LAMP Stacks

What is a LAMP stack?

A LAMP stack is used to create websites and web applications.

LAMP stands for:

- **L**inux: the operating system the server is hosted on
- **A**pache: the front-end for the server which processes requests
- **M**ySQL: stands for Structured Query Language, used for the database
- **P**HP: stands for PHP Hypertext Processor, acts as a server-side scripting language to run various tasks

Be aware of variants!

LAMP is **not limited** to being configured by the apps you saw

Apache can be subbed by Ngingx (LEMP)

MySQL can be subbed by multiple other database apps (ie PostgreSQL, MongoDB, MariaDB)

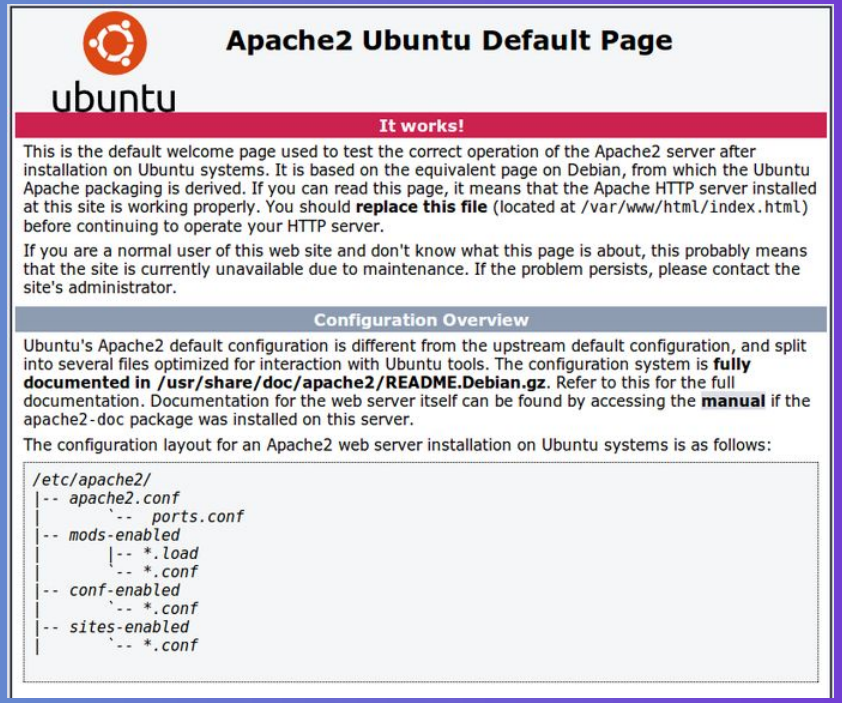
Linux and PHP still stay the same tho :)

Configs should be similar nonetheless my dear children (similar options, maybe implemented differently)

Apache

Apache manages user connections to a web server.

- Represented by the **apache2** package
- Used in conjunction with the other parts of the LAMP stack to make a fully functioning web application



/var/www/html

This folder contains all the files that will be displayed on the web server. It is commonly referred to as the *root directory* for the web server (aka webroot).

- Check this folder for any unnecessary files

/etc/apache2/apache2.conf

- ServerSignature Off
  - Prevents users from seeing the server signature which may contain sensitive information
- ServerTokens Prod
  - Prevents users from getting information from server response headers

/etc/apache2/apache2.conf

```
<Directory />
        AllowOverride None
        Order deny,allow
        LimitRequestBody 102400
        Options -Indexes -Includes -FollowSymLinks  -ExecCGI
</Directory>
```

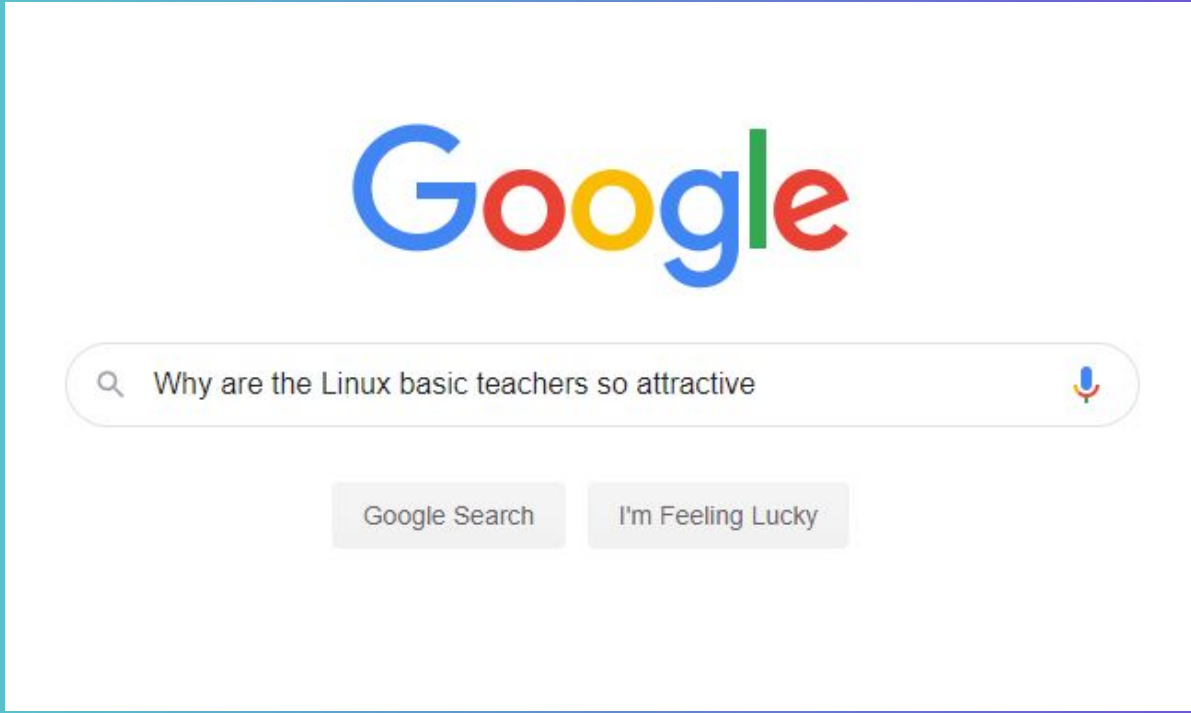
- Disables directory listing, symlinks, and server-side includes, and CGI script execution
- Limits the request size
- Sets deny as priority for connections

MySQL

Serves as the database for storing information on the web server. A SQL (Structured Query Language) does what the name says. It allows for users to make structured requests to the database.

- e.g. a very simple request could be “SELECT student FROM class”
- Represented by the **mysql-server** package, but alternatives include postgresql, mariadb, and mongodb
- You will rarely encounter a case where you have to check the databases for sensitive information, but if you do, you should be able to search up how to use basic database checking commands in MySQL

Unstructured Query



Structured Query

```
mysql> SELECT name FROM teachers WHERE attractive=TRUE AND os='linuxbasic';
+------------+
| name       |
+------------+
| BenTu      |
| Patrick    |
| NOTGabe    |
| Brendon    |
| Nathaniel  |
| BenLiu     |
+------------+
6 rows in set (0.00 sec)
```

/etc/mysql/my.cnf

```
[mysqld]
    bind-address=127.0.0.1
    skip-show-database
[mysql]
    local-infile=0
```

- bind-address restricts connections from remote hosts
- skip-show-database prevents the listing of all databases unless one has proper permissions
- local-infile prevents users from accessing the underlying filesystem

PHP

Scripting language used to run various tasks on a web server. Used mainly to create interactive/dynamic web pages.

- Represented by the **php7.0** package
- Is notoriously hard and annoying to use

/etc/php/7.0/apache2/php.ini

- expose_php = Off
  - Prevents server from returning headers
- register_globals = Off
  - Prevents PHP from creating variables automatically from HTML form parameters/cookie data
- file_uploads = Off
  - Prevents file uploads to server

Wordpress

Wordpress is a CMS (Content Management System) that allows users to create content without editing any HTML/CSS

- This is just an extension of a LAMP stack as it has extra functionality via a web interface
- Config file is at /var/www/html/wp-config.php
- If you connect to “localhost” or “127.0.0.1” in your web browser, you should be able to access the Wordpress site if it is configured
    - Adding “/wp-admin“ to the end allows you to access the admin panel to manage the website