

Web server

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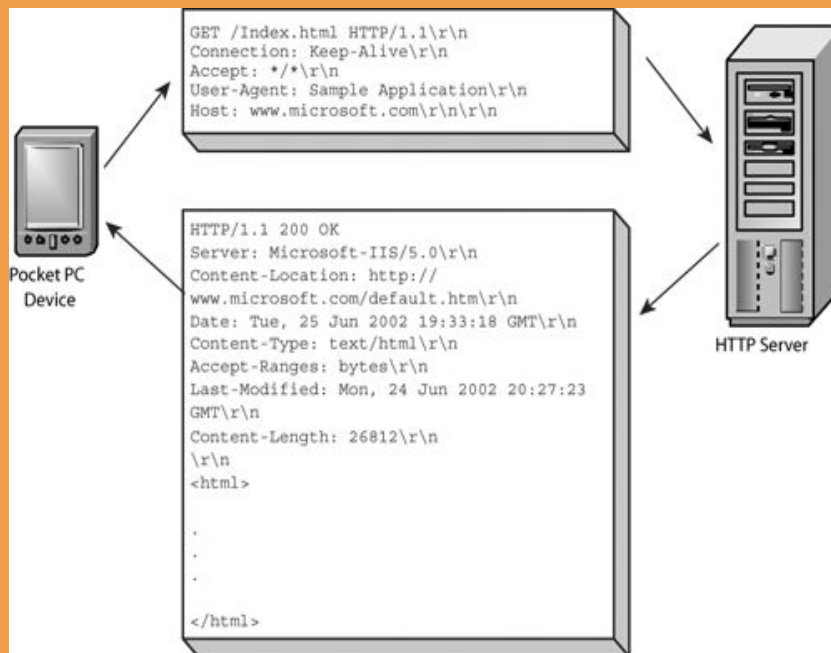
■ Outline

- **Introduction (concept)**
 - **HTTP**
 - **Web server**
- **LAB**
 - **LAMP and Wordpress**
 - **Firewall**
 - **SSL and HTTPS**

You must have heard something like
Error: 404 not found

HTTP

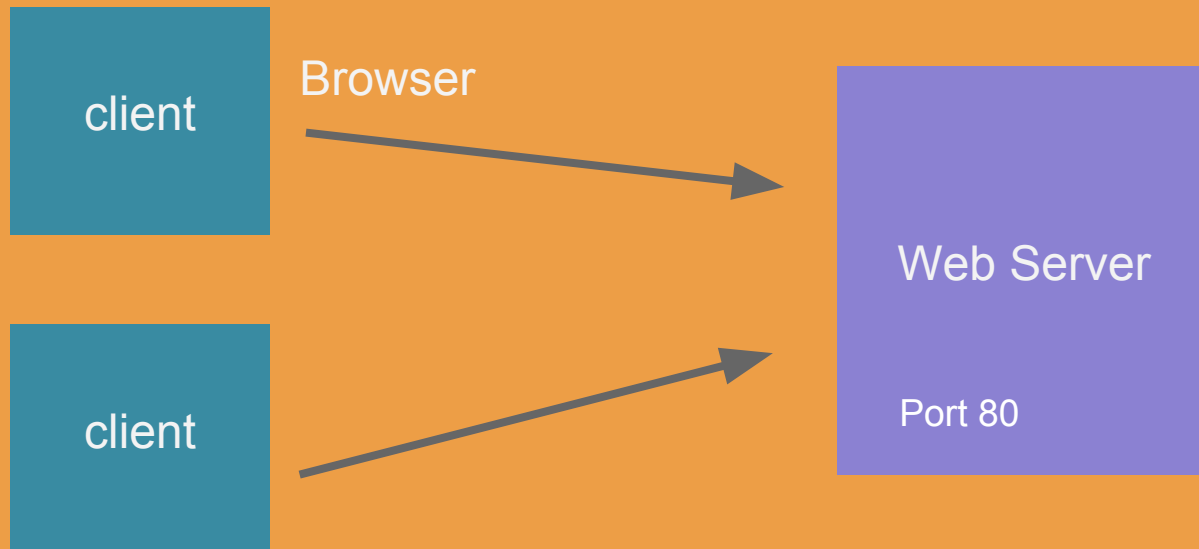
- HyperText Transfer Protocol
- Port 80



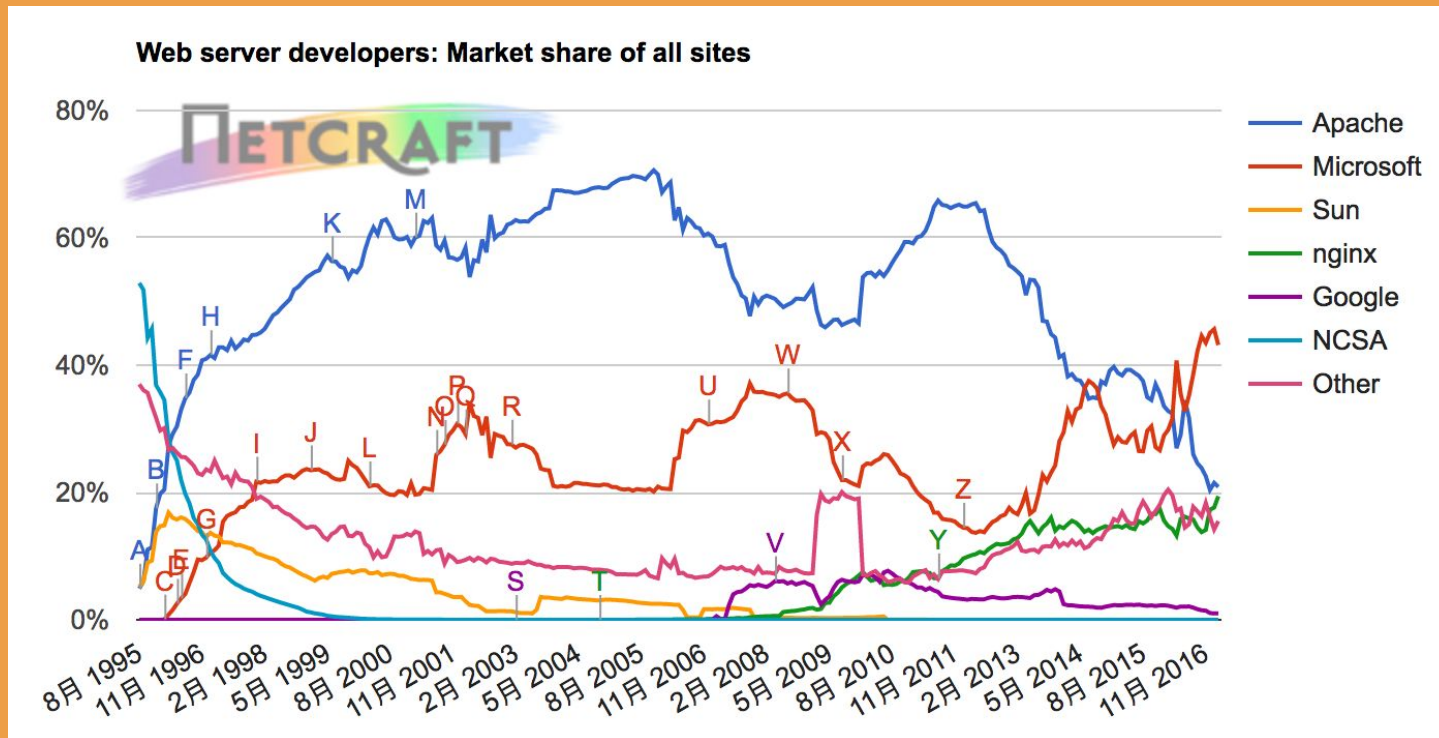
Reference picture:
<http://www.jianshu.com/p/e8cc421b5ace>

Web server

Serve the file system on web, basically in the origin.

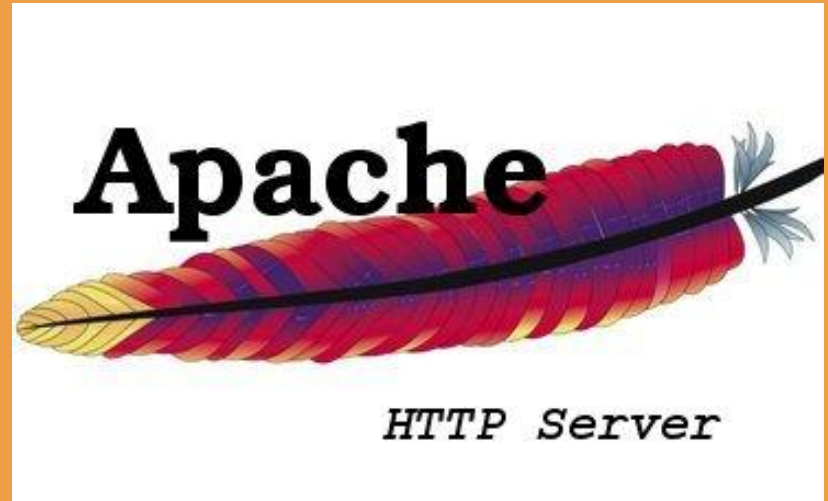


Web Server comparison



■ Apache (httpd)

- From 1995, 22 years ago
- Apache 2.x
- <https://httpd.apache.org/>

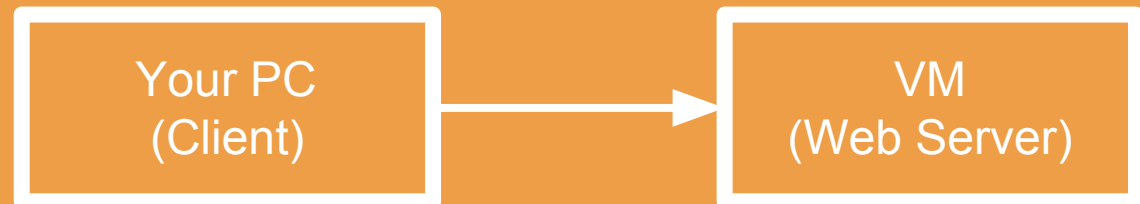


Lab



Before we start

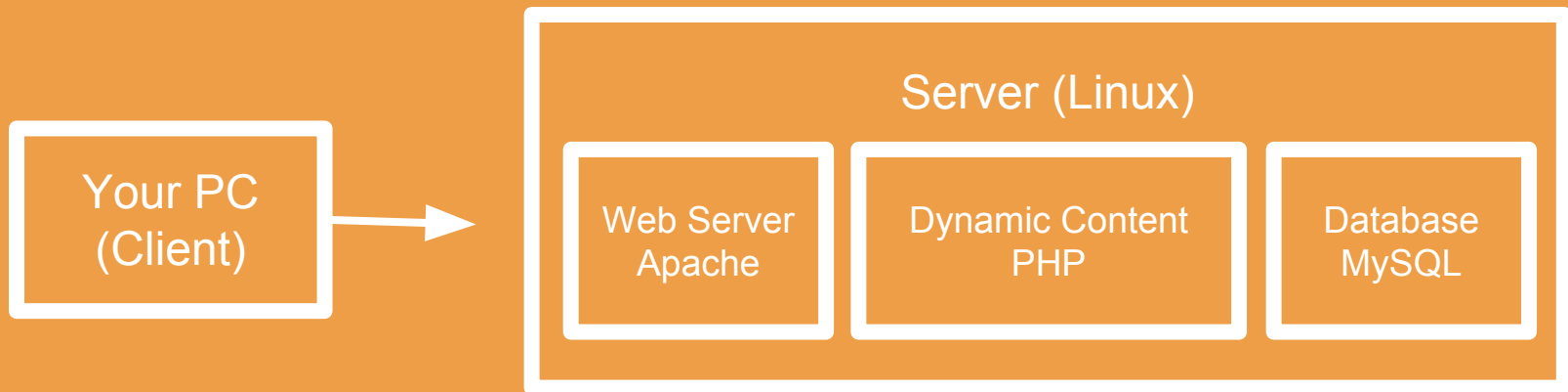
- Install centos 7 with virtualBox
- Setup the network
 - Settings → network
 - Remember “nmtui” ?
- install some tools: vim, wget, unzip



Our Goal

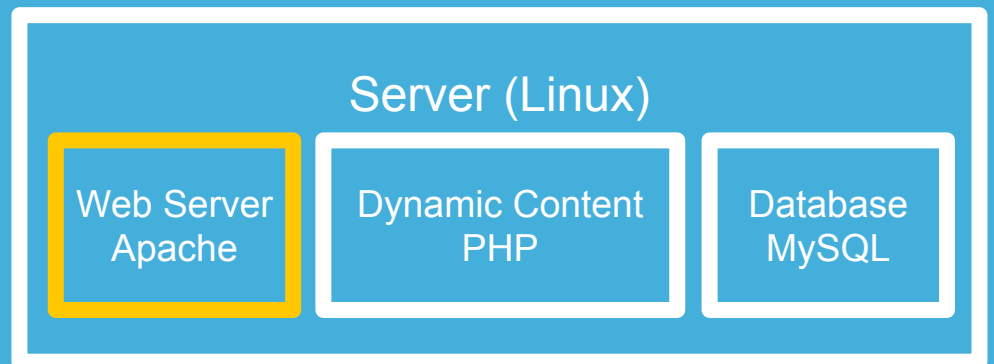


- Run **WordPress** by LAMP
- Linux + Apache + MySQL + PHP



■ Install Apache

- `sudo yum -y install httpd`
- `sudo systemctl start httpd`
- 測試:
 - `curl localhost`



■ Apache config

- `conf` apache config
- `conf.d` apache config
- `conf.modules.d` config to load modules
- `modules` modules .so file
- `sites-available` config for sites
- `sites-enabled` config for enabled sites

Main config `/etc/httpd/conf/httpd.conf`

```
ServerRoot "/etc/httpd"
```

```
Listen 80
```

```
Include conf.modules.d/*.conf
```

```
User apache
```

```
Group apache
```

```
ServerAdmin root@localhost
```

```
<Directory />
```

```
    AllowOverride none
```

```
    Require all denied
```

```
</Directory>
```

```
DocumentRoot "/var/www/html"
```

```
<Directory "/var/www/html">
```

```
    AllowOverride None
```

```
    Require all granted
```

```
</Directory>
```

```
<IfModule dir_module>
```

```
    DirectoryIndex index.html
```

```
</IfModule>
```

```
<Files ".ht*">
```

```
    Require all denied
```

```
</Files>
```

```
ErrorLog "logs/error_log"
```

```
LogLevel warn
```

```
...
```

```
IncludeOptional conf.d/*.conf
```

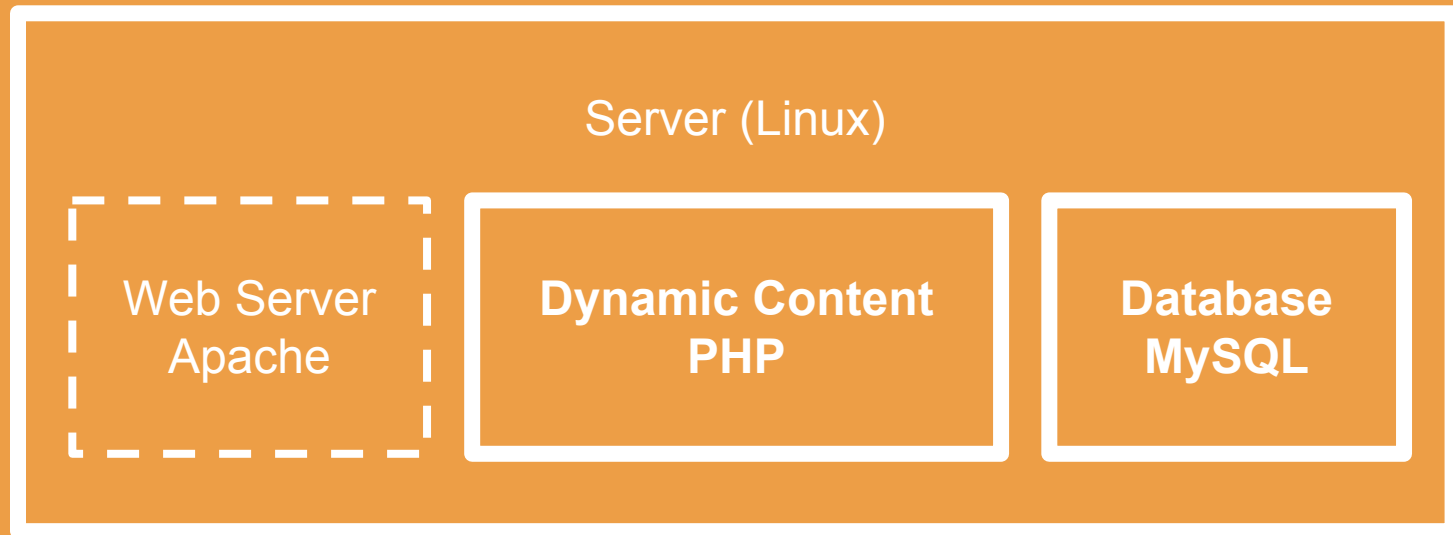

■ Setup firewall

- `firewalld` in centos 7
- `sudo firewall-cmd --list-all`
- `sudo firewall-cmd --add-service=http --permanent`
- `sudo firewall-cmd --reload`

■ Download WordPress

- <https://wordpress.org/>
- unzip
- put under `/var/www/html` or somewhere you like
- be careful for the file permission `rwx`
(The user for apache server is **apache**)
- for selinux: `restorecon -Rv <the wordpress directory>`

■ 完成一半了



Install PHP

- `sudo yum -y install php`
- verify if the module is loaded by “`httpd -M`”
- restart or reload `httpd`
- a simple test

```
<!-- /var/www/html/test.php -->
<h1>My php test </h1>
<?php
    echo "Hello world!";
    phpinfo();           #show PHP info
?>
```

MySQL

- SQL: 關聯式資料庫語言
- SQL vs noSQL

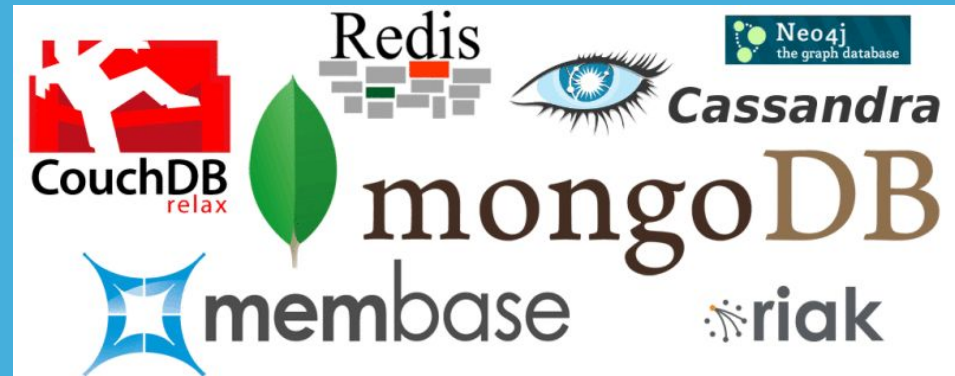


image reference:
<https://dzone.com/articles/where-sql-databases-fail-nosql-databases-deliver>

■ Install MySQL



- `sudo yum install mariadb mariadb-server php-mysql`
- mariaDB is an alternative open source version of mysql
- `sudo systemctl start mariadb`
- `sudo mysql_secure_installation` #設定mysql

現在可以打開 client 看看



Welcome to WordPress. Before getting started, we need some information on the database. You will need to know the following items before proceeding.

1. Database name
2. Database username
3. Database password
4. Database host
5. Table prefix (if you want to run more than one WordPress in a single database)

We're going to use this information to create a `wp-config.php` file. **If for any reason this automatic file creation doesn't work, don't worry. All this does is fill in the database information to a configuration file. You may also simply open `wp-config-sample.php` in a text editor, fill in your information, and save it as `wp-config.php`.** Need more help? [We got it.](#)

In all likelihood, these items were supplied to you by your Web Host. If you don't have this information, then you will need to contact them before you can continue. If you're all ready...

Let's go!

Server (Linux)

Web Server
Apache

Dynamic Content
PHP

Database
MySQL

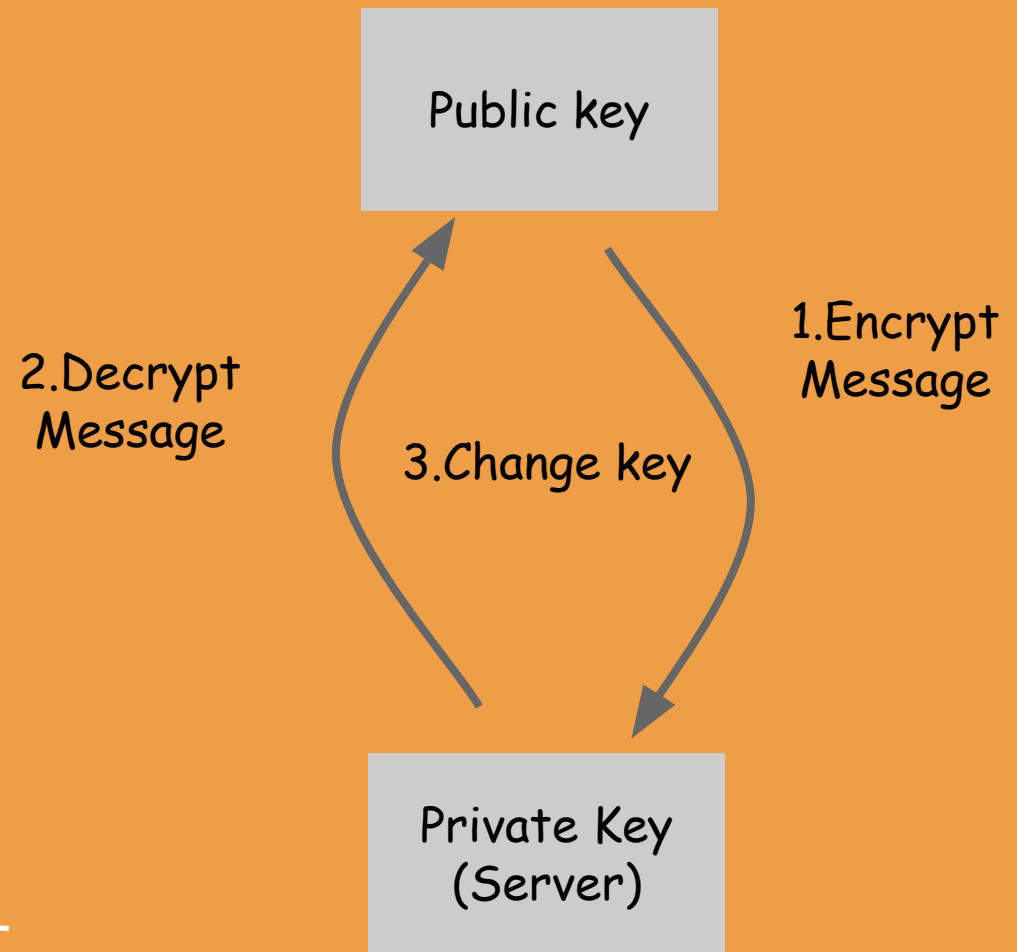
Still need to setup database ...

Simple MySQL setup

- `mysql -u <user> -p`
- **# Build database for wordpress**
- `create database <dbname>`
- **# create user for wordpress**
- `create user '<username>'@'localhost' identified by '<password>'`
- `show grants for '<username>'@'localhost'`
- `grant all on <dbname>.* to '<username>'@'localhost'`
- `flush privileges`

More ...

- HTTPS
 - s is for secure
 - port 443
- SSL
 - secure socket layer
 - public key cryptography



Secure

<https://www.google.com.tw/>

Generate certification keys

be careful for the file permission

- `sudo yum install open_ssl`
- # 產生私鑰
- `openssl genrsa -out ca.key 2048`

- # 產生 CSR, Certificate Signing Request
- `openssl req -new -key ca.key -out ca.csr`

- # 產生自我簽署的金鑰
- `openssl x509 -req -days 365 -in ca.csr -signkey ca.key -out ca.crt`

Reference: <https://wiki.centos.org/zh-tw/HowTos/Https>

Enable https for apache

- `sudo yum install mod_ssl`

```
# /etc/httpd/site-enabled/wordpress.conf
<IfModule mod_ssl>
  <VirtualHost *:443>
    SSLEngine on
    SSLCertificateFile /etc/ssl/certs/ca.crt
    SSLCertificateKeyFile /etc/ssl/certs/ca.key
    <Directory /var/www/html>
      AllowOverride All
      Require all granted
    </Directory>
    DocumentRoot /var/www/www
    ServerName <the name of server>
  </VirtualHost>
</IfModule>
```

1. Don't forget to change firewalld
2. Include this file in the main config
3. restart httpd

■ There are a lot of things you can do

- Setup a DNS for the server
- Log management
- Databases backup
- Load balance
- Failover
- etc...

THANKS!

Any questions?

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SA 網站管理組 歡迎你
