

D. The threats to Microsoft’s monopoly posed by Internet browsers and Java are mutually reinforcing, and they could be essential to the emergence of other platform-level threats to Microsoft’s operating system monopoly

60. The competitive threats posed by non-Microsoft Internet browsers and cross-platform Java are, to a significant degree, interdependent.

60.1. Dissemination of Java virtual machines and Java runtime environments not controlled by Microsoft hinges in significant measure on the widespread distribution of non-Microsoft Internet browsers.

60.1.1. Industry witnesses recognize that Internet browsers are the principal distribution vehicle for Java Virtual Machines and JREs and that, because Microsoft distributes only its own (as will be discussed below, non-cross-platform) implementation of the JRE with its browser, Netscape Navigator was the principal distribution vehicle for cross-platform Java.

- i. IBM’s John Soyring testified that Netscape has been a significant distributor of Java virtual machines: “Netscape is a very high-volume distribution vehicle for Java virtual machines on operating systems other than OS/2.” Soyring, 11/18/98am, at 89:8-12; see also Soyring Dir. ¶¶ 28 (“The reason this relates to browsers is that Netscape Navigator has been the prime distribution vehicle for Sun's Java technology while Internet Explorer contains the Microsoft version of Java.”).
- ii. Barksdale testified that “the widespread distribution of Netscape Navigator facilitated widespread distribution of the Java programming language developed at Sun Microsystems.” Barksdale Dir. ¶ 15; see also Sasaki Dep. (played 12/16/98pm), at 31:6-8; 32:8-11.

60.1.2. Microsoft, both in contemporaneous documents and through its witnesses at trial, recognized that Internet browsers are essential to distribute JVMs and Java class libraries and, in particular, that Netscape was the principal distribution vehicle for a cross-platform Java

runtime environment.

- i. Muglia acknowledged at trial that Netscape has been "one of the largest volume distributors of JVMs." Muglia Dir. ¶ 15.
- ii. Maritz conceded that Netscape, in May and June 1995, "was an important distribution vehicle for Java APIs." Maritz, 1/26/99pm, at 59:21 - 60:6; Maritz, 1/26/99am, at 30:10 - 31:2.
- iii. Documents written by Maritz in 1997 expressly link Netscape and Java as a threat. GX 52, MS7 003270 (January 1997 Microsoft presentation identifies as a "Scenario: Emergence of a new API" and notes that "Sun AWT provides base cross-platform API" and further, that "Navigator/NetOne provides: additional API's" and "a volume platform for ISVs & Corps to target, since runtime gets shipped with Navigator"); GX 113; GX 514, at MS7 007509 ("If we look further at Java/JFC as being our major threat, then Nscp is the major distribution vehicle.").

60.2. Conversely, the ability of Internet browsers to supply an attractive set of APIs is enhanced by the viability of cross-platform Java APIs. The browser and Java APIs sets can together provide the foundation for developers seeking to write cross-platform applications, particularly network- and Internet-oriented applications.

- i. Contemporaneous Microsoft documents describe the interdependence of competitive browser and Java products. E.g., GX 466, at MS6 5003781 ("Without question, the Java platform API's have surpassed the Macintosh as the #2 platform for software development. In concert with this, Netscape has its own offering of platform API's called Netscape One which is also built on Java. Collectively, these two initiatives represent the most serious threat to our core Windows business which Microsoft has seen in years. The Windows franchise is fueled by application development which is focused on our core APIs. When a developer writes an application to AWT, even if they are using Windows and Visual J++, they are not supporting our platform. Instead, they are furthering Sun's momentum, potentially opening up the opportunity for our competitor to slide in its own operating system offering."); GX 485, at MS6 5005195
("The Internet challenge is critical as Netscape, Sun and others try to build

a non-Microsoft platform alternative.”).

- ii. Gosling also summarized how browsers and Java technology together can be particularly significant for Internet-oriented applications: "Because the Java technology is particularly useful for running software that is downloaded over a network, such as the Internet, we adapted the Java technology to work in conjunction with web browsing programs known as 'browsers.' . . . Java technology in essence permits certain software programs to run within browsers. Java-based programs can be downloaded from the Internet or other network to a user's computer without regard to what operating system or hardware is installed." Gosling Dir. ¶¶ 34-35.
- iii. Dr. Warren-Boulton also explained that competitive browsers may over time competitive browsers tend to threaten the Windows monopoly more as a complement to, and distribution vehicle for, Java, rather than as an independent platform in its own right. Warren-Boulton, 12/1/98am, at 42:7 - 43:10; see also Warren-Boulton, 11/19/98am, at 48:13-24 (Java an implicit complement to browsers).

61. Because of the growing importance of network computing (over the Internet and otherwise), Internet browsers and Java in combination posed a serious threat to the applications barrier to entry.

- i. See supra Part III.D; ¶¶ 60-61; infra Part III.D.; ¶ 62.

62. The success of cross-platform browser and Java products could also facilitate innovation in new forms of computer hardware.

- i. As Professor Fisher explained: "Similarly, browsers could reduce the power of the operating system monopoly by facilitating the expansion of network computing, in which users with 'thin clients' use a network to access applications residing on a server computer rather than hosting the application on the PC itself." Fisher Dir. ¶ 87.
- ii. In an April 1997 Memo entitled "Preserving the desktop paradise," Brad Chase commented that Netscape and Sun might not only reinvigorate operating system software competition, but also facilitate the success of low-cost hardware: "Our competitors are still hard at work trying to obsolete Windows. More people than ever now believe they will. Netscape and Sun endeavor to commoditize the OS and drive

developers to adopt their technologies and APIs. This is more true today than ever and these technologies are precisely those that may make the NC viable.” GX 512, at MS7 004149; see also DX 1490, at MS7 007476 (identifying network computer as a "competitive threat").

- iii. Maritz also focused on the potential for new hardware development, facilitated by browser and Java, in his trial testimony. Maritz Dir. ¶¶ 31, 259 (“impending competition from so-called ‘network computers’”).
- iv. As Microsoft’s Ben Slivka stated in his deposition, a “nightmare scenario is that the web grows into a rich application platform in an operating-system neutral way, and then a company like Siemens or Matsushita comes out with a \$500 ‘WebMachine’ that attaches to a TV.” Slivka Dep., 1/13/99, at 712:6-11 (commenting on GX 1016).
- v. AOL’s Barry Schuler also testified that

In order to achieve that,

Schuler Dep., 5/5/99, 159:12 - 160:4 (DX 2810A) (sealed).