

OSX and StorNext

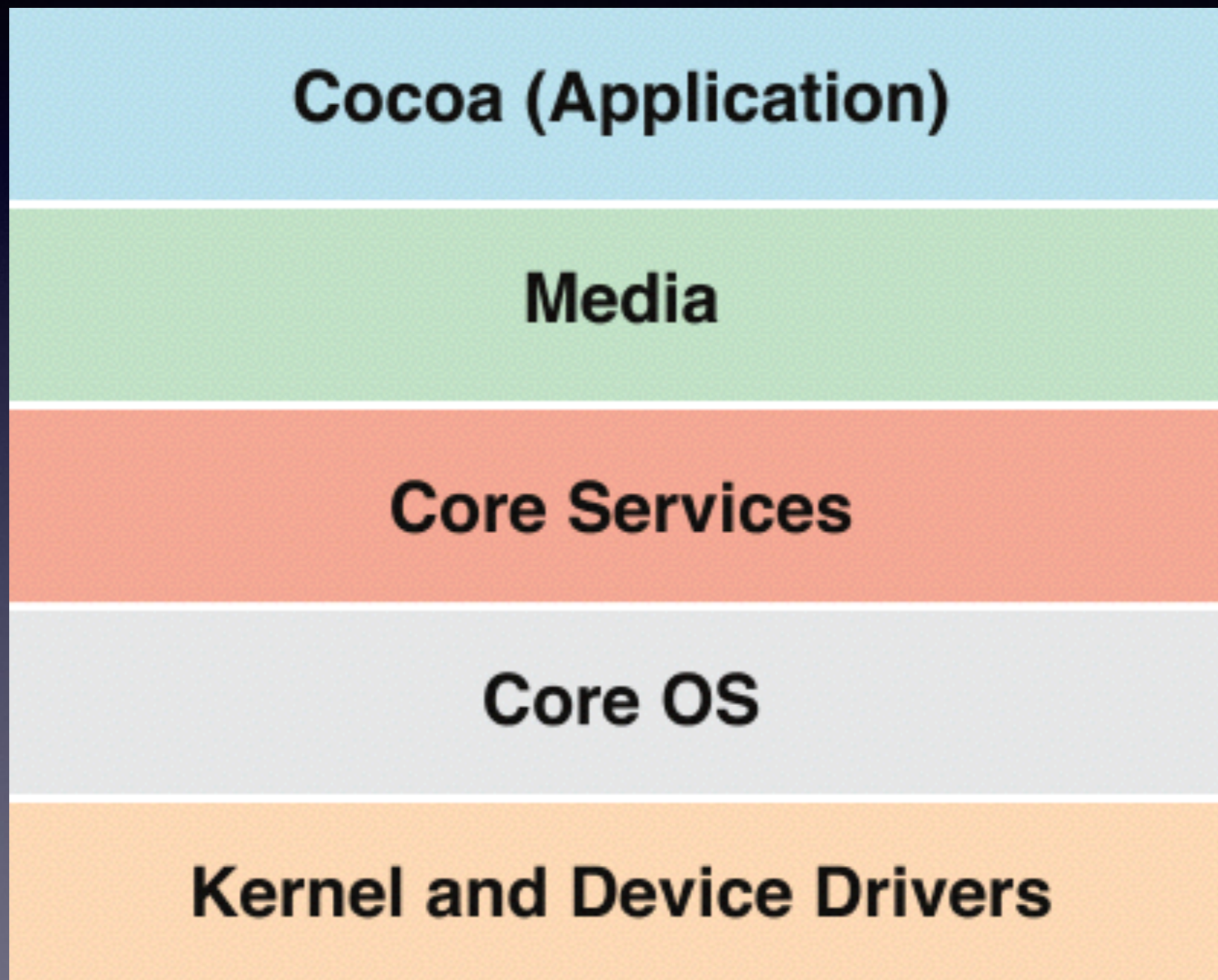
What is (not) OS X?

- It is not Windows
- It is not Linux
- It is not iOS for Desktop

Fully Compliant Unix System

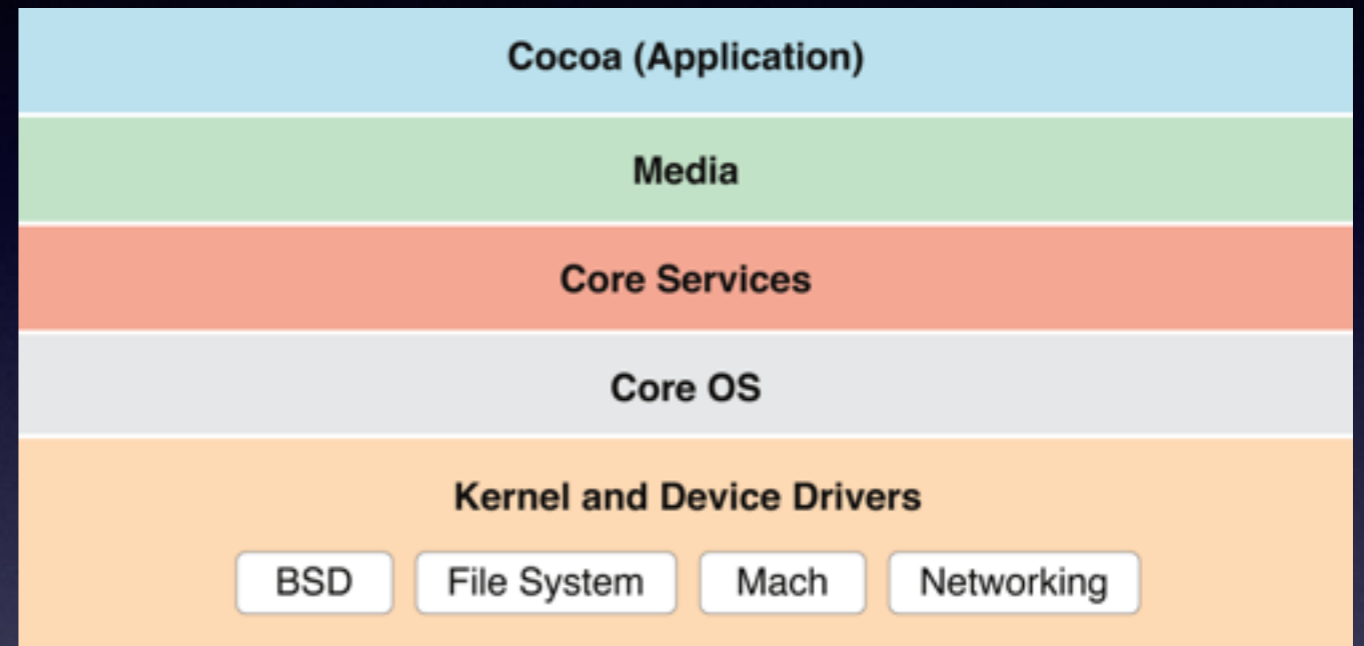
- Runs BSD (The Darwin Version) at its base
- Compliant to the Single Unix Specification Version 3
 - 3700 pages covering Shell, Utilities and Interfaces
 - Cool reading during a cold winter night

A Layered Approach



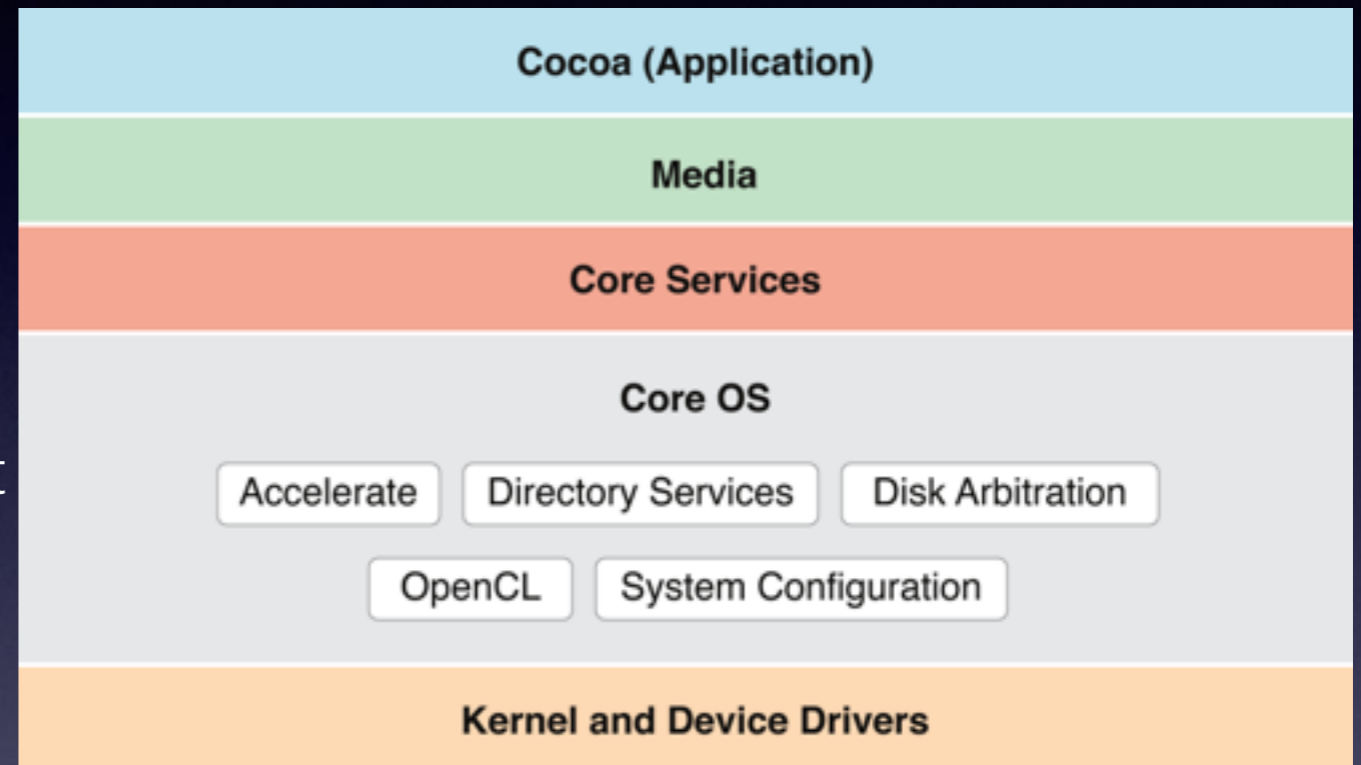
Kernel and Device Drivers

- Mach as the kernel (not linux)
- BSD Operating system
 - POSIX API (file permission and UID)
- Networking
- File System Support
 - Access Control List
 - URL-based volume mount
 - Long File Name (UTF-8)



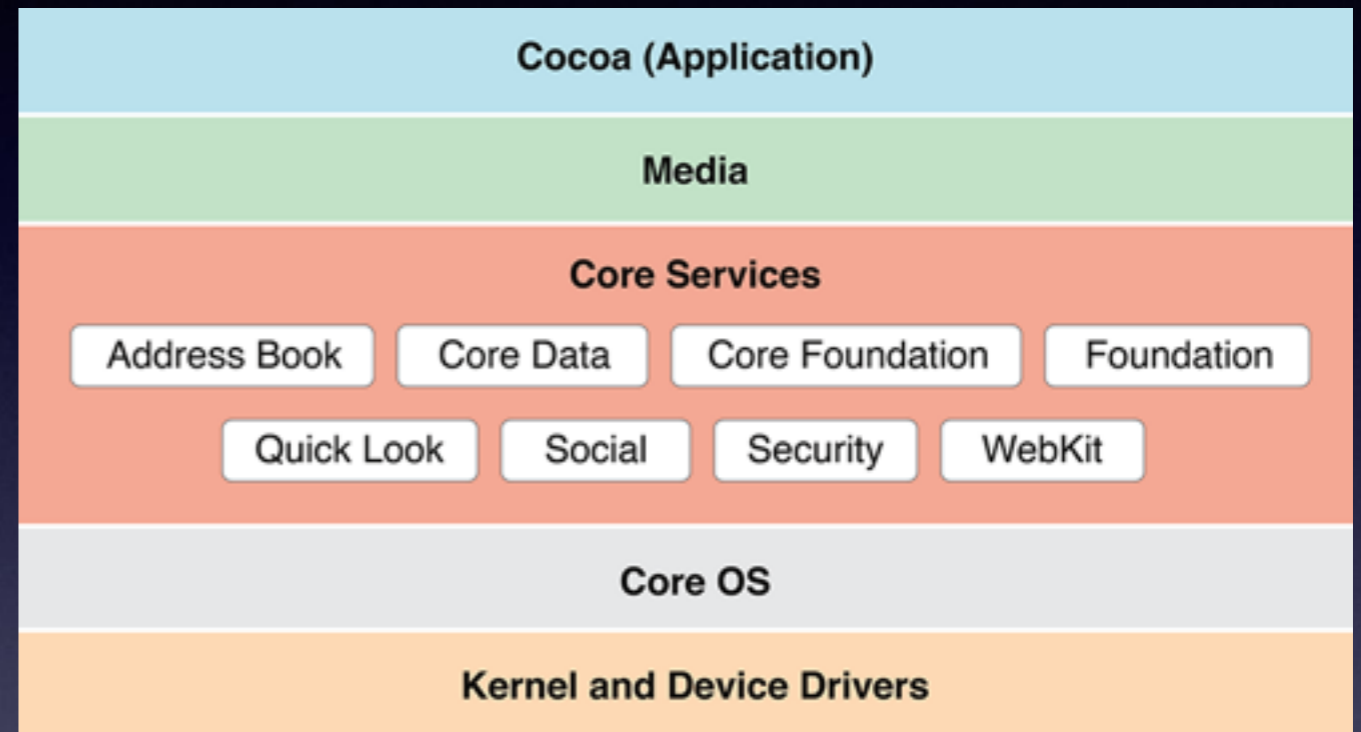
Core OS

- Gatekeeper, App Sandbox, Code Signing
- Directory Services
 - Directory service architecture that provides a centralized way to retrieve information in local or network database.
- System Configuration
 - Framework helping application to configure networks and determine if networks can be reached prior to connecting with them.



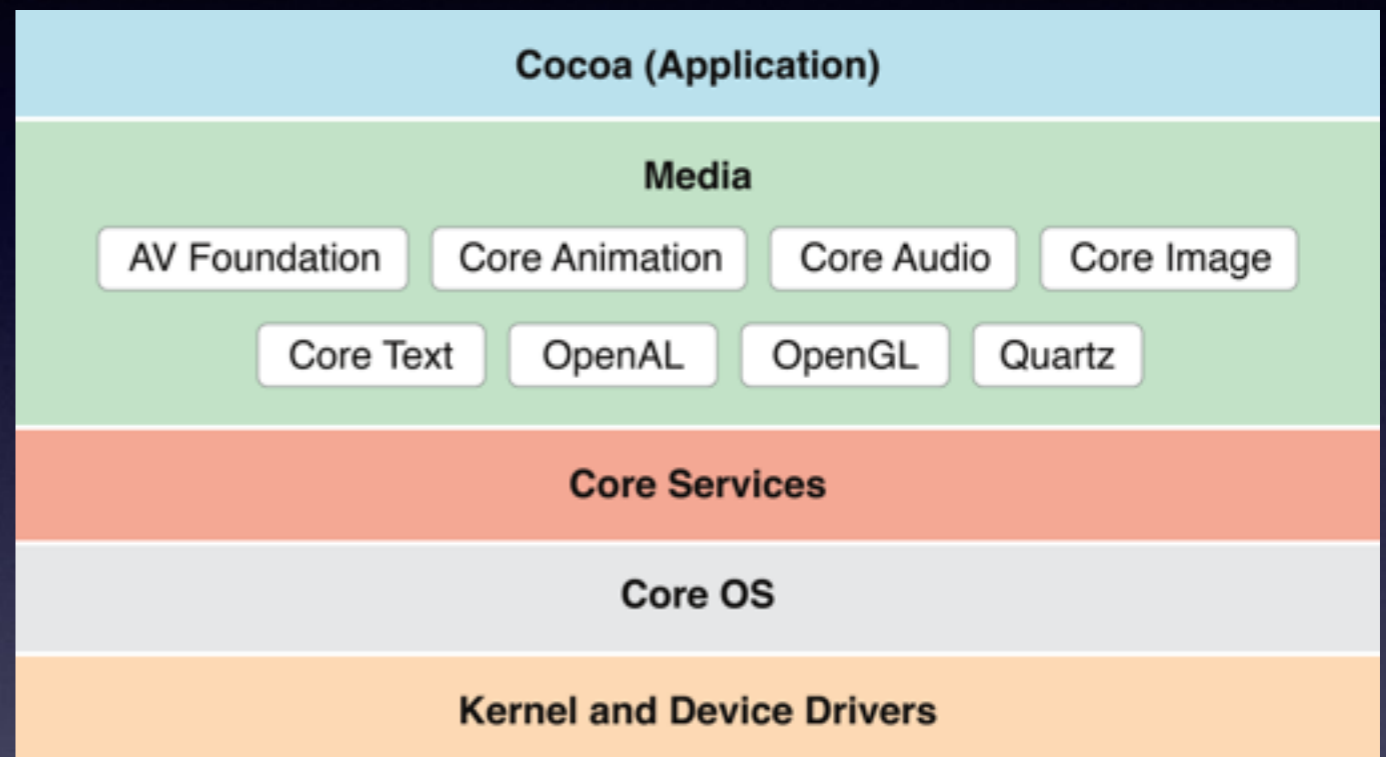
Core Services

- Social/iCloud/CloudKit/File Coordination
- Bundle and Package/Localization etc...
- Bonjour
- Security Services
- Identity services (manages group of users on a local system through ACLs)
- Quick Look



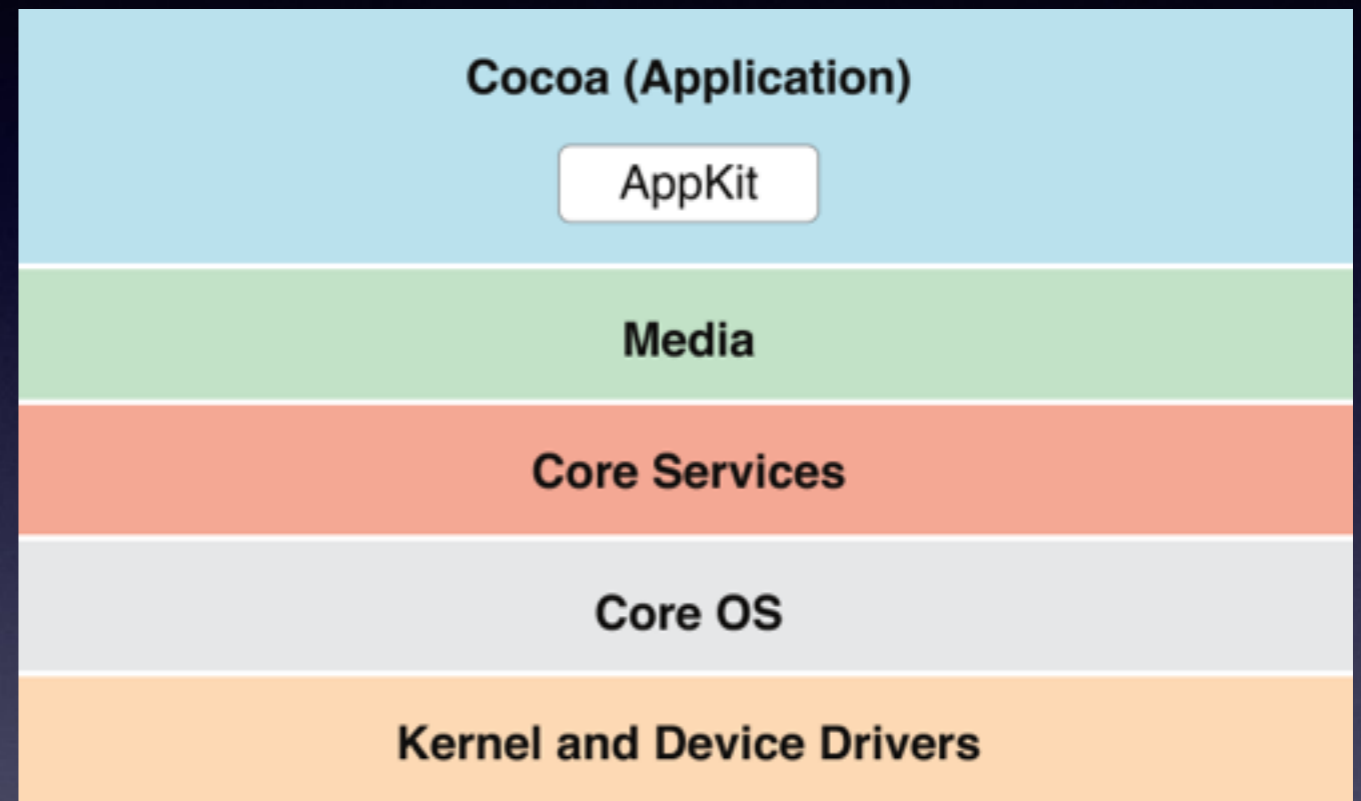
Media

- Provides all the technologies to display images, audio files, video files and web streaming
- Provides Graphic Technologies
 - Drawing and fonts
- Provides Color Management
- Provide printing through Cups



Cocoa

- Most of what constitute a user experience.
 - The Look and feel of OS X
- Spotlight
- Popover



What does that mean from a troubleshooting point of view?



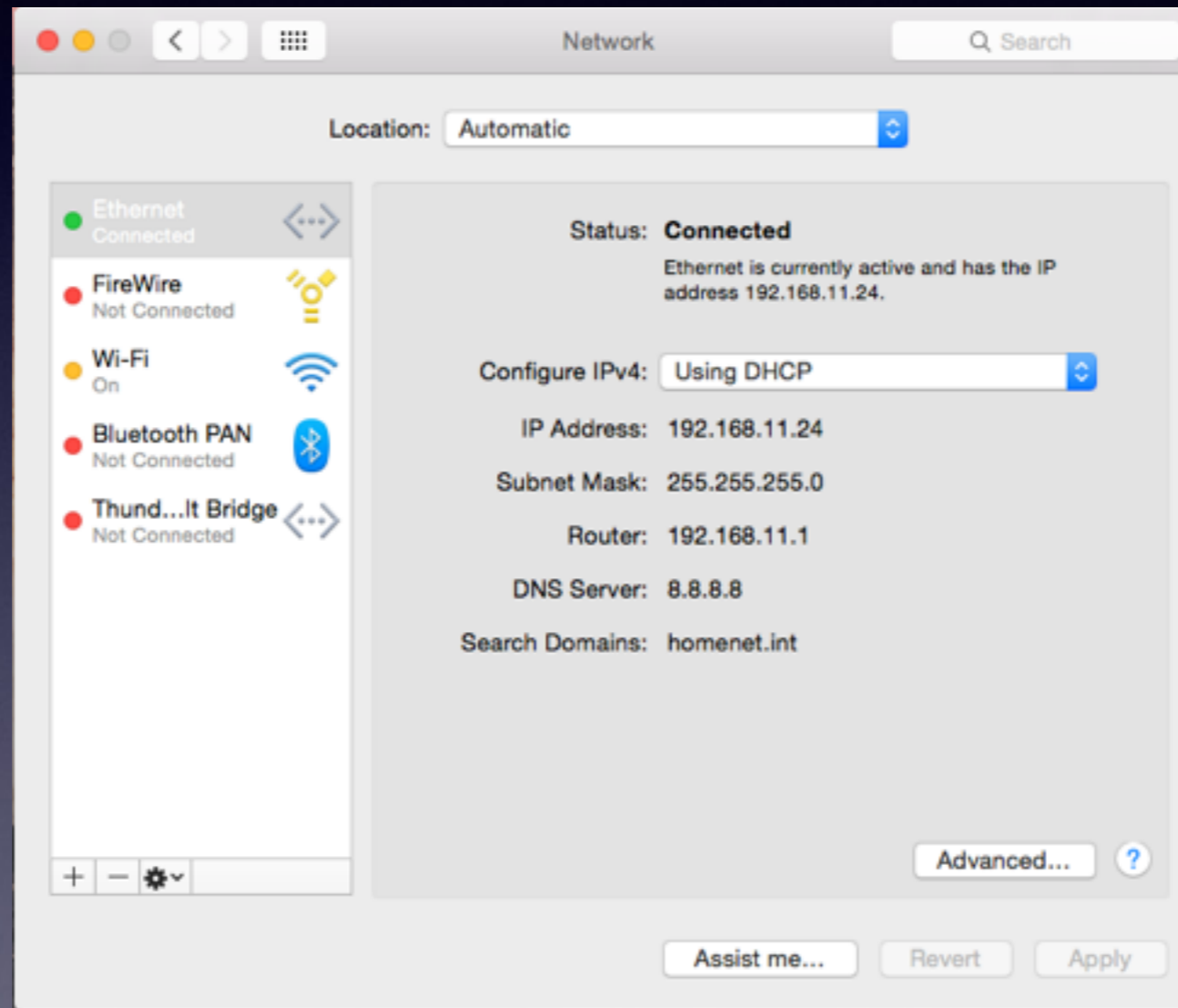
Where is my stuff?

- How's the Mac feeling about this?
- launchd and launchctl
- /Library/Preferences/Xsan
- /System/Library/Filesystems/acfs.fs/contents/bin/
- xsanctl

xsanctl

```
toaster — bash — 80x24
bash
csm:~ user56$ xsanctl
usage: xsanctl command [arg [...]]
  Available commands:
    help
    ping
    mount volumeName [options]
    unmount volumeName [options]
    list
    sanConfigChanged
    pushConfigUpdate
    culSan SAN_Name
    destroySan
    unloadProfile
    ldapConfigChanged
    changeIP oldIP newIP [oldFQDN newFQDN]
    roleChanged
    disksChanged
    wipeConfig
csm:~ user56$
```

Network Configuration For The Xsan Client



The local account

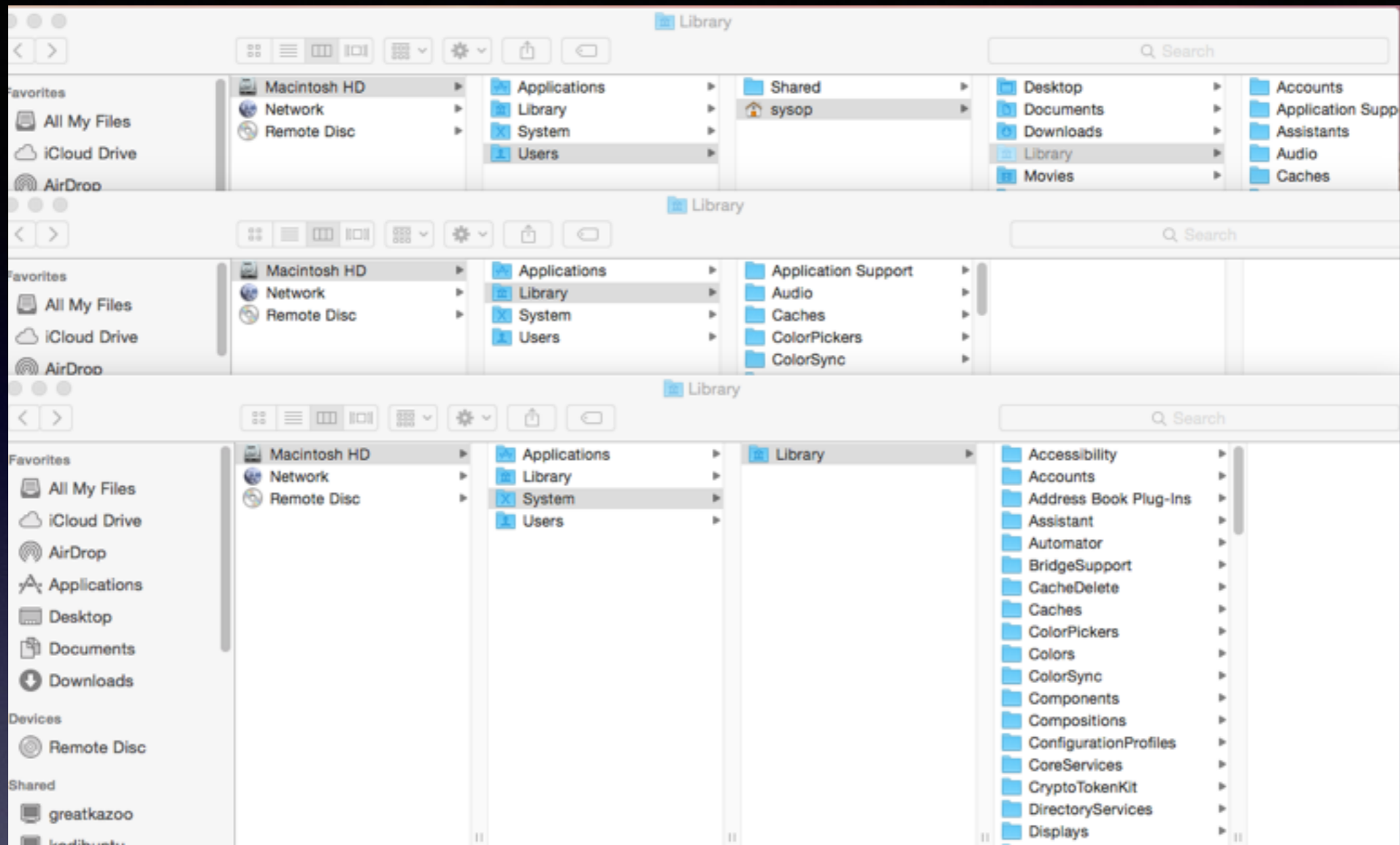
Tools you need.
Were gonna need a bigger boat



Permissioning

...Ball of confusion...

- UID, GID, GUID, UUID, CID.
- Posix, ACL and ACE...
- Permission through the Finder
- Fun With ls, chown, chmod



What is this?

An initial discussion on the hierarchy, on the accounts and the construction of the local file system

Launchd primer



- READ <https://support.apple.com/en-us/HT201684>

But what is the difference between
an Agent and a Daemon???



https://developer.apple.com/library/mac/technotes/tn2083/_index.html

DNS, OS X and you

A love/hate relationship

“DNS is kind of the hamster under the hood
that drives the Internet”

-David Ulevitch

“I am sick of DNS. All day DNS DNS DNS.

I been having dreams of DNS.

ARG!!!!”

**–PawNtheSANDman, studying for his Implementing,
Managing and Maintaining a Microsoft Windows server 2003
Network Infrastructure**

What is the
purpose of
DNS?

What are
some uses
for DNS?

Anatomy of a host name

www.contoso.com.



Why
should
I care?



But I use host files!

- That does not scale
- Honey badger don't care!
- It's tedious
- It's prone to typos
- We'd rather be drinking scotch

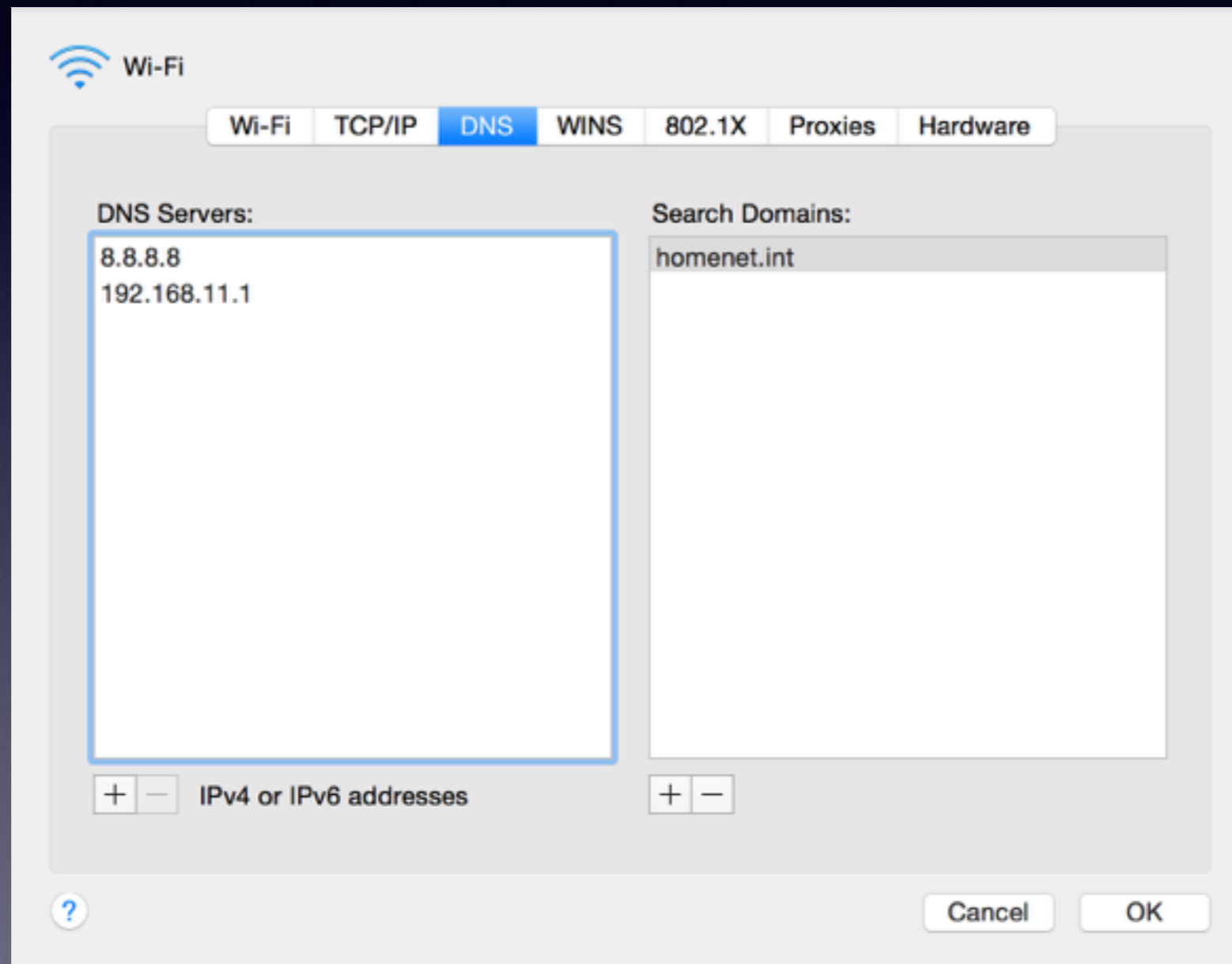
the .local fight

- <https://support.microsoft.com/en-us/kb/296250>
- [https://technet.microsoft.com/en-us/library/cc708159\(v=ws.10\).aspx/](https://technet.microsoft.com/en-us/library/cc708159(v=ws.10).aspx)
- [https://technet.microsoft.com/en-us/library/cc726016\(v=ws.10\).aspx/](https://technet.microsoft.com/en-us/library/cc726016(v=ws.10).aspx)
- <http://www.iana.org/assignments/special-use-domain-names/special-use-domain-names.xhtml>

DNS resolution on a Mac



What Is my name?



The Rule

- Each port needs to have a forward and a reverse lookup
 - hostname, host \$HOSTNAME and host ip should be in balance.
 - host private name and host private ip should be in balance

So...

- No returns for one entry: bad
- two returns for one entry: bad
- one entry, one return: good

In Conclusion:

- Good DNS usually makes the SAN happy
- Good DNS WILL make the Mac clients happy
- Since DNS resolution is done in part by Directory Services, it is expected to have system slow downs if misconfigured

Let's play with Directory Services

Its a question of point of view

What is a Directory Service?



The important thing to know

- Information is divided by objects located in containers
- Depending on the platform, some objects and containers are considered essential, some are considered optional and some are non existing

By Platform

- Windows on Active Directory
- Mac on OpenDirectory
- Both are based on Lightweight Directory Access protocol Version 3
- Both relies on Kerberos for authentication
- Both relies on a domain like concept

Let's start with the fun part

LDAPv3

- I dunno, let's call 411
- x500 expended again and again
- you can read it using LDAP Data Interchange Format (LDIF) as LDAP is a binary protocol

Important switches in Stornext

- Lets have fun in the gui

Important thing to remember when joining a domain

- Kill the metadata port before doing anything
- Time has to be correct
- Names should be correct

Who ya gonna call?



Mixing permissions

- Posix, ACLs (Let's mix everything together)
- Reading permissions: `ls -lae` and `Server.app`

Q & A

