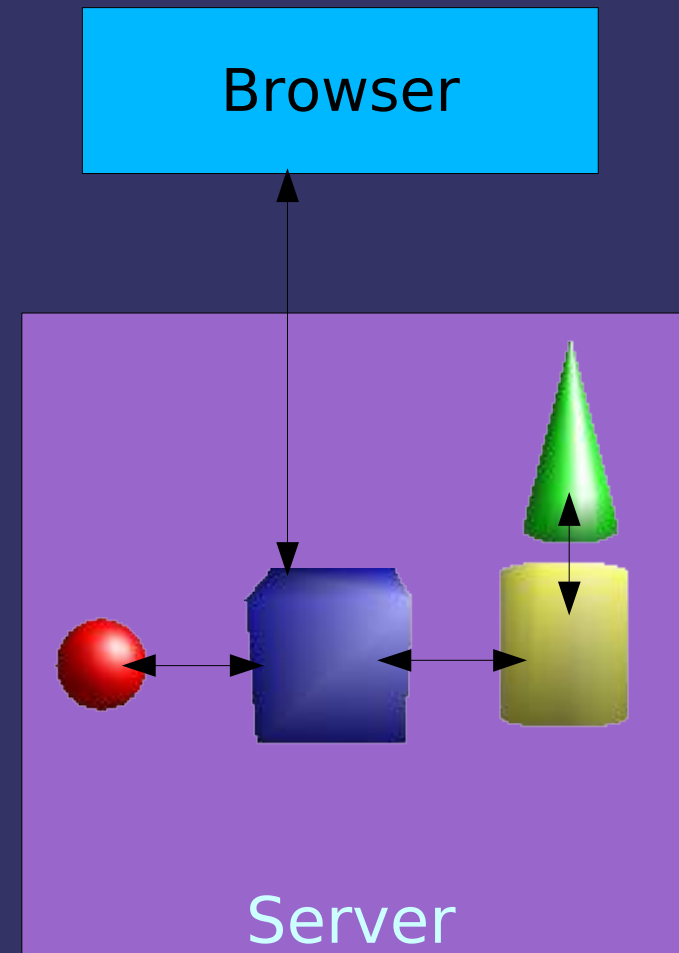
# DIY Web Development

An introduction to building and  
maintaining your own web site.

[www.iredale.net](http://www.iredale.net)

# Technology Stack

- Web Browser
  - DOM/CSS/ECMAScript-262
- *Transfer via HTTP/HTTPS*
- Web Server
  - CGI or plug-ins
- Support Services
  - SSH, Database, Backup
- Operating System
- Hardware



# Hardware & Operating System

- Basic web server just need a balanced hardware platform:
  - 1 GHz CPU
  - 1 GiB RAM
  - Fast disks
  - Good network
- Any OS will do:
  - \*nix e.g. Linux, BSD, Solaris
  - other e.g. VAX, zOS, Windows

# Hosting...

- Self Host
  - e.g. domestic ADSL Internet connection (£0)
- Virtual Hosting
  - e.g. an Apache virtual host (£0-£10 pm)
- Virtual Server
  - e.g. Xen, UML, Vmware (£10-£100 pm)
- Co-Location & Dedicated Hosting
  - e.g. commercial hosting company (£100- pm)

# Self Hosting

- Advantages:
  - Free
  - Easy
  - Secure
- Disadvantages:
  - Usually limited up-stream bandwidth
  - Hard
  - Insecure

# Virtual Hosting

- Advantages:
  - Free or very cheap
  - Easy & simple
  - Secure
- Disadvantages:
  - You don't have full control
  - Insecure

# Virtual Server

- Advantages:
  - Fairly Cheap
  - Nearly full control
  - Secure
- Disadvantages:
  - Need to manage more than just the server
  - Insecure

# Hosted Server

- Advantages:
  - Full control
  - Scalability
  - Performance
  - Security
- Disadvantages:
  - Expensive



# Suggestions

- Self Hosted server on home network only
  - Not exposed – don't connect to Internet
  - Free
  - Learning space
- Virtual Server (e.g. ISP)
  - Someone else looks after box & software
  - Free/nearly-free
  - Low Risk

# Web Server

- You have several to choose from
- Most servers offer similar features
- Most Linux distros allow you to install and configure automatically
- Apache:
  - Is not the best
  - It is very well known
  - A good overall compromise

# First Steps

- Web server maps a real directory on your system to a web address:
  - `/var/wwwroot/htdocs/`
    - becomes
    - `http://xxxxxxx/`
- Files to deal with:
  - web pages, style sheets, scripts
    - plain text files!
  - graphics, Java, animations, movies
    - binaries

# Tools

- WYSIWYG Tools:
  - Nvu, *Dreamweaver*, *FrontPage*
- Dedicated non-WYSIWYG Tools or IDE:
  - Bluefish, Quanta+, *HomeSite*, HTML-Kit
  - Kate, Emacs, GVim, Eclipse
- Text Editor:
  - Vi\*, Emacs, nano, Joe
- Graphics:
  - GIMP, Inkscape, *PhotoShop*

# Hello World (1)

- Install Apache on your PC (2 pre-fork)
- Pick/install a text editor/non-WYSIWYG editor
- Create file in the correct place, e.g.  
`hello.html`
- Edit the page
- View with web browser

# hello.html

```
<html>
  <head>
    <title>Hello World!</title>
  </head>
  <body>
    <h1>Hello World</h1>
    <p>This is my first page!</p>
  </body>
</html>
```

# Browse To <http://127.0.0.1/>

## Index of /

	<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
<-	<a href="#">Parent Directory</a>		-	
[]	<a href="#">hello.html</a>	11-Sep-2006 10:16	3.2K	

Apache/2.0.54 (Debian GNU/Linux) Server at 127.0.0.1 Port 80

# Click on `hello.html`

## Hello World

This is my first Page!



# Where Next?

- Web pages are made from **XHTML**
- Make them pretty using **CSS**
- Make them interactive with ECMA Script-262 (**JavaScript**)
- Add pictures, **JPEG**, **PNG** or **GIF**
- World Wide Web Consortium (W3C)
  - <http://www.w3c.org/>
- Books
- Web Sites

# W3C Standards

- **XHTML** (mark-up)
  - 1.1 (May 2001)
- **CSS** (style)
  - 2.0 (May 1998)
- **WCAG** (accessibility)
  - 1.0 (May 1999)
- **ECMAScript-262** (JavaScript)
  - 3<sup>rd</sup> Edition (December 1999)

# Why Use Standards?

- Pages more predictable across browsers and versions
- Pages usually more compact, therefore faster to download and render
- Pages easier to create (honestly) and much easier to edit later
- Accessibility is good – it's the law, and anyway Google will find your page

# Browser & Developer

- Your web browser has many built-in/add-in tools to help you learn:
  - Web Developer
  - FireBug
  - **View Source**
- Validators:
  - On-line via browser
  - In-line within Editor

# XML Basics

- Tags are created from `< a word >`, e.g.
  - `<body>`
- All tags are closed, e.g.
  - `<h1>Heading</h1>`
  - `<br />`
- Tags are logically nested:
  - `<strong><span>Correct</span></strong>`
  - `<strong><span>WRONG!</strong></span>`

# XML Basics 'cont

- Tags are case sensitive
  - `<h1>Good Heading</h1>`
  - `<h2>Bad Heading</H2>`
- Attributes must be quoted
  - `<span class="good">Foo</span>`
  - `<span class='okay'>Bar</span>`
  - `<span class=bad>Baz</span>`
  - `<span class="not good">Womble</span>`

# xhtml Basics

- xhtml is XML
- There is a list of permitted tags
- There is a list of permitted nesting
- Documents **MUST** validate

# Minimal XHTML Document

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN"
  "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en">
<head>
  <meta http-equiv="content-type" content="text/html; charset=iso-8859-1" />
  <meta name="description" content="iredale consulting, Home of XML, Perl and more!" />
  <meta name="keywords" content="XML, Perl, mod_perl, CGI, Apache, Linux, XHTML, CSS, W3C" />
  <meta name="robots" content="INDEX, FOLLOW" />
  <link rel="StyleSheet" href="/s/s-0.css" type="text/css" media="screen" />
  <link rel="shortcut icon" href="/i/favicon.ico" type="image/x-icon" />
<title>iredale consulting @ home :: Web :: Useful Links</title></head>
<body>
  <!-- Navigation zone, upper right -->
  <div id="top-nav" class="navigation">
    <ul>
      <li class="home"><a href="/" title="Site HOME">Home</a></li>
      <li class="break"><span class="break">::</span></li>
      <li class="nohit"><strong><a href="/stats/" title="Access Stats">Stats</a></strong></li>
    </ul>
  </div>
  <div id="content">
    <h1>Web</h1>
    <h2>Useful Links</h2>
    <h3>Web Specifications</h3>
    <p><a href="http://www.w3.org/Markup/">xhtml</a> - the eXtensible HyperText Markup
Language specification at the <abbr title="World Wide Web Consortium">W3C</abbr>.
<a href="http://www.w3.org/WAI/">WAI</a> - the Web Accessibility Initiative at the W3C.</p>
  </div>
  <p><small>&copy; 2003-2006</small></p>
</body>
</html>

```



# Simple Style Sheet

```
body {
  background-color: #b6c7ea; color: #000;
  font-family: "DejaVu Sans", verdana, Arial, Helvetica, Sans-Serif;
  font-size: 13px; padding: 0; margin: 0;
}

a img {
  border: 0;
}

h1, h2, h3, h4, h5, h6 {
  font-family: "DejaVu Serif", "Times New Roman", Times, Serif;
  text-align: left; padding: 5px 10px; margin: 5px 10px; color: #003;
}

h1 {
  padding: 10px; margin: 10px; border-bottom: 3px solid #039;
}

.footer {
  text-align: right; margin-right: 40px;
}

a:link {
  color: #00f;
}

#top-nav {
  border-bottom: 2px solid #039; height: 50px; padding: 5px 10px; margin: 0;
}
```

# Books

- **Web Design in a Nutshell**, 3<sup>rd</sup> Edition, O'Reilly, 0-596-00987-9
- **HTML & XHTML: The Definitive Guide**, 6<sup>th</sup> Edition, O'Reilly, 0-596-52732-2
- **CSS: The Definitive Guide**, 3<sup>rd</sup> Edition, O'Reilly, 0-596-52733-0
- and many many more...

# Web Pages

- View the source of pages
- Learning XHTML/CSS Sites:
  - <http://www.useit.com/>
  - <http://www.w3schools.com/>
  - <http://alistapart.com/>
  - <http://www.csszengarden.com/>
  - <http://www.positioniseverything.net/>
  - <http://www.quirksmode.org/>

# Some of My Work

- <http://www.overton-biodiversity.org/>
- <http://www.eastcourtschool.co.uk/>
- <http://www.iredale.net/>
- <http://iredale.dyndns.org/>

