Welcome

To Advance through Presentation
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Classic Mac OS Compatibility Environment

John Signa

Technology Manager,
Mac OS X Carbon

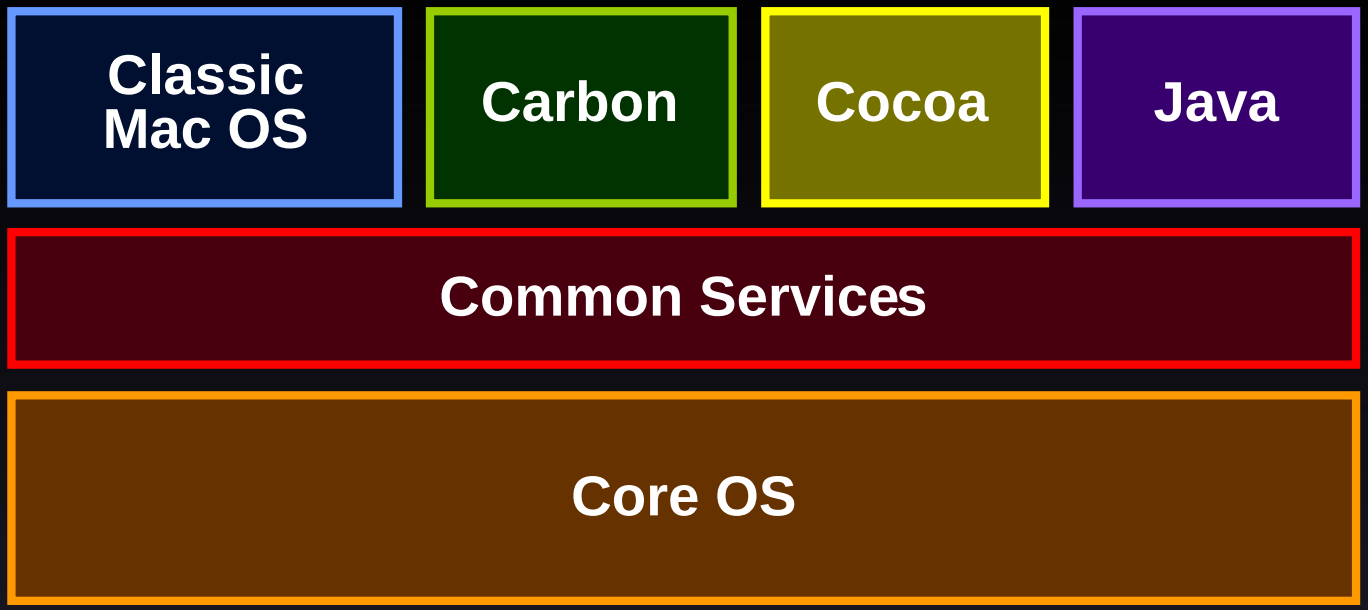
Classic Mac OS Compatibility Environment

Brent Knight
Blue Box Engineer

Session Overview

- What is it?
- What's changed?
- How does it work?
- What's coming?
- Q&A

Mac OS X Architecture



What Is It?

- A software compatibility environment
- Analogy: a new hardware model
- Does everything via Mac OS X services
- Not a processor emulator
- Not a vehicle for introducing new API's

Why Is It Important?

- Carbon = protection + pre-emption
- How do we get there from here?
- Blue Box = existing applications
- Preserves and leverages our Mac OS investment
- A bridge to the future!

Goals

- Compatibility
- Performance
- Robustness
- Smooth integration

What Won't Work?

- Software that attempts to access memory-mapped device I/O registers
- Software that modifies or relies on Mac OS internals below our H/W abstraction
- Software that patches traps and requires global effect in order to work correctly

- That's all!

Changes: DR2 to Server

- Shared HFS and HFS+ file system!
- SCSI Manager
- Mac OS 8.5
- CFM file mapping supported

Changes: Server to Now

- Adaptations for new foundations
  - New kernel (Mach 3.0)
  - New I/O subsystem (IOKit)
  - New graphics model (Quartz)
- Mac OS 8.6: even better integration
  - Standard Mac OS installer, Disk First Aid, Disk Copy, etc.

Demo

Implementation

- Runtime
- Blue Abstraction Layer (BAL)
- Memory
- File System
- Networking
- Device Drivers

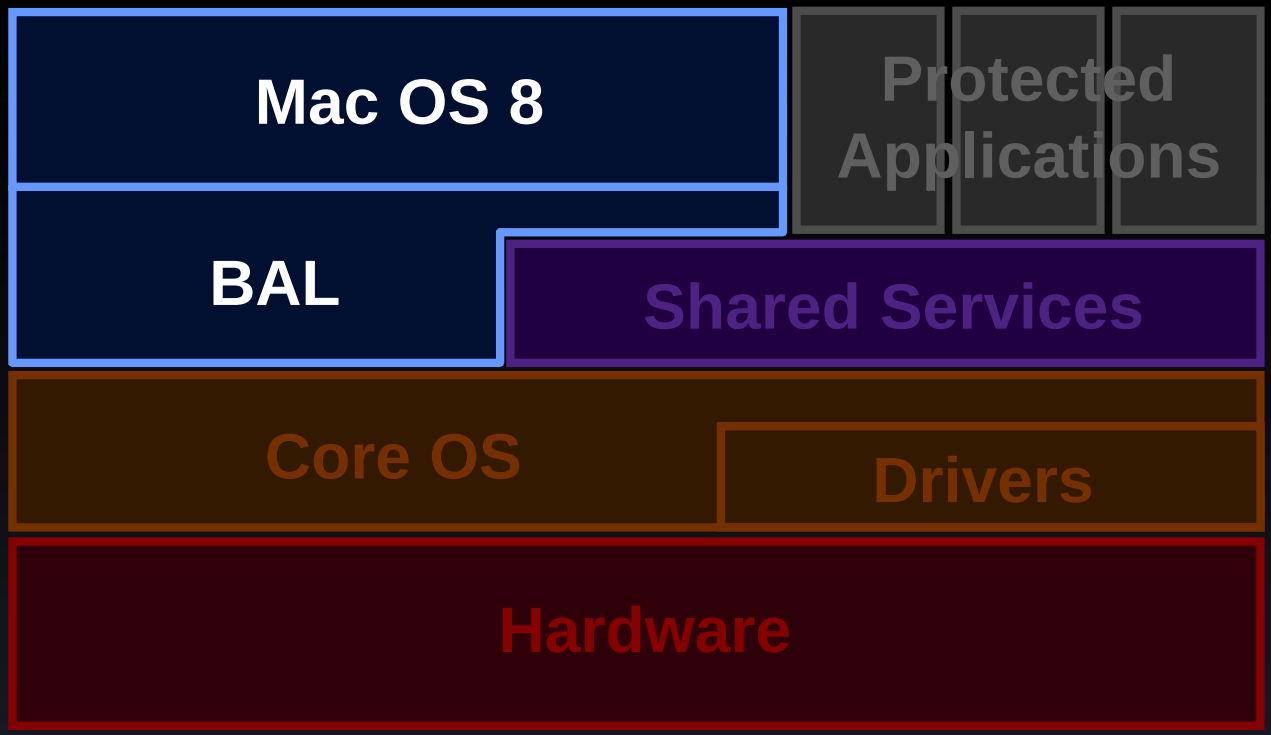
Runtime

- Classic Mac OS Power Macintosh runtime
- Includes Mac OS 68K Emulator
- ROM-in-RAM architecture

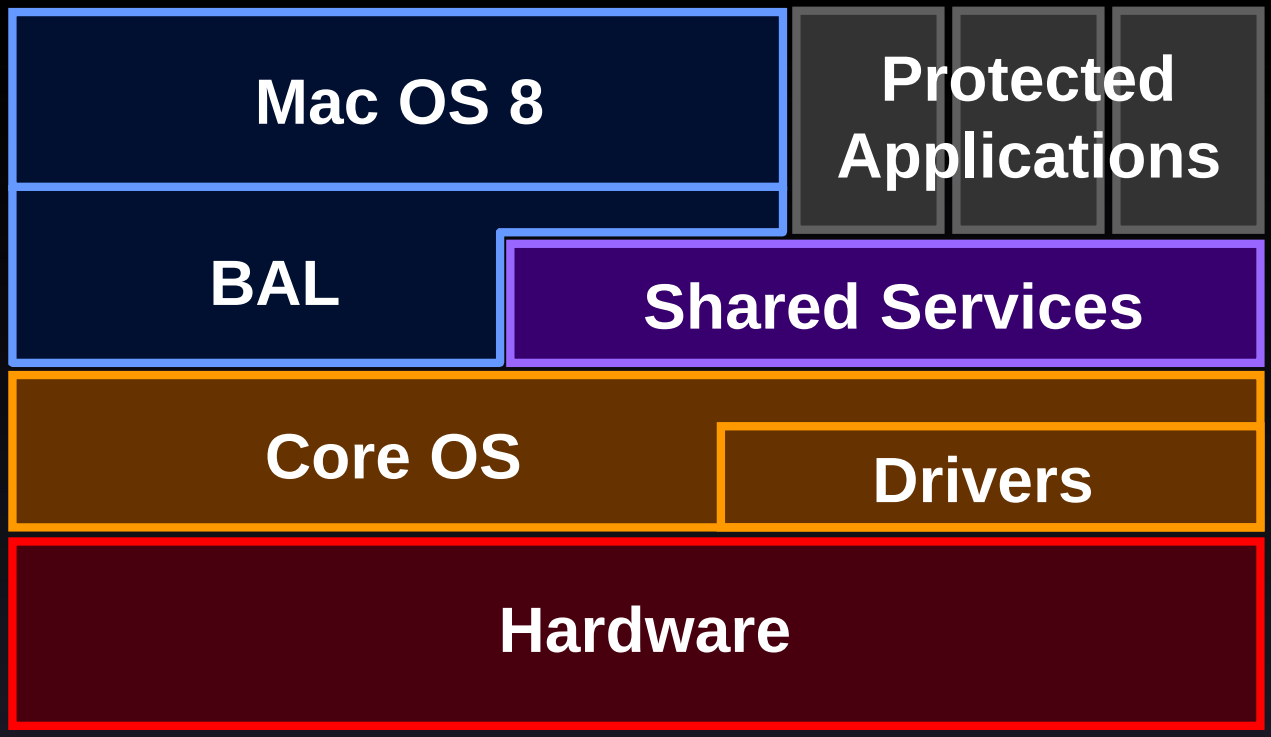
Blue Abstraction Layer

- Hardware services
  - Interrupts
  - Timing
  - I/O (disk, networking, user input, video)
- Shared services
  - File system, Desktop DB, Copy and Paste, AppleEvents, etc.

Blue Abstraction Layer



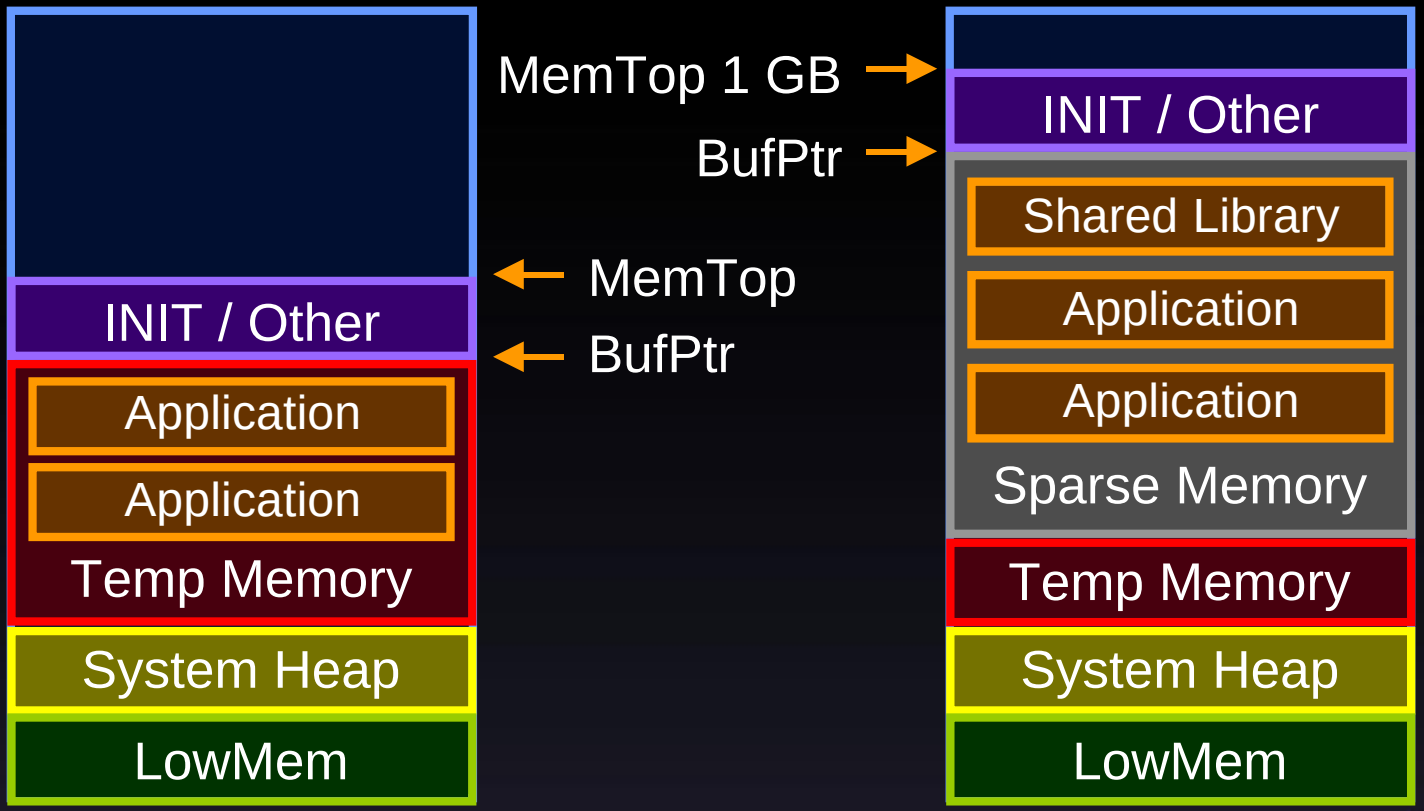
Blue Abstraction Layer



Memory

- Appears to have 1 GB RAM
- Mac OS Virtual Memory appears disabled
  - But CFM file mapping is enabled
- Uses Core OS Virtual Memory
  - Application heaps are sparsely allocated rather than using Temporary Memory
  - Allows the user to run more apps!

Memory Map Changes



Shared File System

- Work with the same disk volumes from both classic and protected applications
- HFS and HFS+
- Supports HFS-centric functionality
    - Forks, FileID's, CatSearch
- Restrictions: no driver level access

Exclusive File System

- Even more compatible than Shared mode
- Supports ISO 9660, DOS FAT, etc.
- Supports disk partitions and image files
- Disk images in Disk Copy format
    - Convenient on UFS partitions
    - Startup disk supplied this way

Networking

- Open Transport is fully supported!
- Includes compatibility services
    - Classic AppleTalk
    - MacTCP
- Very compatible
- Uses any ethernet adapter supported by Mac OS X

Device Drivers: DRVR

- Supported as long as they don't touch hardware
    - SCSI device drivers (returning soon)
        - Scanners, disk drivers
    - Disk images, RAM disks
    - Desk Accessories

Device Drivers: ndrv

- Name Registry and DriverServicesLib
- Currently, the device tree is empty,
  - This may change for USB, FireWire
- PCI devices require IOKit drivers
  - IOKit supports most video ‘ndrv’ drivers

What's Coming

- More Mac OS features
- More interoperability with protected apps
- Breaking out of the box!

More Mac OS Features

- Sound (returning soon)
- SCSI (returning soon)
- USB
- FireWire
- UDF (DVD-RAM/ROM)

More Interoperability

- Unified process management
- Single IP address
- Drag & drop

“Boxless” Blue Box

- All applications will share the screen
- A single, Carbon-based Finder
- Protected applications remain protected

Demo

A Reminder. . .

- When writing directly to the frame buffer
  - Create a window covering the screen
  - Only write when in the foreground
  - Use ShieldCursor/ShowCursor
  - Provide a compatibility mode that only uses QuickDraw

Summary

- The Blue Box *is* classic Mac OS
- You don’t need to “port” your applications to the Blue Box
- Instead, port them to Carbon!

Roadmap

Mac OS X Update	Hall 2 **Mon., 1:00pm**
Mac OS X Graphics Architecture	Hall 2 **Wed., 9:00am**
Carbon Overview (Repeat)	Hall C **Fri., 9:00am**
Mac OS X File System	Hall A1 **Fri., 2:30pm**

Q&A

Blue Box Engineers

Think different.™

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