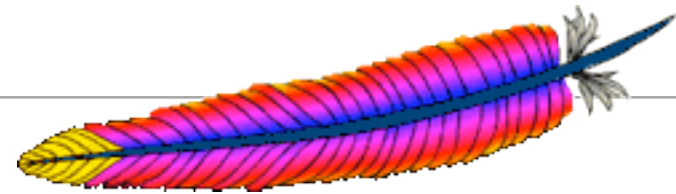


# How Servers Work

---

AMP — Apache, MySQL and PHP



# Internet Servers Work Like Pizza Delivery

---

- You call up and ask for a specific item (by opening a web page, or clicking on a link)
- The server “cooks up” what you ordered
- It’s then delivered back to you and the transaction is complete



## It's really that simple

---

- Servers are not smart. They just give you what you ask for.
- If a file is requested that it doesn't have, then you get an error page instead.
- Servers keep track of requests by IP address. (to keep everyone separate)
- Once your request has been delivered, the transaction is over.

# What Do Servers Do?

---

Answer requests from clients

Retrieve documents or execute scripts on the server

Return the document or script results to the client

## Two basic kinds of web sites

---

**Static** — You put the files on a server and they are “served” as people request them.

**Dynamic** — Components of the server interact to provide custom content based on factors such as location, time, and many others.

# How Does A Server Handle A Static Site?

---

You request a file by clicking on a link. This request includes a path to the file that is relative to its root directory.

The server checks to see if the file exists.

If it exists, the file is sent back to you; if not, an error page is returned to your browser saying the file could not be found.

# Determining How A Request Should Be Handled

---

Servers are configured so that the kind of file requested — e.g. html or php or mp3 — determines what part of the server will handle the request. This is called the MIME type, which stands for Multipurpose Internet Mail Extension. Here are some examples:

text/html | .html | An html file

image/jpeg | .jpg | a jpeg image

audio/x-mpeg | .mp3 | an mp3 file

# Determining How A Request Should Be Handled

---

In the configuration files, the server is also told where its root (the top most part of the files it can serve) is. Also other files it can server are in relationship to this point in the file system.

Without knowing its root, the server would be able to serve anything on the computer, including files that might contain sensitive information you wouldn't want on the internet.

# Dynamic Web Sites

---

Every time someone visits a page on your Wordpress site, three important pieces of software answer the request:

**Apache** — HTTP or web server

**PHP** — Middleware or Module

**MySQL** — Database Server

Often referred using the acronym **LAMP** — Linux, Apache, MySQL and PHP

# Most Popular Web Server Software

---

**Apache** — Free, open source, runs on most computer platforms, including Windows, Linux and Mac OS X. Runs about half of all sites...

**Internet Information Server (IIS)** — runs on Windows, powers about 25 percent of all sites.

# Popular Server-side Scripting Languages

---

Web servers support modules for handling special tasks, such as talking to a database or performing administrative tasks.

**Perl** — The first popular language for web scripts.

**PHP** — Introduced in 1995, was originally based on Perl. It has evolved into a full programming language with support for hundreds of external libraries.

**Java** — Spawned Java Server Pages and related technologies for using it as middleware.

# MySQL

---

**MySQL** is a database *server*, which can host many databases.

A *database* is a collection of tables.

Think of a *table* as an **Excel** spreadsheet consisting of rows and columns of data.

A column is also known as a *field*. A row is also known as a *record*.

A table can have many records, each containing many fields. Each record must have one field with a unique value.

# How Does A Server Handle A Dynamic Site?

---

Apache receives a request for index.php and determines that PHP should handle the processing of the script requested in the URL...

PHP interprets the script and connects to the database server as needed to retrieve data such as a page, comments or options.

# How Does A Server Handle A Dynamic Site?

---

MySQL performs queries on the database as requested by php using a language called **SQL** or **Structured Query Language**: `select * from table where something is some value`

The interaction between PHP and MySQL continues until the end of the PHP script is reached. Then the data is passed back to Apache and sent to your browser.

# What is Wordpress?

---

Wordpress is a collection of scripts built on PHP which stores some of its information in the MySQL database.

It includes a core set of functions for setting up a web site and managing it using only a web browser.

It is one of thousands of open source projects.

# Extending Wordpress

---

A Wordpress **theme**, of which there are thousands that are freely available, provides the look and feel of a Wordpress site and can include special PHP scripts for customizing the information included on a site.

A Wordpress **plug-in**, of which there are hundreds, extends Wordpress beyond what a theme is capable of. It can support things like custom searches, podcasts, link sharing, statistics, administration, etc.

In this class, we'll customize a theme that will be the foundation of your web design.

# Wordpress and MySQL

---

The basic Wordpress installation includes 10 database tables.

**wp\_options** — site-wide options, such as what theme is being used, what widgets are being used, your name, e-mail address, etc.

**wp\_comments** — Comments on your posts, such as the author's unique ID, e-mail address, the date of the comment and whether it's been approved.

**wp\_links** — The links included in the blogroll, including the name, url, and description.

# Wordpress and MySQL

---

**wp\_posts** — The data for posts and pages, including the title, the content, the slug, the date of the post, the author, etc.

**wp\_postmeta** — Special post data which can be customized by the author. At the O'Colly, we include the reporter's name, photo information, etc.

**wp\_users** — Basic user information, including name, login name, encrypted password, date registered, etc.

**wp\_usermeta** — Specific information such as the level of user (admin, author, editor, etc.) full name, AIM address.

# Wordpress and MySQL

---

**wp\_terms** — Terms for classifying your content.

**wp\_term\_taxonomy** — Taxonomy is the practice and science of classification. The taxonomy table contains all the categories and tags for classifying your posts and pages.

**wp\_term\_relationships** — A table which joins your content with the terms and the classifications used to organize it.

## Quick Facts

---

The previous version of Wordpress was downloaded 1.4 million times. I only downloaded it once, but installed it on more than 30 sites.

PHP is in use on more than 21 million domains and more than 2 million IP addresses.

Apache runs about half of all web sites.

MySQL is installed on more than 10 million servers worldwide.