

The background features a dark, textured surface with a glowing blue sphere in the center. The sphere has a white Apple logo on its top. A purple ribbon is wrapped around the sphere. In the background, there are faint images of a typewriter and a pen holder with several pens. The text "Worldwide" is written in a golden, serif font with a slight shadow effect.

Worldwide

Developers

Conference



rhapsody



Rhapsody Technical Strategy and Overview



Avadis Tevanian Jr.

*Senior Vice President
Software Engineering*

Apple Computer, Inc.



Rhapsody Marketing Overview

Ricardo Gonzalez

**Senior Product
Marketing Manager**

What is Rhapsody?

The next generation operating system using Apple and NeXT technologies

- **Mature NEXTSTEP foundation**
 - Mach, OpenStep, BSD, Distributed Objects
- **Industry leading Apple technology**
 - QuickTime Media Layer, ColorSync, AppleScript, etc.
- **Cutting edge network technology**
 - EOF
 - WebObjects



Why Rhapsody?

- **Direct response to customer needs**
 - Improved stability
 - Higher throughput
 - High Mac OS compatibility
- **Direct response to developer needs**
 - Cross-platform
 - Efficient development
 - Java integration



Rhapsody Target Markets

Establish Rhapsody as a volume software platform for desktop, mobile and servers



- **Publishing**
- **Multimedia**
- **Internet/Intranet**
- **Scientific/
Engineering**
- **Higher Education**
- **Enterprise**





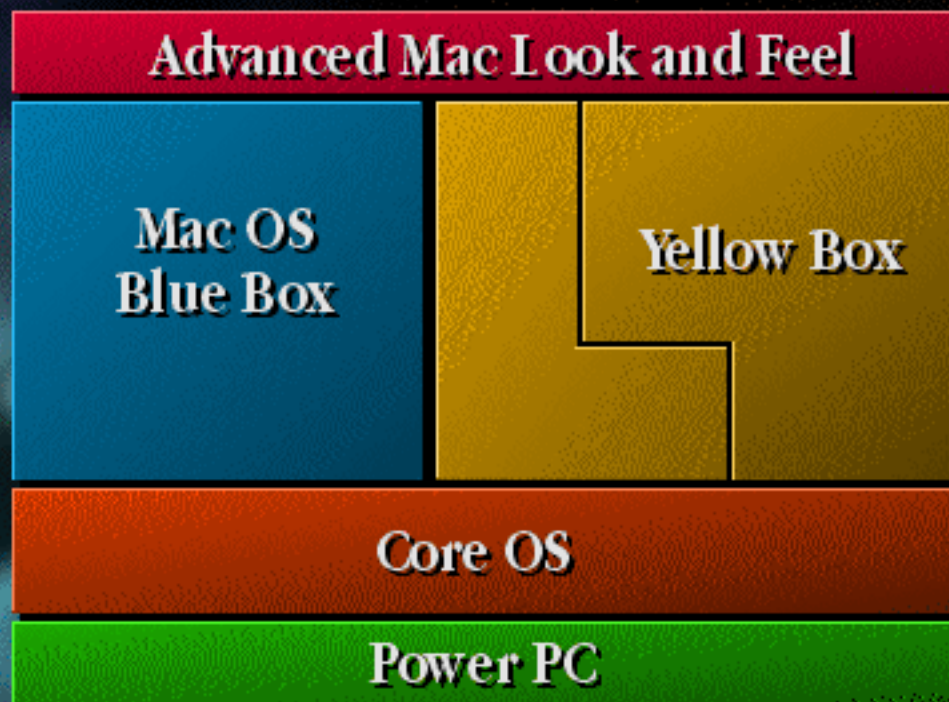
Rhapsody

Bertrand Serlet

**Senior Director
Rhapsody Engineering**



Rhapsody's Architecture



Starting Point: NEXTSTEP

- **NEXTSTEP represents**
 - State of the art toolbox
 - Architecturally sound
 - Strong APIs at all layers
 - Rich feature set
 - Various hardware and software platforms
- **Incremental approach**
 - Incorporate new technologies
 - Replace subsystems as needed



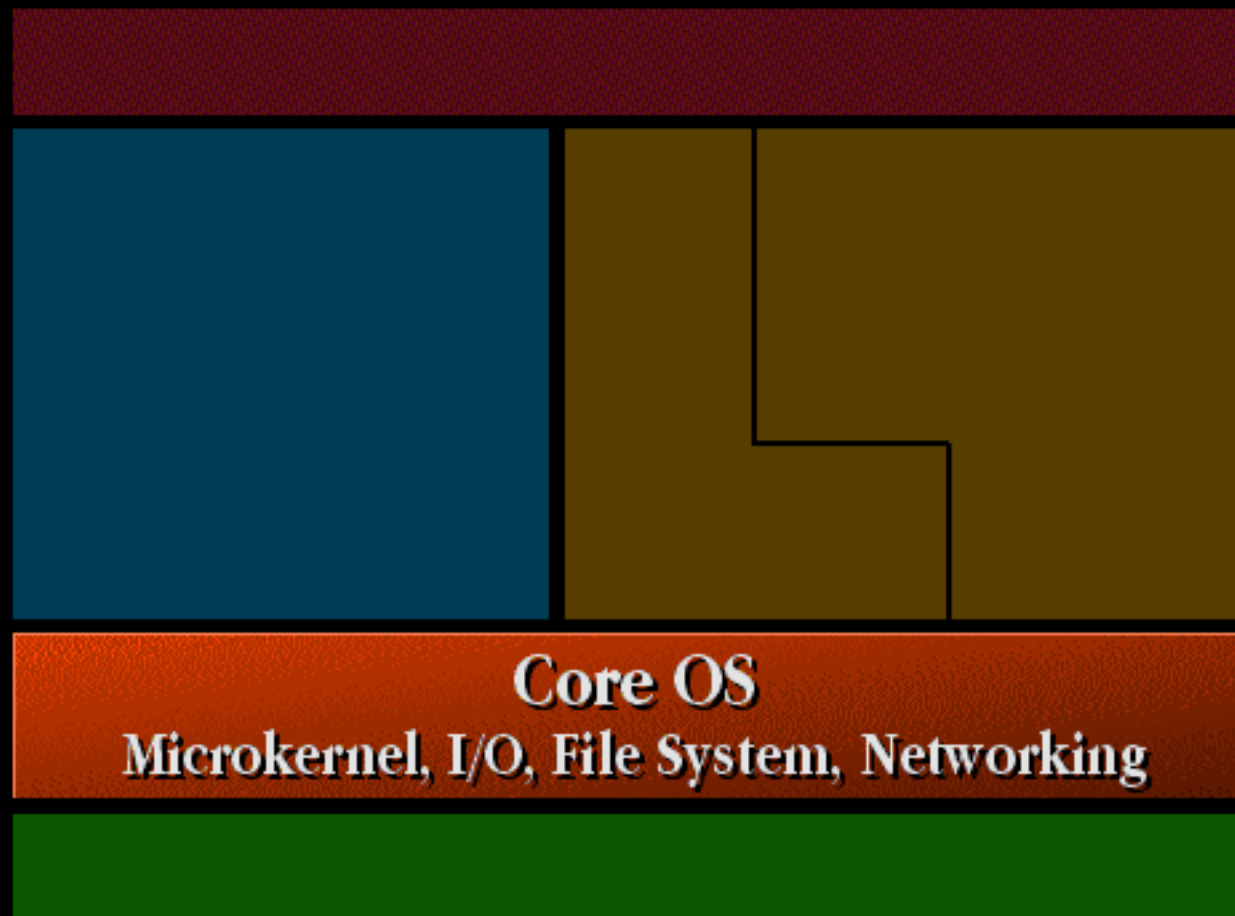


**Starting Point:
NEXTSTEP**

John Landwehr

Demo

Core OS



Core OS

- **Mach**
 - Modern small proven kernel
 - VM, Tasks, Threads, Messaging, SMP
- **Driver Architecture**
 - Dynamic loading for Plug and Play
 - Easy to create drivers
- **UNIX**
 - Standard
 - Tools, Networking, File System, Servers
 - Hidden!



Yellow Box

Yellow Box
OPENSTEP based



Yellow Box from OpenStep

- **OpenStep: 2nd Generation OO Design**
- **Depth of features**
- **Fully international**
- **Display PostScript**
- **Substrate for WebObjects**
- **High developer productivity**
- **Cross-platform**



Yellow Box

- **QuickTime Media Layer**
 - QuickTime, QuickTime VR, QuickDraw 3D
- **ColorSync, GX Typography, V-Twin, ...**
- **Scripting**
 - Integrated into the frameworks
- **More widgets**
 - TabView, OutlineView, ...
- **More standard data types**
 - PICT, HTML, ...
- **Enhanced Mac Look and Feel**



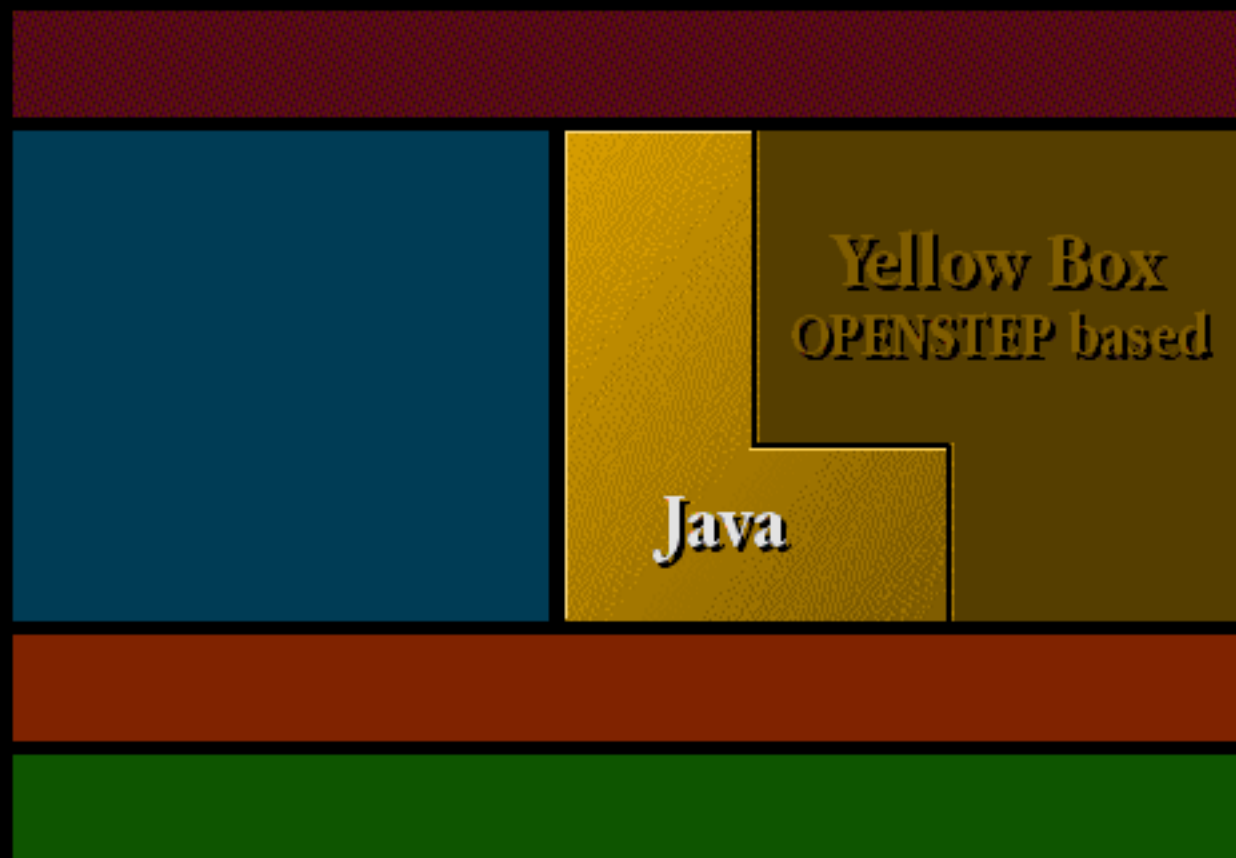


**Yellow Box
Look and Feel**

John Landwehr

Demo

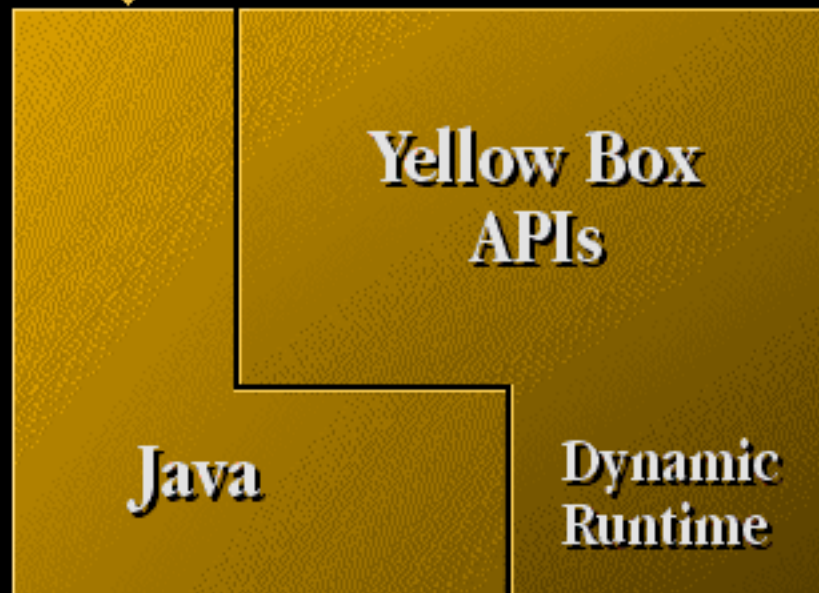
Yellow Box and Java



Java Support

- JDK 1.1 Java VM
- AWT
- All 100% pure Java libraries

100%
Pure
Java



Java Integration

- Objective-C to Java Bridge
- All Yellow Box APIs
- Applications in pure Java

Accelerated
Java



Yellow Box
APIs

Java

Dynamic
Runtime



Java Integration

The most advanced Java framework on Earth

Accelerated
Java



**Yellow Box
APIs**

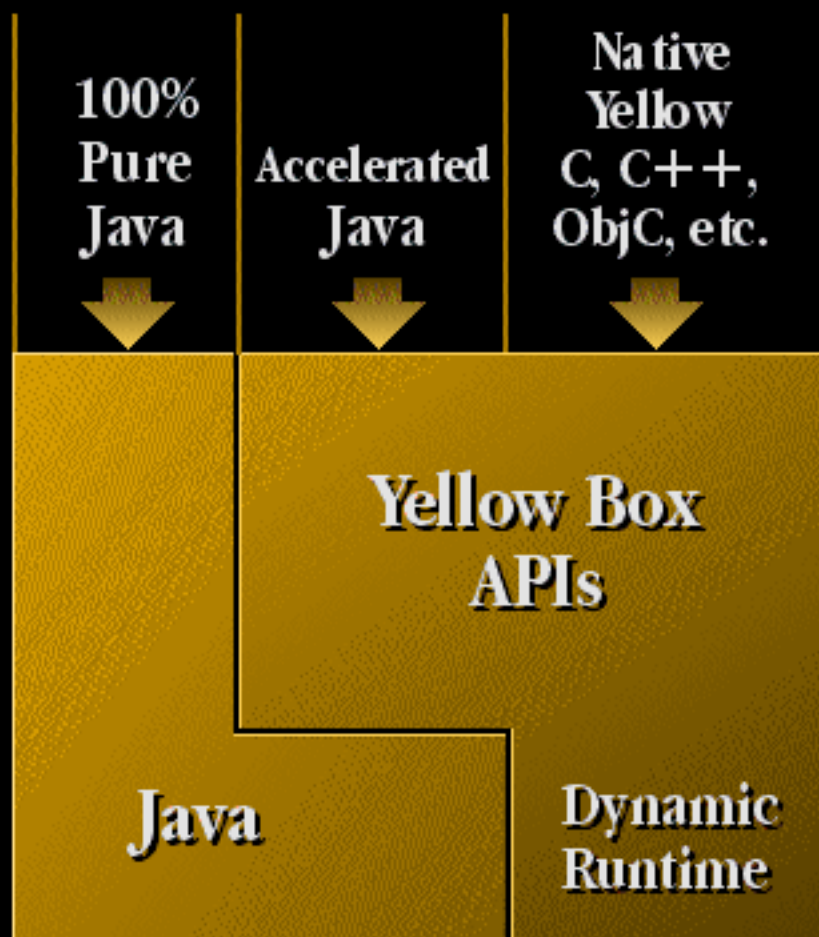
Java

**Dynamic
Runtime**



Java Choices

- **Convenience/
performance
trade-off**



Blue Box



Blue Box



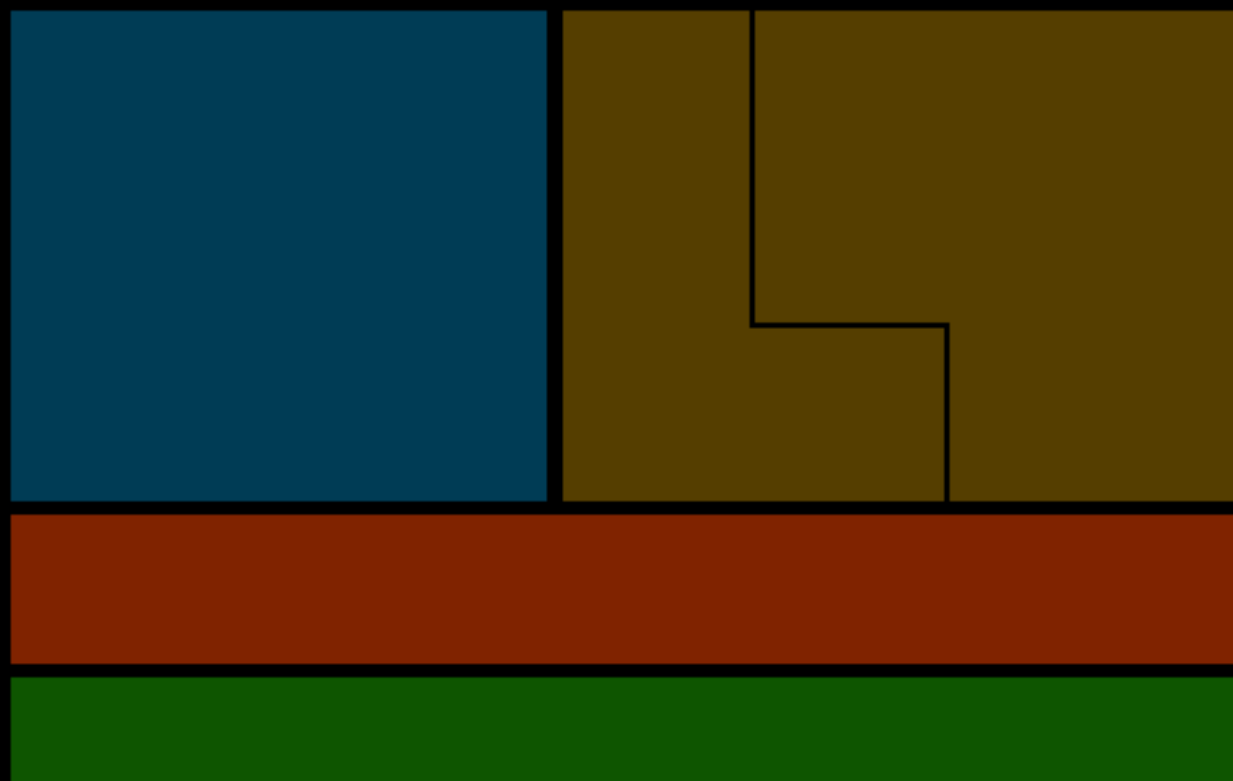
Blue Box

- **Not an emulator**
 - Runs Mac OS
 - Highest compatibility and performance
- **All unmodified Mac OS applications except**
 - Applications that access hardware directly
 - Low level system patches that expect global effect (disk compression, etc.)
- **Come check out compatibility at the Rhapsody “Hands-On” Lab**



User Experience

Advanced Mac Look and Feel

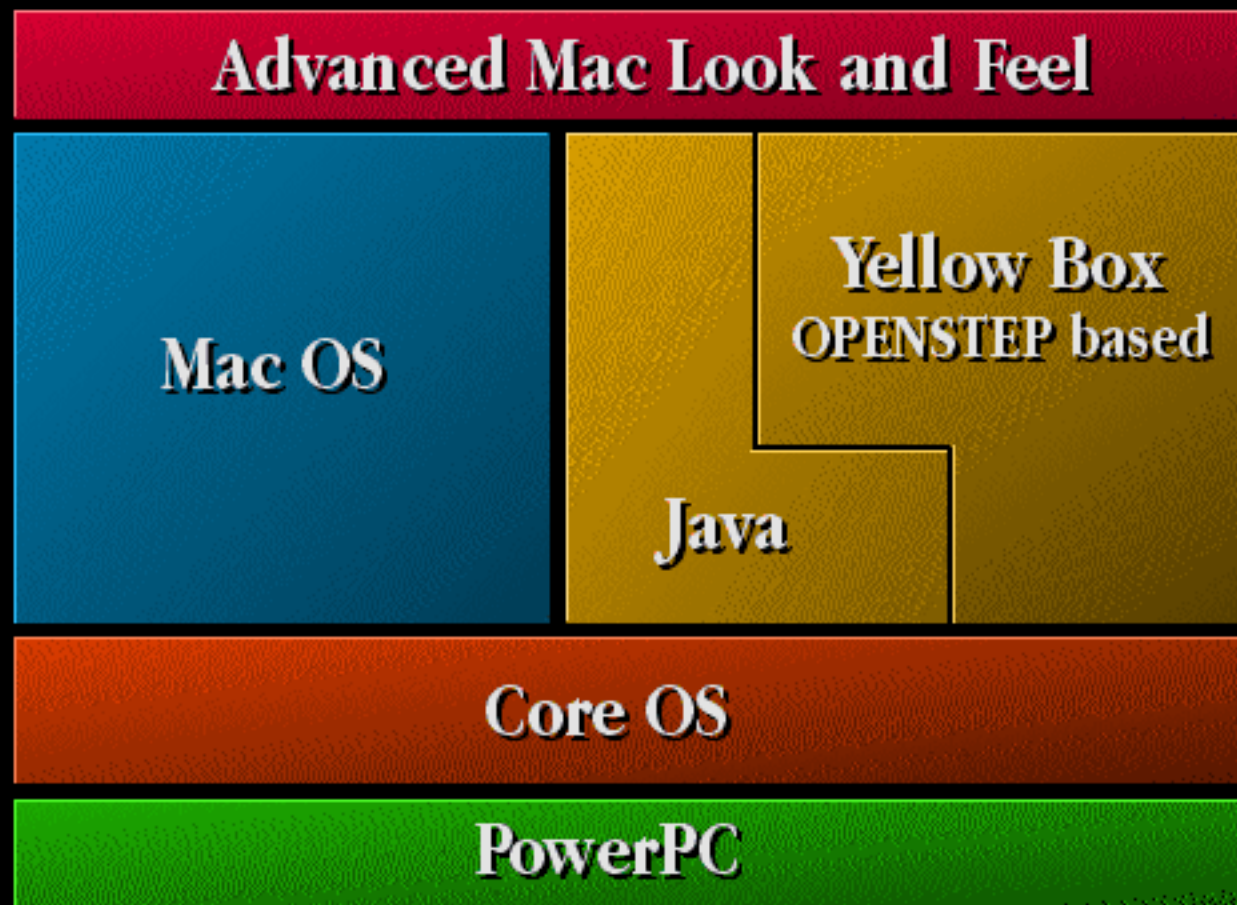


Advanced User Experience

- **Mac OS 8 Finder rewritten in Yellow**
 - NEXTSTEP features: Browser, Copy Engine
 - Extensible, replaceable
- **Key elements of Advanced Human Interface**
 - Live Widgets:
Scrolling, window drag, animated icons
 - HTML-based Help
- **Apple “Plug and Play”**
 - Networking
 - Integration of subsystems HW/SW



Rhapsody





Product Family: The Siblings

Rhapsody for Intel

Advanced Mac Look and Feel

**Yellow Box
OPENSTEP based**

Java

Core OS

Intel



Yellow Box for Windows

Deployment platform

Microsoft Windows™ Look and Feel

**Microsoft
Windows™
95/NT**

**Yellow Box
OPENSTEP based**

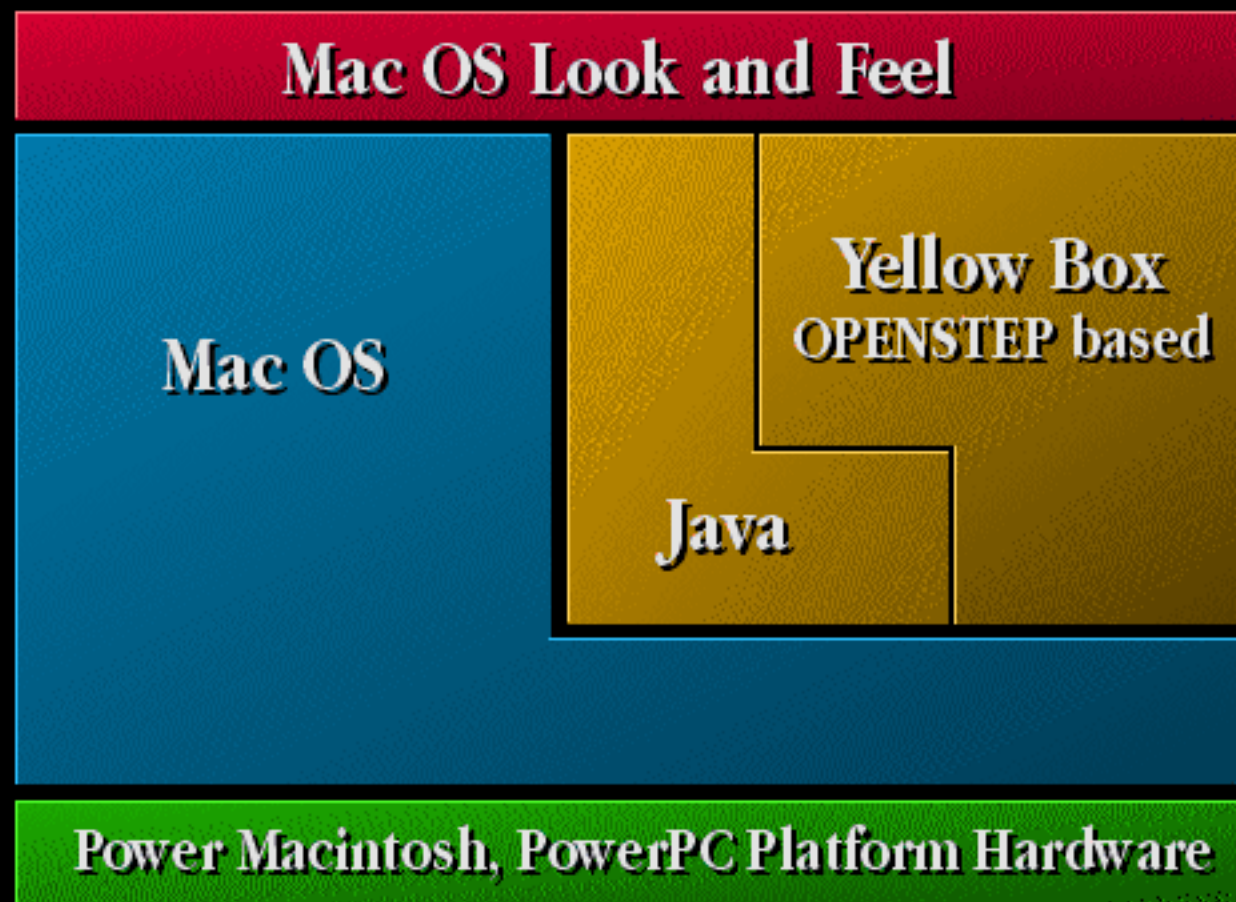
Java

Intel Based PC Hardware



Yellow Box for Mac OS

Deployment platform



Rhapsody Product Family

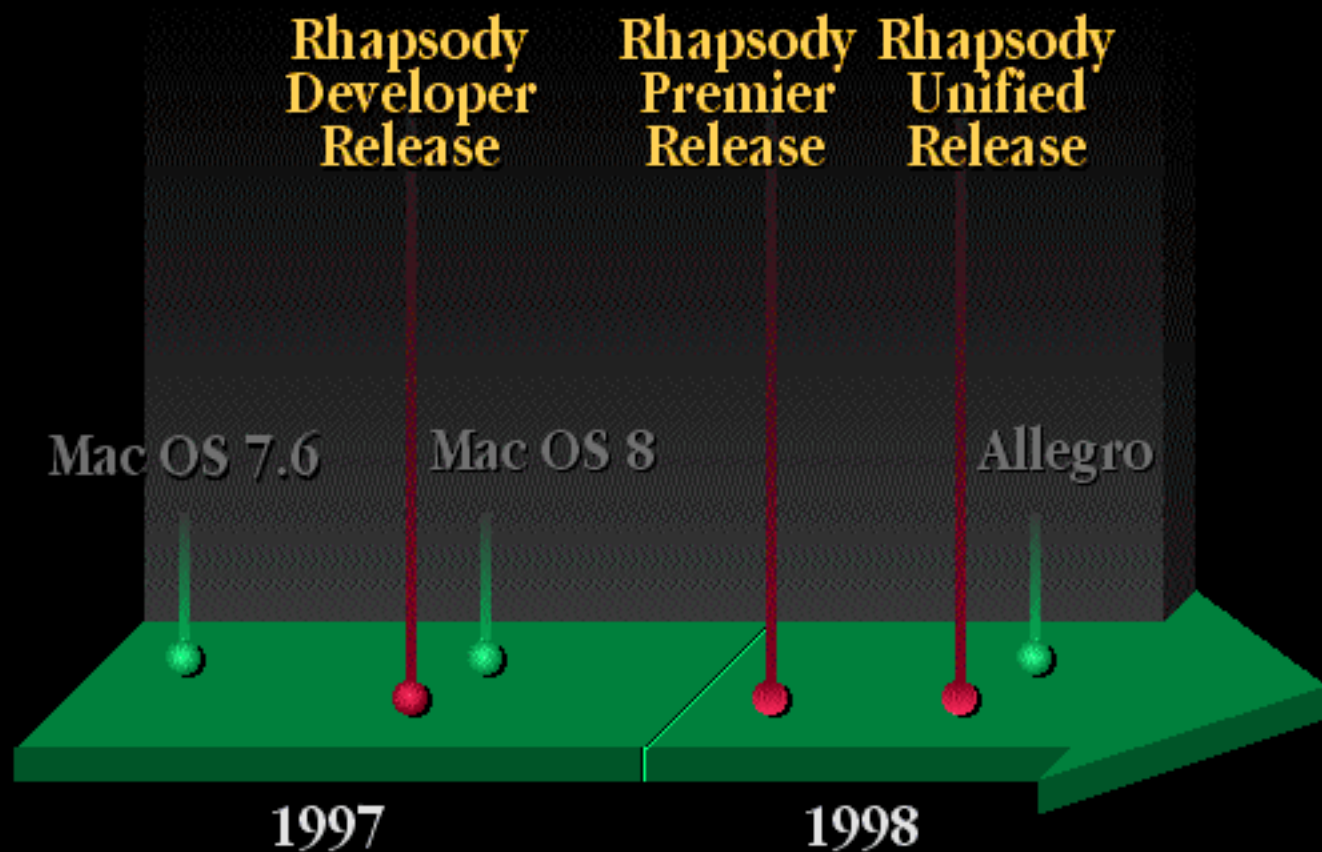
- **Complete software platform with OS**
 - Rhapsody
 - Rhapsody for Intel
- **Deployment platform**
 - Yellow Box for Windows
 - Yellow Box for Mac OS
- **Your Yellow-based applications will run everywhere!**





Roadmap

Rhapsody Roadmap



The Last Three Months

Feb 4 **Merging of the teams**



The Last Three Months

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Feb 24 **The PPC kernel compiles and links**



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April 9 **UNIX Prompt**



The Last Three Months

- Feb 4** Merging of the teams
- Feb 24** The PPC kernel compiles and links
- April 9** UNIX Prompt
- April 14** Blue Box Macsbug



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- April 16** Display PostScript on screen



The Last Three Months

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- April 9** UNIX Prompt
- April 14** Blue Box Macsbug
- April 16** Display PostScript on screen
- April 28** Blue Box Finder and applications



The Last Three Months

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- April 9** UNIX Prompt
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- April 30** Java VM



The Last Three Months

- Feb 4** Merging of the teams
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- April 9** UNIX Prompt
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- April 16** Display PostScript on screen
- April 28** Blue Box Finder and applications
- April 30** Java VM
- May 2** Multi-user UNIX prompt



The Last Three Months

- Feb 4** Merging of the teams
- Feb 24** The PPC kernel compiles and links
- April 9** UNIX Prompt
- April 14** Blue Box Macsbug
- April 16** Display PostScript on screen
- April 28** Blue Box Finder and applications
- April 30** Java VM
- May 2** Multi-user UNIX prompt
- May 2** First Yellow application on PPC!



Prelude to Rhapsody

- **Now for all attendees!**
- **What is it?**
 - OpenStep Mach 4.2 Prerelease 2
 - OpenStep NT 4.2
 - Enterprise Objects Framework
 - WebObjects
- **What should you do with it?**
 - Verify our cross-platform commitment!
 - Learn OpenStep and jump start your Rhapsody development!



Developer Release

- **Summer '97**
 - Seeding to Apple Developer Program
- **For whom?**
 - Not for users
 - All developers except DD developers
- **Quality goal**
 - Prerelease, but developers can live on it
- **First support Power Macs**
 - Only 8500 and 8600 supported



Premier Release

- **Early '98**
- **For all developers (including DDD)**
 - Final APIs (Java, DDK)
 - Cross-Platform Multimedia (QTML)
- **Certain classes of users**
 - OS server-ready (SMP)
 - Blue Box running Productivity Apps
- **Runs on modern PPCs, PowerBooks**
- **UI Polish at least as good as NEXTSTEP's**



Unified Release

- **Mid '98**
- **For most high-end Mac users**
 - Drivers available for most PPC devices
 - Tuning: I/O performance
 - Best performing Java
 - Full Blue Box runs most Mac Apps
 - Advanced UE
- **There will be many customers for your products in this timeframe!**





Developer Opportunities

Ken Bereskin

**Manager
Rhapsody Evangelism**

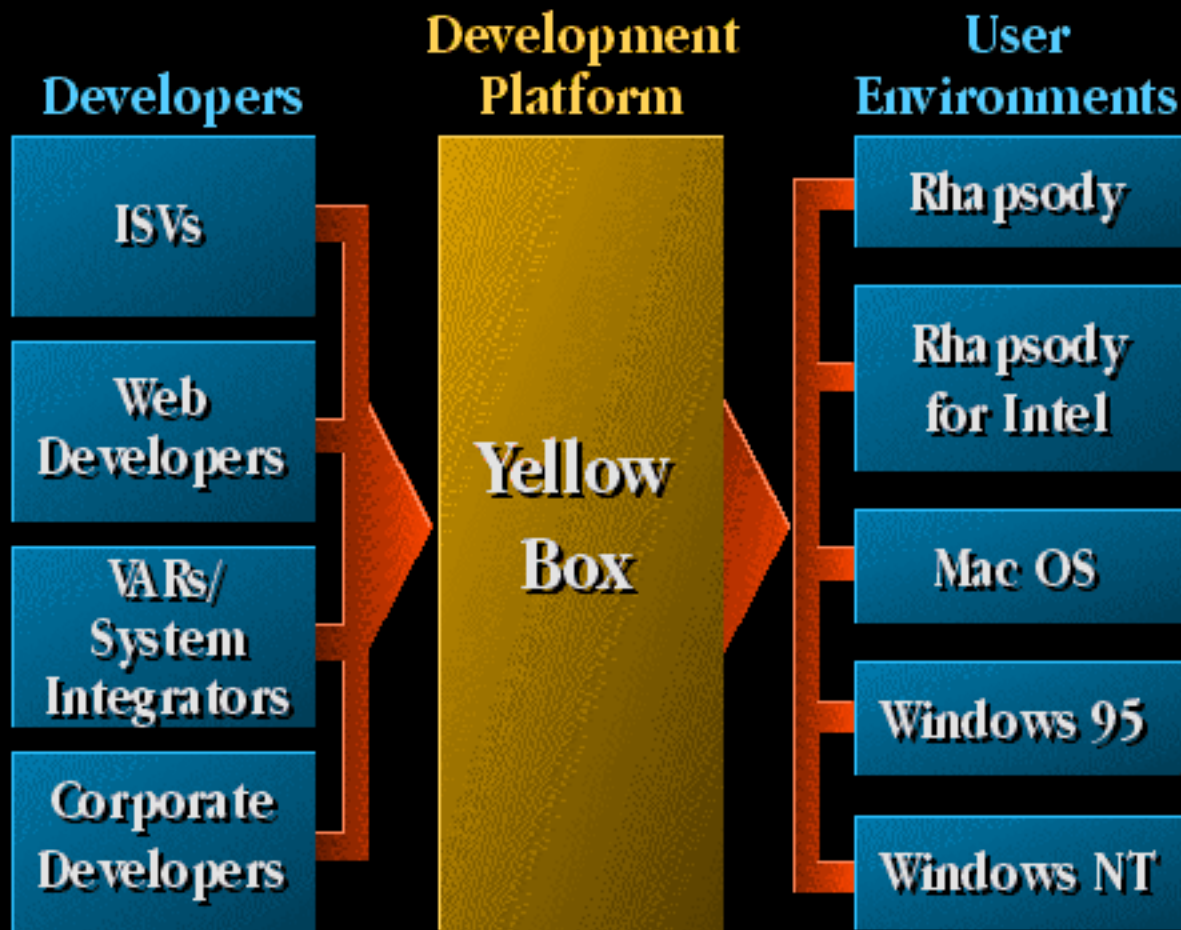
Yellow Box: The Platform

It's more than just Rhapsody

- Develop “best of breed” solutions
- Deliver across multiple platforms
- Shorten the development cycle
- Bring the benefits of Java to all solutions



Yellow Developer Platform





**Yellow Box
Platform Demo**

Ken Bereskin

Demo

How Can You Start

- **Learn OpenStep with Prelude to Rhapsody**
 - Full suite of current tools
 - Great documentation on CD
 - Get started today!
- **Rhapsody Hands-On Lab**
 - OpenStep Tutorial
 - Try out your software on the Blue Box



Rhapsody Evangelism and Support

- **Rhapsody Evangelism Team**
 - Covering all aspects of Rhapsody Technology
- **Rhapsody DTS team**
 - Ramping up for developer release
 - Broad range of services will be provided
- **No direct support for Prelude**
 - Detailed configuration guide
 - <http://devworld.apple.com/dev/Prelude.html>
- **Installation of OpenStep/Mach for Intel can be an adventure**



Feedback

- **Developer feedback**
 - rhapsody-dev-feedback@apple.com
- **Feedback is essential**
 - Decision making
 - FAQ
 - Future directions
- **Not a vehicle for Technical Support**



Rhapsody Session Roadmap

- **21 Sessions in Rhapsody Track**
 - And Feedback Forums
- **Internet Track**
 - 405 Building Java-based applications for Rhapsody
 - 415 Uncommon Object Model: Rhapsody Runtime
 - All WebObjects sessions
- **Hardware Track**
 - 505 Multiprocessing Strategies
- **Rhapsody Hands-On Lab**
 - Late Night is “Thursday” until 1:00 am



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