

Apache Web Server

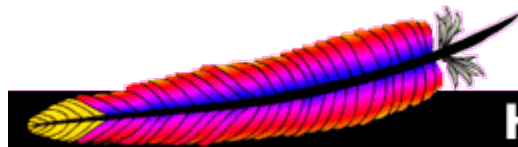
Quick and Dirty
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for AfNOG 2014

(Originally by Joel Jaeggli for AfNOG 2007)



About Apache

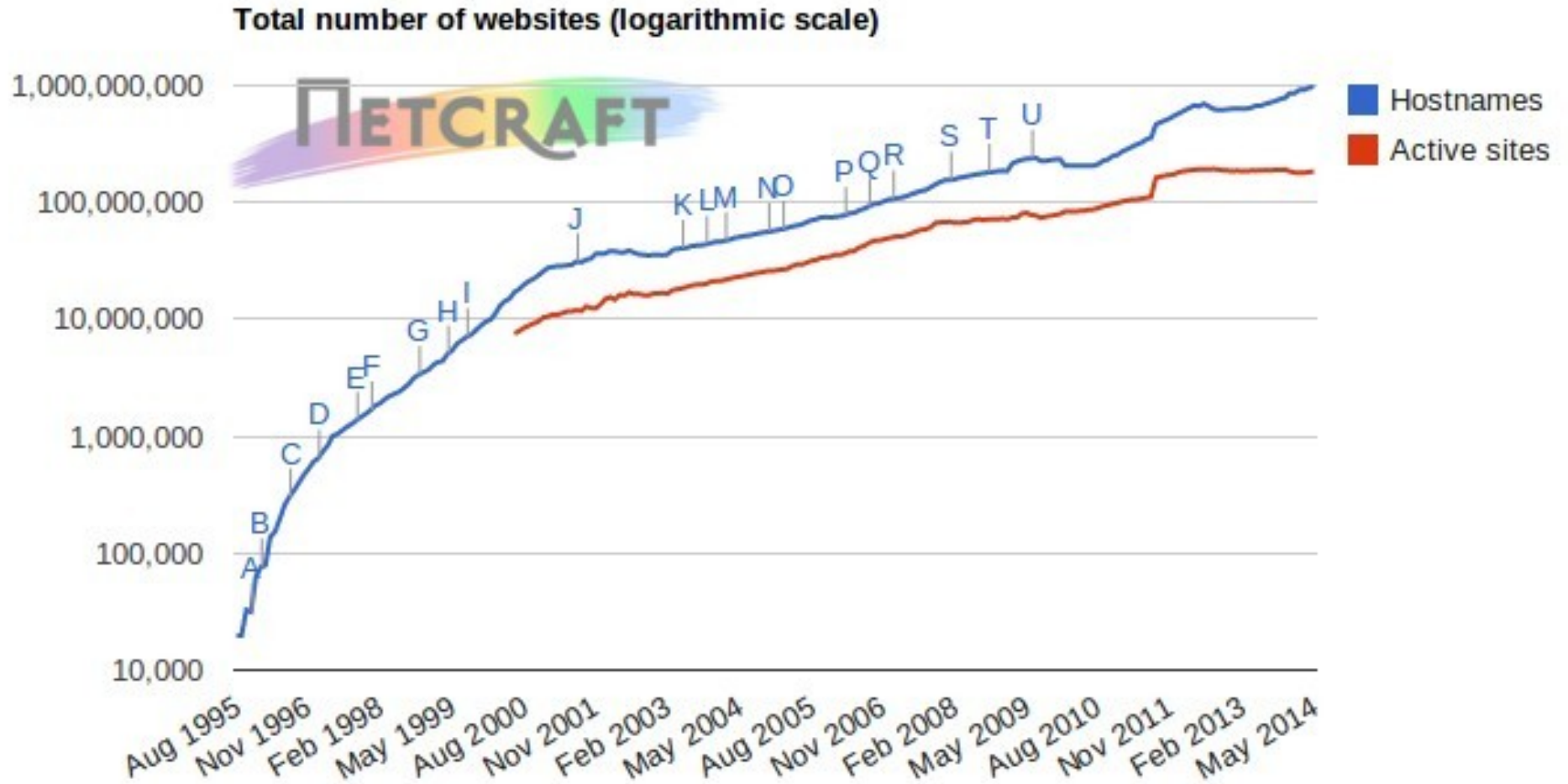
- Apache http server project
- <http://httpd.apache.org>
- Apache foundation started to support the web server project, but now extends to a multitude of other projects.



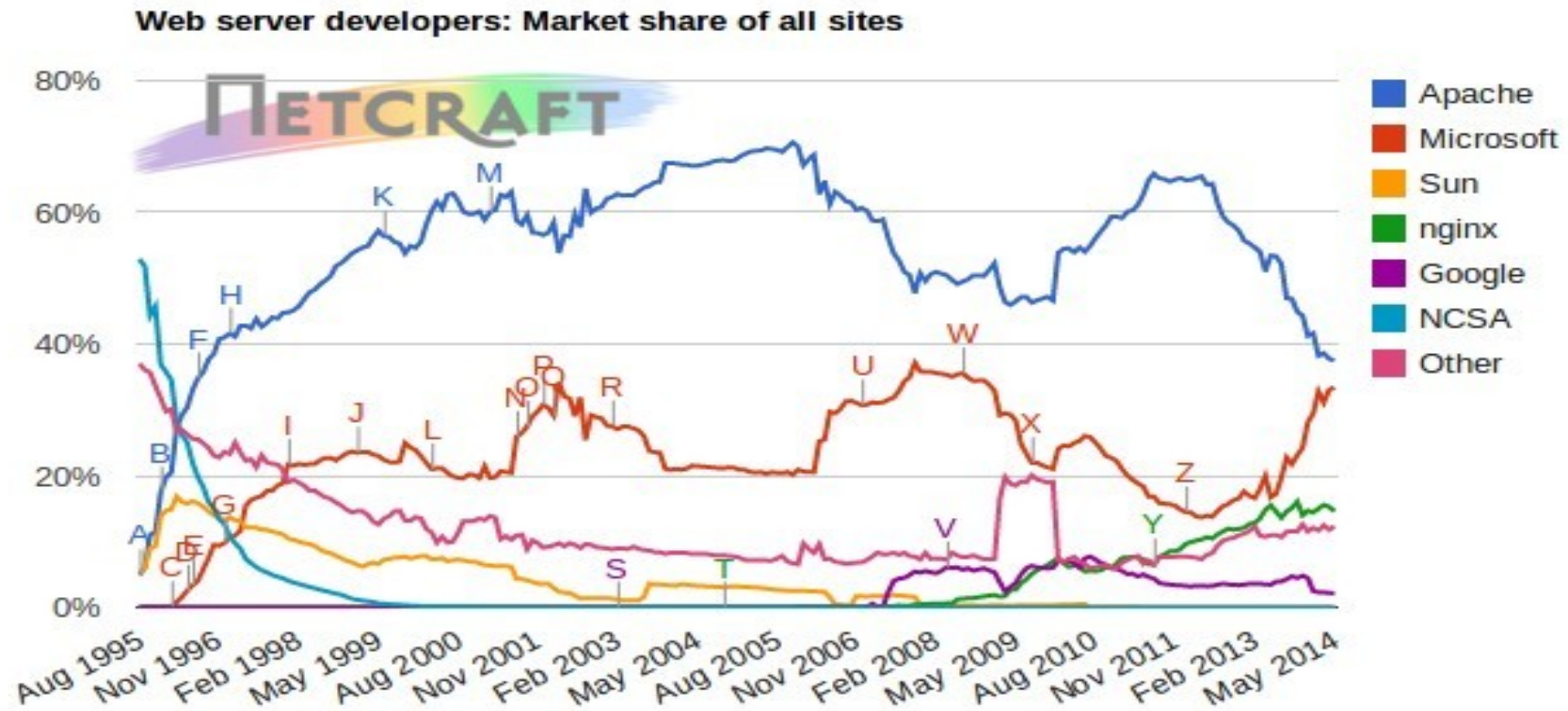
Apache
HTTP SERVER PROJECT



No. of websites



Top Server Market share from 1995 - 2014



Developer	April 2014	Percent	May 2014	Percent	Change
Apache	361,853,003	37.74%	366,262,346	37.56%	-0.18
Microsoft	316,843,695	33.04%	325,854,054	33.41%	0.37
nginx	146,204,067	15.25%	142,426,538	14.60%	-0.64
Google	20,983,310	2.19%	20,685,165	2.12%	-0.07

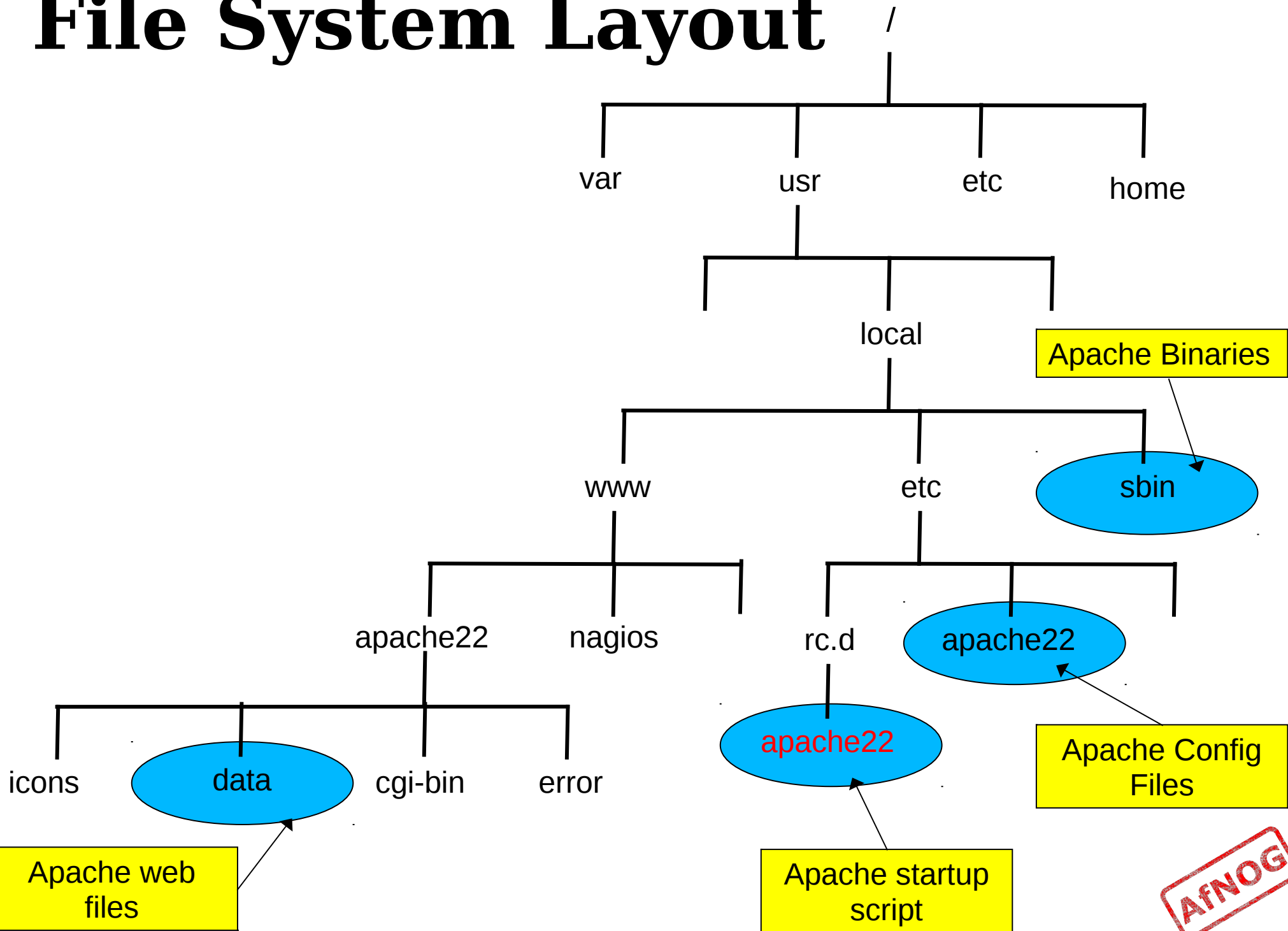
<http://news.netcraft.com/archives/category/web-server-survey/>



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

File System Layout



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
- Its 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
- FreeBSD = “FAMP” ?
<http://geekybits.blogspot.com/2007/09/creating-famp-server.html>
- Installation via ports and relatively straight forward
- *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

Listen 196.200.219.xx:80

Listen [2001:43f8:0:219:196:200:219: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

