Enterprise-wide Web Browsers for the Desktop

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Agenda

- Historical Web Browser Deployment
- Web Browser Trends
- Standards Recommendation

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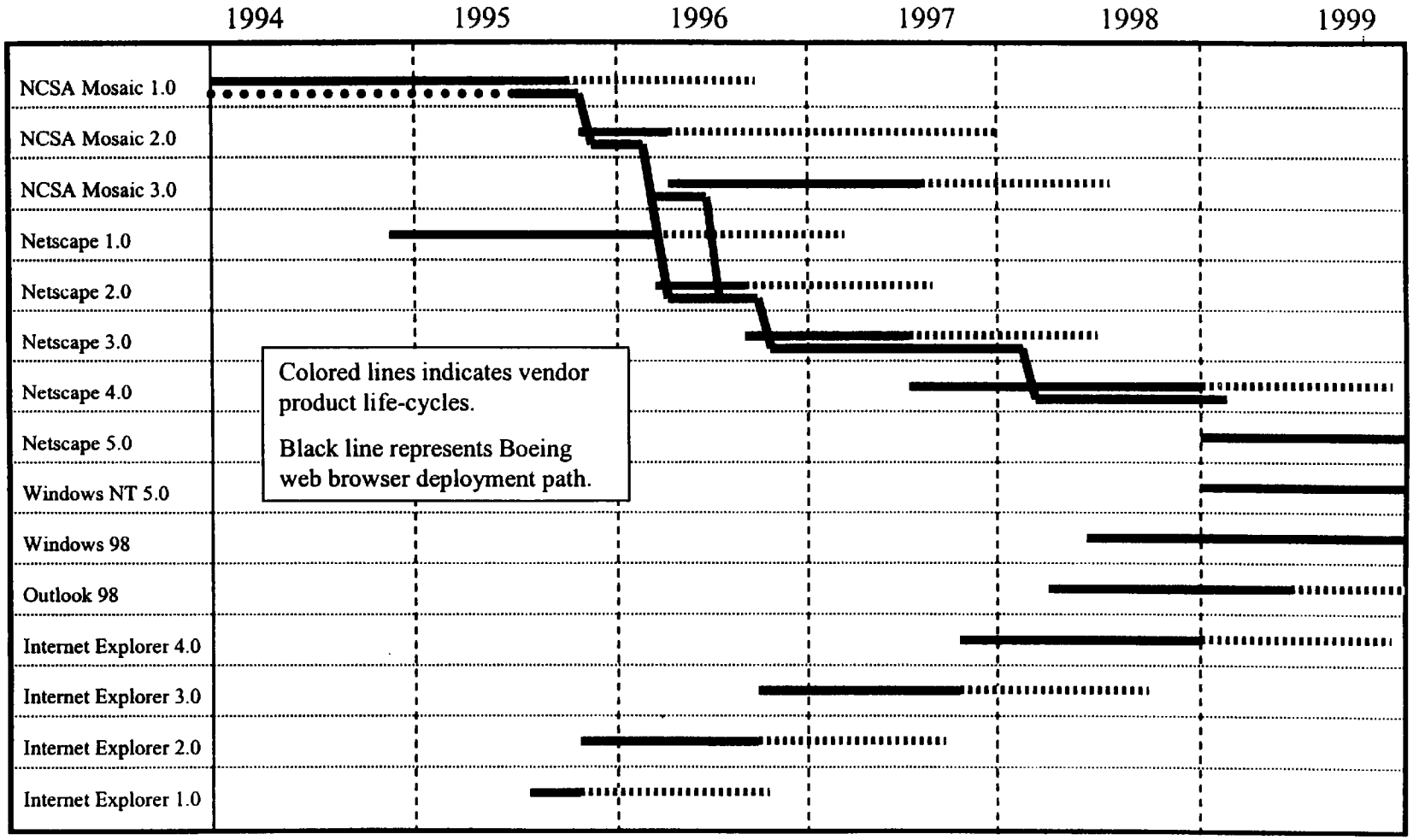
Boeing Web Browser Deployment vs. Vendor Web Browser Releases



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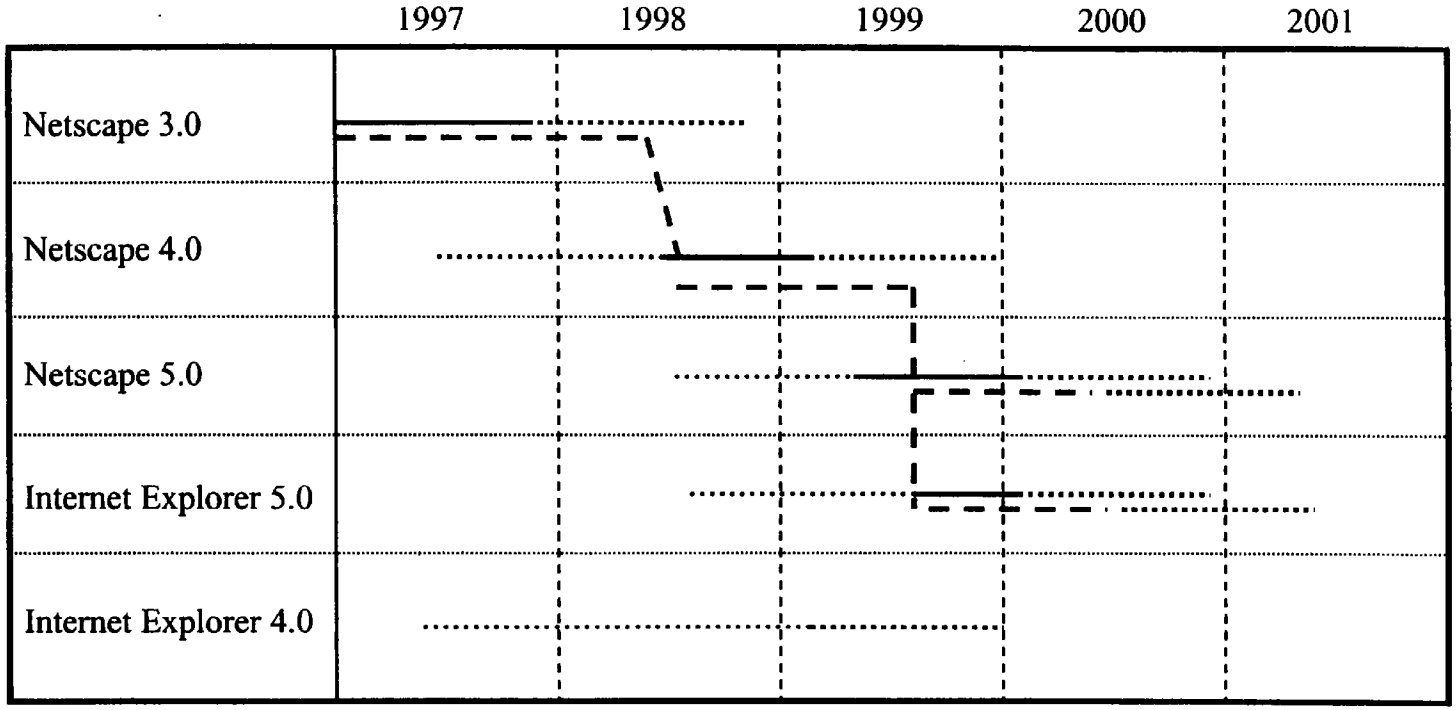

Footnotes:

1) UNIX platforms are expected to continue using the Netscape browser.

Current versions of Internet Explorer for UNIX do not meet functional and reliability requirements.

2) Internet Explorer 5.0 will be bundled with Windows NT 5.0, Office 9, and Outlook 9.

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Web Browser Trends

- Web Technology Divergence
- Web Technology Convergence
- Operating system integration.
  Window 98 and Windows NT 5.0
- Platform support
- Emerging standards

Level set: information applies to version 4.0 web browsers only.

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Web Browser Trends: Technology Divergence

Technology	Microsoft Internet Explorer	Netscape Communicator	Coexistence /Risk	Statement of Direction	Standards Initiative
Code Signing	Authenticode	Java Archive (JAR)	High		WC3 - DSig 1.0
Remote Objects	ActiveX, DCOM	CORBA/IIOP	Medium	BCAG 97-06-ARB	Open Group
Document Object Model	Document Object Model (DOM)	Document Object Model (DOM)	Medium		W3C - DOM level 1
Java	• Application Foundation Classes (AFC) • J/Direct • Windows Foundation Classes (WFC)	• Java Foundation Classes (JFC) • Abstract Windows Toolkit (AWT)	High		

W3C - World Wide Web consortium

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Web Browser Trends: Technology Divergence, details

- Code signing
  - Code and content signing will become increasingly important for authenticating mobile code or executable content. Currently, the Netscape Java Archive (JAR) format is supported on all Netscape platforms. Further, W3C Digital Signing (DSig 1.0) initiative will be based on the JAR format. JAR can sign any object. Authenticode is a Microsoft-only signing technology. Authenticode only signs binary executables.
- Object technology
  - Competing object technologies each supported by a corresponding industry organization. CORBA is a multi-platform object solution. BCAG has released ASB 97-06-ARB documenting a statement of direction in this area. Potential exists for bridging between these divergent object technologies. Without effective gateway or bridging between the competing object technologies this category would become a "High" risk.
- Document Object Model (DOM)
  - The DOM is the architecture for programmatically referring to the components in an HTML document. Different DOM's from each vendor make creating Dynamic HTML difficult but not impossible for a dual browser environment. W3C standards are beginning to emerge in this area.
- Java
  - Microsoft continues to create Windows-specific Java implementations. Windows Foundation Classes (WFC) push the Microsoft Java Virtual Machine (JVM) into a 32-bit Windows-only environment. Developers using Microsoft programming tools may have difficulty knowing when they are creating Microsoft-JVM-only compatible Java programs.

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Web Browser Trends: Technology Convergence

Component/Version	Standards Body	Boeing Statement of Direction
HTML 3.2	W3C	97-47-DMSB
Cascading Style Sheets (CSS1) and Cascading Style Sheets Positioning (CSSP)	W3C	
Javascript (ECMA-262)	ECMA	
Secure Sockets Layer (SSL)	IETF	97-09-ARB
Java Activator (common JDK plug-in from Sunsoft; will work in both browsers)	(Sunsoft)	

ECMA - European Computer Manufacturers Association

IETF - Internet Engineering Task Force

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Web Browser Trends: Emerging Standards

- Release Specifications:
  - HTML 4.0
- Draft Specifications:
  - Cascading Style Sheets, level 2 (CSS2)
  - Document Object Model (DOM)
  - Digital Signing Initiative (DSig 1.0)
  - Extensible Markup Language (XML)
    - Extensible Style Language (XSL)
    - Resource Description Framework (RDF)
- Both vendors are participating in W3C standards activities. But support is uncertain.

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Web Browser Trends:
Operating system integration

- Windows 95:

  Internet Explorer 4.0 modifies the operating system by replacing key system Dynamic Link Libraries (DLL's)

  - Expense and time to perform adequate regression testing with existing infrastructure and desktop applications is prohibitive.

- Windows 98 and Windows NT 5.0:

  Internet Explorer is an integral part of the operating systems.

  - Regression testing with existing infrastructure and desktop applications will be performed as part of the standard operating system evaluation process.

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Web Browser Trends:
Operating system integration, issues

- Browser software is frequently updated for bugs and security problems. Applying these patches to a browser that is part of the operating system may have unpredictable side effects.
- Installing both web browsers may:
  - Confuse users about which browser to use.
  - Increase end user support costs.
- Microsoft has assured the industry that the embedded Internet Explorer can be disabled as the web browser.
  - How will this be delivered?
  - Customized installation?
  - What other issues will come to light?

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Web Browser Trends:
Platform Support

- Netscape Communicator is available for all platforms release within 30-90 days on all platforms.
- Microsoft Internet Explorer for UNIX
  - Solaris version is available now.
    - UNIX browser product manager has been evaluating this product.
  - HP-UX, AIX, and Irix are to follow at approximately 90 day intervals. (2nd, 3rd, and 4th quarters respectively)
  - It will take nearly a year to get support for major UNIX platforms. Some platforms will not be supported at all.
  - Some functional differences exist between the UNIX and Windows versions of Internet Explorer 4.0.

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Boeing Architectural Directions

- Object Technologies
- File Formats
- Data Types
- Protocols
- Plug-ins
- . . .

Work with Boeing standards, architecture, and technical working groups to establish and support enterprise-wide standards.

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Web Browser Recommendation

- Business case: Continue with Netscape as the standard web browser.
- Technical case: Upgrade the standard to version 4.04 (or greater)

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Business Case Summary

- Cheaper to stay with Netscape
- Analysis includes:
  - 3 year life cycle.
  - 4 optional scenarios.
  - Upgrade and conversion cost.
  - Cost of training, support, and testing.
  - Discount to Net Present Value (NPV)

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Technical Case Summary

- Upgrade to version 4.04 (or greater) because:
  - New administrative features.
    - LAN based (Node) installation.
    - Multiple profile support: Laptops, roaming, portable profiles.
    - Remote configuration capabilities
  - Browser security issues.
  - Bug fixes.
  - Java through the firewall.
  - Dynamic HTML.
    - Cascading Style Sheets (CSS)
    - Cascading Style Sheet Positioning (CSSP)

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18-month Web Browser plan: Possible migration scenarios (12/97 - 5/99)

- All platforms upgrade to Netscape 4.0 now
- Windows:
  - When Windows operating system migration occurs, evaluate and recommend whether to:
    - Remain with Netscape and disable IE; or
    - Migrate to IE; or,
    - Install/allow both.
- UNIX:
  - Evaluate Internet Explorer UNIX version.
  - Decide:
    - Remain with Netscape; or
    - Migrate to IE; or,
    - Install/allow both

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