Apache Web Server

Quick and Dirty
Evelyn NAMARA
for AfNOG 2014

(Originally by Joel Jaeggli for AfNOG 2007)
About Apache

- Apache http server project
- http://httpd.apache.org
- Apache foundation started to support the web server project, but now extends to a multitude of other projects.
No. of websites

Total number of websites (logarithmic scale)

- Hostnames
- Active sites

Netcraft

Top Server Market share from 1995 - 2014

Apache Installation on FreeBSD

- Apache can be installed from Ports /usr/ports/www/apache22
- Can be installed from pkg
- Or from source if one requires a more recent version than what's on FreeBSD source ports tree
Starting Apache

- Startup script is /usr/local/etc/rc.d/apache22
- Take a look in startup script /usr/local/etc/rc.d/apache22
- Add apache22_enable="YES" to /etc/rc.conf
- Run /usr/local/etc/rc.d/apache22 start
- Restart
  $ sudo apachectl restart
Apache features

- **Server Side Programming Language Support**
  - Apache supports some common language interfaces which include Perl, Python, Tcl, and PHP. It also supports a variety of popular authentication modules like mod_auth, mod_access, mod_digest and many others.

- **IPv6 Support**
  - On systems where IPv6 is supported by the underlying Apache Portable Runtime library, Apache gets IPv6 listening sockets by default.

- **Virtual Hosting**
  - Apache will allow one installation instance to serve multiple websites. For instance one Apache installation can serve sse.afnog.org, ws.afnog.org etc

- **Simplified configuration**

- **Native Windows NT Unicode Support**

- More at: http://httpd.apache.org/docs/2.2/new_features_2_0.html
Apache SSL

- Secure Socket Layer (SSL) port is 443
- SSL is important to protect communication between client browser and web-server
- Requires the creation of SSL certificates and Certificate Signing Requests (CSR)
- For integrity, SSL certificates are signed by a Certificate Authority’s (CA) such as Verisign
- Self signed Certificates will also work but your browser will not trust it and will give a warning to users (which most don’t read)

Refer to the Creating SSL Certificate Exercise Section
How SSL Works

- Each SSL certificate has a Public and Private key
- The Public Key is used to encrypt the information
- The Public Key is accessible to everyone
- The private Key is used to decipher the information
- The private should be not be disclosed
Role of Certificate Authority

- There are a number of CA that certify certificates
- Most browsers have pre-included public Keys from the CA’s
- A CA certified certificate will have validation information signed by the CA’s private key
- The browser will decrypt the validation information using the public key and verify that the certificate is certified by the CA
Virtual Hosting

- Apache Provides multiple options of virtual hosting and scales
  - Name Based virtual hosts
  - IP Based Virtual Hosts
  - Aliases
- It's recommended to use name based virtual hosting over IP based hosting in virtual hosting configuration
- Refer to virtual hosting Exercise section
Installing PHP & Mysql

- PHP and Mysql implementations have increased driven mainly by development requests
- LAMP and WAMP are the most common implementations
- Installation via ports and relatively straightforward
- See PHP & Mysql installation exercise section
Apache and IPv6

- Apache supports IPv4 and IPv6 by default
- Set the listen option to port 80 will listen for both IPv4 and IPv6
- listen option with IPv4 and IPv6 specific addresses will invoke different sockets for each protocol
  
  \[
  \text{Listen 196.200.219.xx:80} \\
  \]

- Refer to IPv6 & php test exercise
Start Apache!

- `/usr/local/etc/rc.d/apache22 start`
- Check that you can access `http://your.ip.add.ress` in your browser
- Check that you can access `https://your.ip.add.ress` in your browser, and that you get a certificate warning
- Click on the padlock icon in your browser and check that the certificate details are correct
Apache use cases

- Apache is widely used to serve many content applications
- Webmail, Blogs, Wiki’s, CMS etc
Start Exercises