

Welcome

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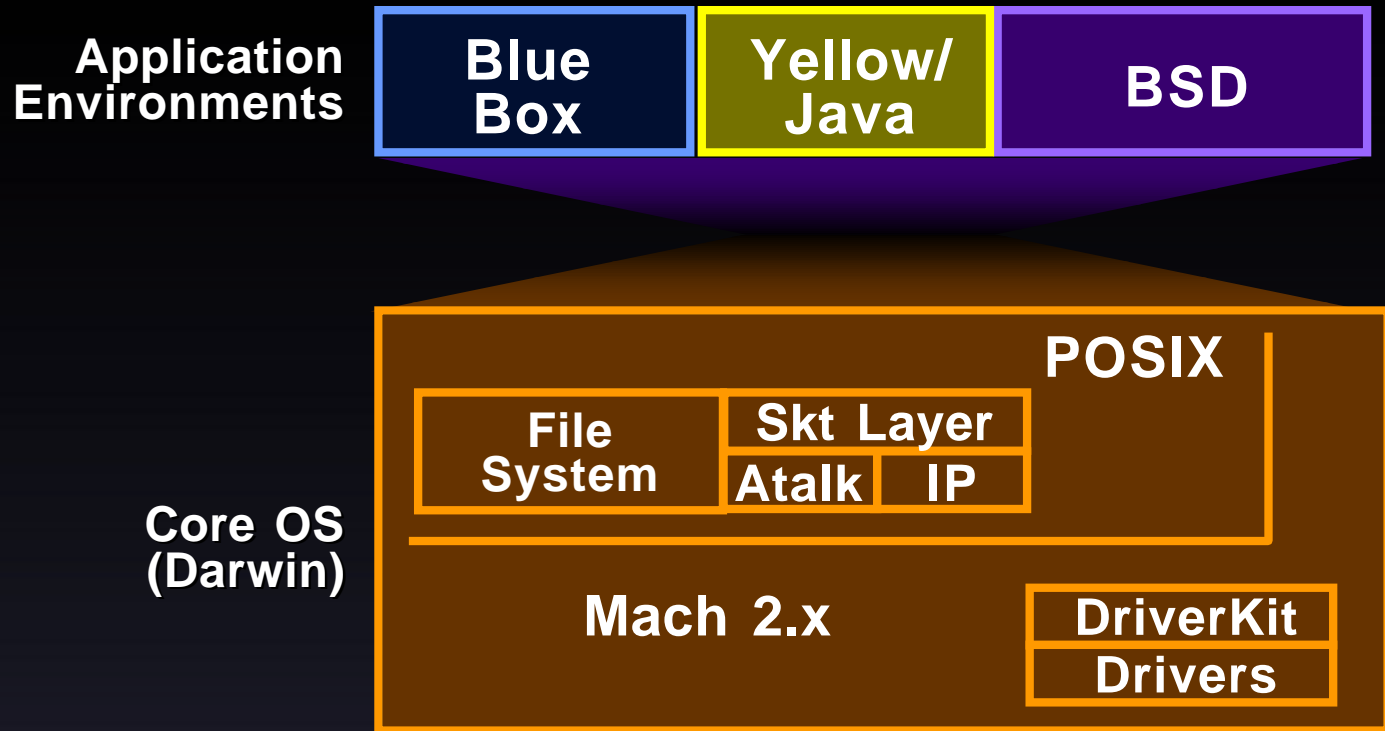
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BSD Support in Mac OS X

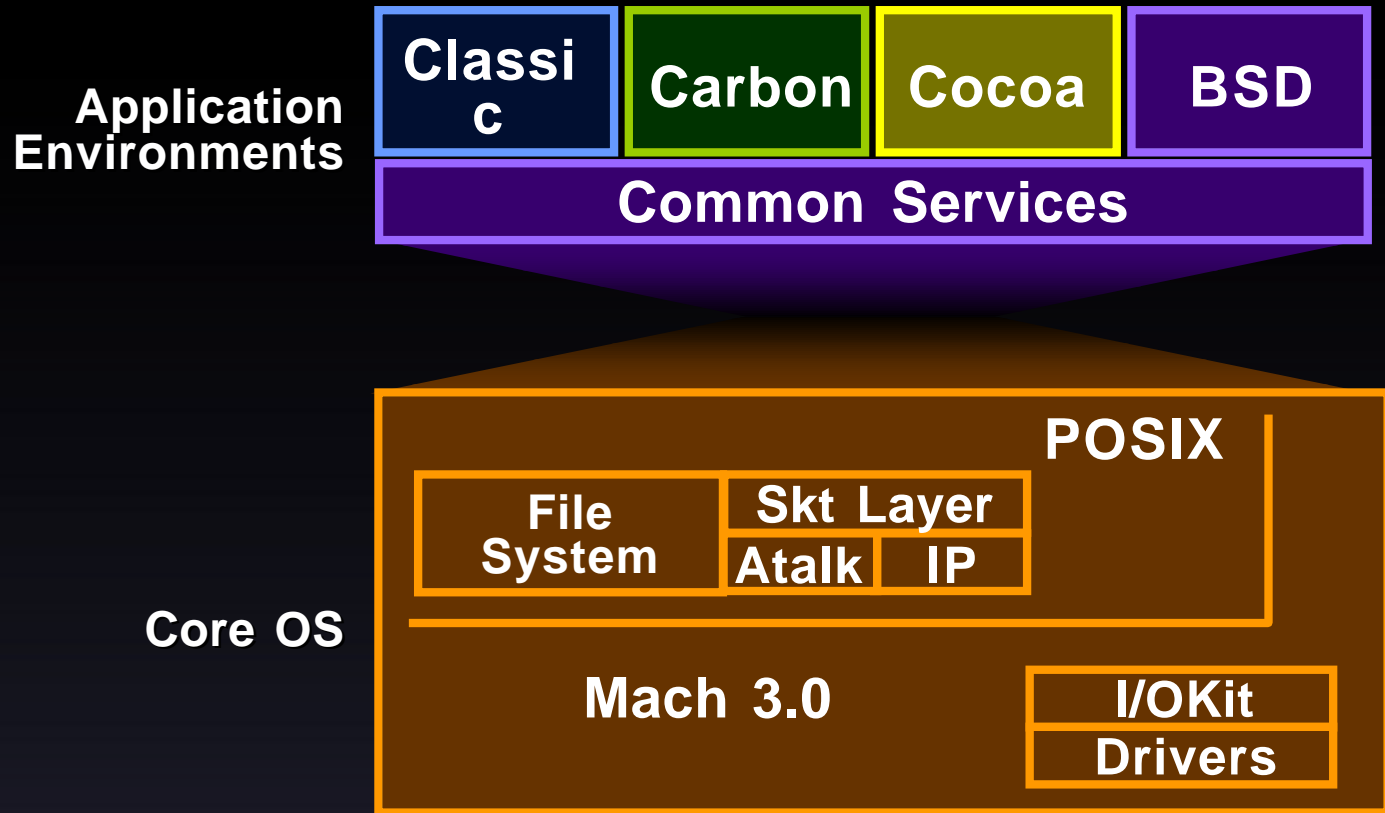
Brett Halle

Manager,
Core OS Engineering

Mac OS X Server



Core OS and Mac OS X





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BSD Support in Mac OS X

Wilfredo Sánchez

Resident Unix Weenie
Core OS / BSD

Topics

- What is BSD?
- BSD's role in Mac OS X
- Programming with BSD
- Mac OS X Server vs. Mac OS X

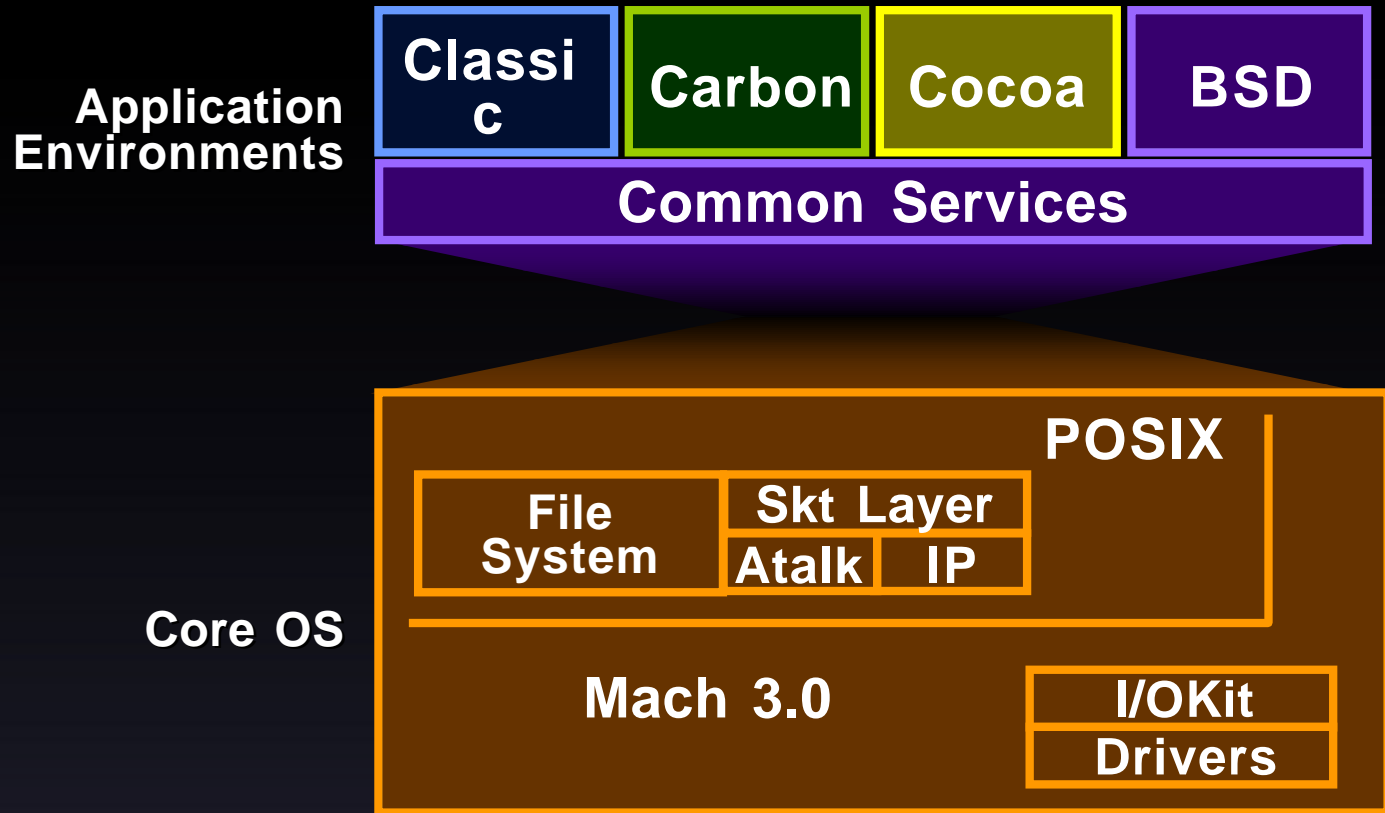


What Is BSD?

- It's an Operating System!
- The BSD kernel
- The BSD libraries
- The BSD application environment



The BSD Kernel

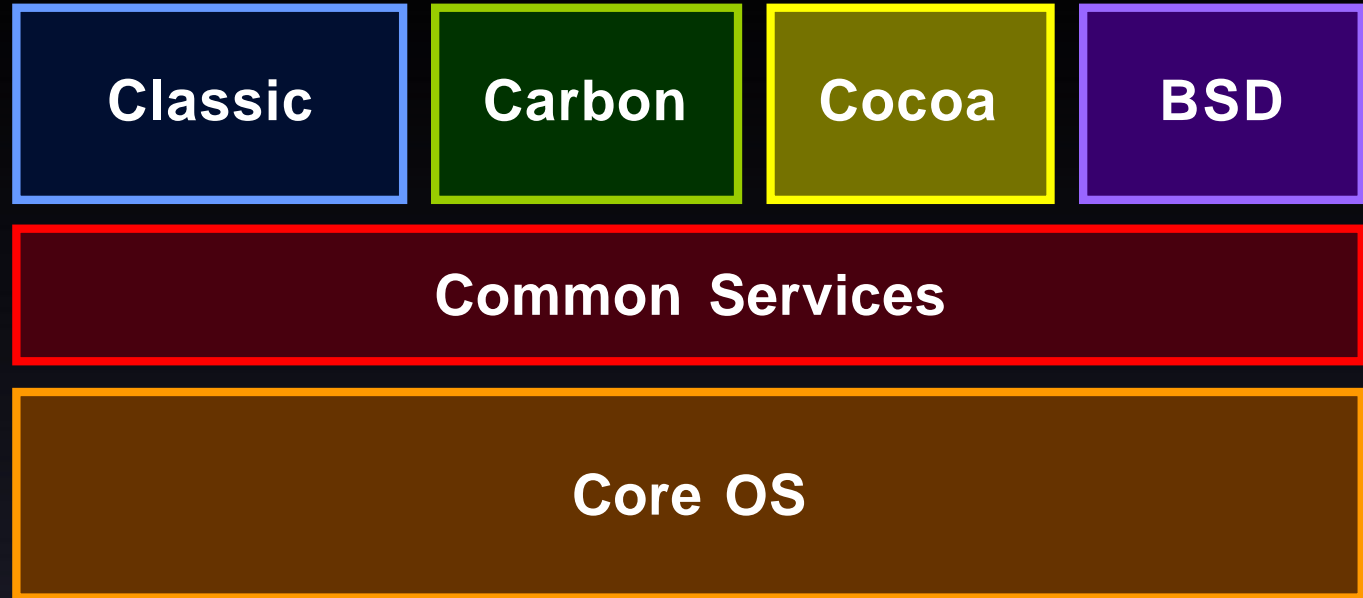


The BSD Kernel

- File system layer
- Network stack
- POSIX Functionality
- Mach sits underneath
 - Tasks and threads
 - Memory
 - Device layer



Commands and Services



Commands and Tools

- Network tools
 - telnet, finger, ftp
- File Tools
 - cp, ls, mkdir, tar, rsync
- System tools
 - ps, kill, nice, shutdown



System Services

- NetInfo
- NTP
- DNS/BIND
- mach_init, init
- SystemStarter
- update
- syslog

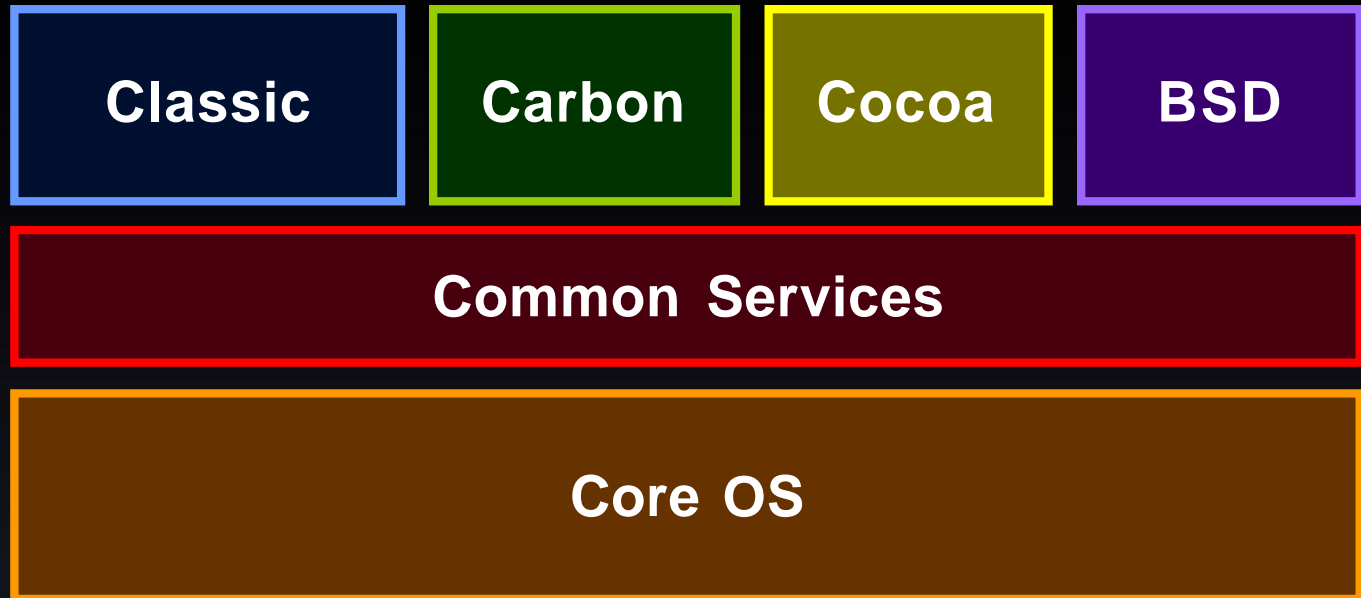


POSIX Applications

- Apache
- Emacs
- Sendmail
- Perl, Tcl, Python
- Samba



The BSD Libraries



The BSD Libraries

- C Library
- Math Library
- POSIX/BSD System API
- POSIX threads (new!)
 - cthreads is gone
- Curses, util, telnet, kvm, etc.



When Should I Use the BSD API?

- POSIX portability
- Porting from POSIX
- When Carbon and Cocoa don't go down far enough



POSIX?

- Compliance is a goal
- Certification is **not** a goal
- The BSD API is a first-class citizen in Mac OS X
- Can co-exist with Carbon, Cocoa, and Java



Porting from POSIX to Mac OS X

- No X Windows support
 - Cocoa is usually best choice
 - Carbon, too
- Use -fno-common
- dyld, not dlopen()





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Demo

Where Did We Get It?

- Inherited from OpenStep (BSD 4.3)
- NeXT Argon project brought up BSD 4.4Lite, completed with Rhapsody
- Now we use *BSD
 - FreeBSD and NetBSD connection
- Darwin



Server (vs. Client)

- BSD environment is present
- Apache and Internet services
- File sharing
- Different administration
- Tuning



Getting More Information

- Darwin OS
- CAE Specification, X/Open 1997
- *Design and Implementation of the 4.4 BSD Operating System*, McKusick, et. al.
- www.FreeBSD.org
- www.NetBSD.org



Roadmap

**Introduction to Open
Source at Apple**

Tape

Core OS Overview

Tape

Mac OS X Kernel

Tape

Mac OS X BSD Support

Room A1
Thur., 10:15am



Roadmap

**I/O Drivers—Mac OS
X**

I/O Kit

Room A1
Thur., 1:00pm

Mac OS X Networking Overview

Room A2
Fri., 9:00am

Mac OS X File System

Room A1
Fri., 2:30pm

**Intro to Cocoa
(Yellow) Framework**

Room B
Fri., 9:00am





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Q&A



Think different.TM



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