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18-Month Tactical Plan
Internet Explorer 5.0

The main reasons for moving to Internet Explorer 5.0 in Q2/3 of 1999 of the 18-month tactical plan are:

We do not have a choice.

Internet Explorer will be installed as a component of our next generation desktop operating system. The integration between Internet Explorer and the desktop operating system cannot be fully disabled. I believe that it is unlikely that the Department of Justice will compel Microsoft to re-write Windows 98 and Windows NT 5.0 so that they do not include the Internet Explorer.

Analogy:
From Microsoft's perspective, asking them to remove Internet Explorer from the desktop and allow an alternative manufacturer's browser to provide the equivalent functionality would be analogous to one of our airline customers saying, "We like the Boeing airplane's wings, fuselage, control systems, and infrastructure but we want to use an Airbus cockpit to control the airplane".

The choice we will have to make is whether we will install a Netscape browser in addition to Internet Explorer and how Internet Explorer will be configured. (See the "Risks" section below)

Operating System integration.

Microsoft is unlikely to back away from their commitment to integrating the Web browser into the operating system. Our only choice is whether we will install two browsers or just install Internet Explorer. Some functional requirements may exist for certain workstations to require the use of both browsers. (see Risks)
Note: The following features are part of Windows 98 and are presumed to be part of Windows NT 5.0.

Integration features:
- Active Desktop (HTML content linked to the Windows desktop)
- Windows Explorer and Internet Explorer are effectively the same application. Windows Explorer can be configured to look like Internet Explorer and Internet Explorer can be configured to look like Windows Explorer.
- Windows Explorer "Web View" supports customized views of specific folders. This customized view is a special HTML file named "folder.htt" which is generated and can then be customized to render a specific folder appearance.
- Help system is based (at least partially) on HTML and uses Explorer to render the content.
- Control Panel is an Explorer window.
- The location bar is available in all Explorer based windows and will accept local path or internet path information.
- The "Back" and "Forward" buttons appear on all Explorer based windows.

Note: This list should not be considered exhaustive, other integration features may exist. The point is that Explorer is very closely part of the base operating system and cannot be decoupled.

Office 2000(?) suite integration.

The Office 2000(?) suite will require the installation of Internet Explorer 5.0 for the best possible results and at a minimum will require Internet Explorer 4.0. The integration features available with Internet Explorer will likely not be available if you are using an alternative browser as your default. NDA Note: testing with Windows 98 has uncovered some problems with the Help system when an alternative browser is specified as the default browser. This feature has not been tested in the production release.

Integration features:
- Office Web Components. ActiveX controls that allow the rendering of specific Office suite application feature within the browser window. Allows rendering of rich, dynamic content using native Office file formats and features. Examples are: pivot tables, charts, and data access.
- Help system is based (at least partially) on HTML and uses Explorer to render the content.
- Opening hyper-text links embeded in Office documents.

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- Open HTML documents directly in Office suite.

Outlook 98 integration.

Internet Explorer 4.0 will automatically be installed when Outlook 98 is installed. IE is used to render HTML content that is sent as mail. All executable content or mobile code embedded in the HTML document is treated as if it is from the "Internet Zone".

Browser functional equivalence.

The two main browser products (Netscape and Microsoft) are very close to par at the 4.0 version level.
Browser equivalence means that the same or very similar effects and capabilities are available in both browsers. This does not imply that the browsers will interpret all HTML content in exactly the same way. If we set web application development guidelines that direct developers to create web applications that are browser agnostic, we will preserve our ability to leverage the web on any platform, even if we have different browsers on different platforms. Techniques can be employed that allow the content to detect the browser vendor, and version and execute appropriate content for that specific environment. This approach adds complexity to the content and makes future modifications more difficult.

In our desktop products evaluations we abandoned a "best of breed" strategy several years ago in favor of an integrated product suite. Selecting a single product suite has advantages in consistency of user interface and leveraged learning from product to product. Variations between vendors are usually subtle, but exists nonetheless. At the 4.0 level browser we are able to duplicate the integration features of both browsers through careful configuration and by providing specific installation instructions. It is not possible to guess accurately whether we will be able to do this with the 5.0 level browsers. It is likely that it will not be possible to fully duplicate all Internet Explorer functionality and integration features due to the integration with the operating system. Given that our next generation operating system, messaging infrastructure, and desktop productivity suite will integrate and in some cases require Internet Explorer it seems clear that it will be installed as a part of our next operating system.

From a functional standpoint, Internet Explorer 2.0 was an inferior product. It was slow, lacked support for specific features and was not reliable. Internet Explorer 3.0 brought the functionality and performance of the browser up to acceptable levels. The stability of the product was acceptable and support for web standards was adequate relative to other products on the market. Internet Explorer 3.0 contained the ability to download, install, and execute ActiveX controls. These controls could run unconstrained on the local system without user intervention or knowledge. ActiveX control capabilities could only be turned on or off. This factor combined with the overall better performance and support for web standards in the Netscape browser caused Navigator to be selected as the standard browser. Internet Explorer 4.0 provided a mitigation for the risk from ActiveX controls name "Zones". Zones do not eliminate the risk from ActiveX controls but do allow the end user to make a selective decision about what controls are executed by specific sites or general parts of the network. The quality of support for internet standards was very high. The problem for Internet Explorer 4.0 is that it modified the Windows 95 operating system DLL's. Several conflicts were identified with commercial software packages. All known conflicts have been resolved, either by the software vendor or by a Microsoft patch. However, concern exists for conflicts with Boeing custom written applications. Due to these concerns and because there was not a compelling technology reason to change the standard web browser vendor, the Netscape browser was selected as the browser standard. A business case was also developed that supported this conclusion.

Risks:

The main risk for this strategy is that it may cause us to install a second browser on these desktops in order to support specific capabilities on specific web systems. The mitigation strategy is to set application development guidelines that help developers avoid features and technologies that will cause specific browser dependancies.

Current Web Development.
Web application are being developed and deployed today with dependencies on Netscape specific features due to technology divergences listed below. Some of these applications will require rework to support Internet Explorer. This is the main reason why some users will require the installation of the Netscape in addition to the Internet Explorer browser that is integrated with the operating system. *There is a possibility that Microsoft will suddenly support all of Netscape's web initiatives and become 100% compatible with the Netscape browser, but I wouldn't hold my breath.*

Browser technology divergence continues.
- Incompatible Java implementations and features.
- Digital object and content signing.

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- Document Object Model
- Dynamic HTML
- Executable content
- Other emerging technologies (TBD)

Developers create "Best viewed by ..." sites.
These sites would only render accurately on a specific browser vendor and/or version.

User confusion.
Having two web browsers on the desktop will confuse users. This confusion will be worse if some web applications require Internet Explorer while others require Netscape. Users will have to remember, "to access web site A I use IE, to access web site B I must user Netscape." This is a realistic possibility as we currently have developers developing applications with dependencies on Netscape.

Strategies:

Standardize on Netscape 5.0
- Remove IE

- Disable IE
- Config control IE

Allow both

Standardize on IE

Conclusion:
I believe that it is premature to state what browser product we will standardize on based on the currently available information. Both 5.0 version browsers are still. It is not premature to assert that IE will be installed as a part of several products based on Microsofts product initiatives. Whether this will be our standard browser should depend on how well the product supports our desktop requirements.

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