

EXHIBIT A

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,

Plaintiff,

vs.

MICROSOFT CORPORATION,

Defendant.

STATE OF NEW YORK *ex rel.*
Attorney General DENNIS C. VACCO, *et al.*,

Civil Action No. 98-1232 (TPJ)

Plaintiffs,

vs.

MICROSOFT CORPORATION,

Defendant.

MICROSOFT CORPORATION,

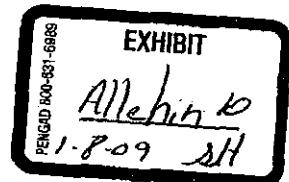
Counterclaim-Plaintiff,

vs.

DENNIS C. VACCO,
Attorney General of the State of New York,
In his official capacity, *et al.*,

Counterclaim-Defendants.

DIRECT TESTIMONY OF JAMES ALLCHIN



1. My name is James Edward Allchin. I am a Senior Vice President of Microsoft Corporation ("Microsoft"). I have been employed by Microsoft since 1990. I am currently in charge of Microsoft's Personal and Business Systems Group. I am responsible for, among other things, the ongoing development of Microsoft's operating system software products, including Windows 98 and Windows NT (recently renamed Windows 2000).

2. Prior to starting work at Microsoft, I was the Chief Technical Officer and Senior Vice President of Banyan Systems, Inc., a software company that developed, among other products, a network operating system called Vines, which included an integrated directory service called StreetTalk. I received my B.S. from the University of Florida in 1973, my M.S. from Stanford University in 1980, and my Ph.D. from the Georgia Institute of Technology in 1983. All of my degrees are in Computer Science. My Ph.D. thesis was entitled "An Architecture for Reliable Decentralized Systems." I also helped architect the Clouds distributed transactional object-oriented operating system. Prior to my graduate degree work, I was a software designer and manager working for several companies—all in the area of operating systems and networking. I have been programming computers since 1969, when I was in high school.

SUMMARY OF POINTS

3. In my testimony, I address the following eight basic points:

Point 1:

Computing systems (comprised of hardware and software) must evolve quickly to keep pace with rapid advances in technology and changes in consumer preferences. Trying to establish artificial boundaries between hardware components,

18. In Part VI of my testimony, I explain how leading operating system publishers have enhanced their products to reflect the increasing importance of the Internet. Nearly all modern operating systems now include Web browsing software—often licensed from Netscape—and provide support for Internet standards like HTTP and HTML that in Windows is provided by Internet Explorer technologies. I believe Microsoft is the clear leader, however, in bringing developers and customers the benefits of deeply integrated Internet support in the operating system. Although plaintiffs seek to characterize it as somehow malevolent, such integration is beneficial in and of itself.

19. Finally, in Part VII of my testimony, I briefly address two other subjects raised in the testimony of some of the plaintiffs' witnesses.

20. First, I believe there are no significant barriers to the creation of applications for operating systems other than Windows. For example, Apple reports that more than 12,000 applications are available for the MacOS. Similarly, thousands of applications are available for various versions of the UNIX operating system. Today, many leading software publishers are creating versions of their flagship products for Linux, an operating system that has shown strong popularity gains recently. Examples of software publishers who have recently announced products for Linux include Oracle, Informix, IBM, Corel (developer of the WordPerfect suite), Computer Associates, Netscape and others. Some of these products, like Linux itself, will be made available essentially free of charge to consumers.

21. Second, people use software that meets particular needs. The mere fact that software is included in Windows does not mean that customers will automatically use that software in lieu of competing alternatives. Similarly, the fact that a link to a Web site may

grams can run. Examples of software that runs on operating systems include utilities and applications. (There is no clear line that divides "utilities" from "applications", just as there is no clear line that divides either of them from an operating system.) Some software programs commonly regarded as utilities or applications are routinely included in operating system software. For example, all modern operating systems include utilities for managing disk space and an application for basic text editing.

35. Software that runs on top of an operating system can also serve as a platform for running other software, and thus can serve one of the important functions of an operating system. Such software is often called "middleware." Some middleware provides platform functionality that is useful only to developing particular types of software programs; other middleware may provide platform functionality that would be generally useful in developing any kind of software program. Middleware is discussed more fully in the testimony of my colleague Paul Maritz.

36. As I have said, as a matter of computer science theory, software engineering practicality or commercial practice, there is no neat distinction between operating system software and the software that runs on top of it. This is true because every developer begins with a blank slate when setting out to create a new software program, and ideas for new software programs can be implemented in many different ways. Thus, to take one of countless possible examples, Web browsing software can be implemented primarily as an application or middleware that runs on top of an operating system, as Netscape elected to do, or as an integral part of the operating system itself, as Microsoft elected to do, or in a manner that is midway between those two approaches.

years, there has been a surge of interest among customers and software developers in the Internet. Operating system publishers have responded, as one would expect, by enhancing their products to support the Internet, including the addition of Web browsing functionality. Although none of these companies has progressed as far as Microsoft in terms of integrating Internet support deeply into their operating system products, the examples below show that all major operating system publishers recognize the benefits of including Web browsing capabilities as part of those products. A videotape demonstration entitled "Demonstration of Competing Operating Systems" in Defendant's Exhibit 2161 provides vivid evidence of how two operating system vendors, Be, Inc. and Caldera, are building Internet support into their products.

A. APPLE

262. In May 1996, near the beginning of the Internet frenzy, Apple released Cyberdog 1.0, which it billed as Internet software that included a Web browser, e-mail, an address book and other capabilities. One of the prime attributes of Cyberdog 1.0 promoted by Apple—more than two and one half years ago—was its “integration with the MacOS.” (Defendant’s Exhibit 1761.) Apple explicitly pointed out that Cyberdog’s integration with the MacOS represented a fundamentally different strategy than the “application” strategy Netscape had elected to pursue.

“Internet access has been dominated by the application browser,” said Larry Tesler, vice president of Internet Platforms, Apple Computer, Inc. “What Cyberdog offers is a new level of integration by putting Internet access directly into the MacOS and Mac applications.”

At page 3 of the document entitled "Cyberdog: The Complete Guide to Apple's Internet Productivity Technology" by Jesse Feiler, the following appears:

"The evolution of the Internet to become an ordinary and useful part of our lives requires a new kind of software. Internet browsers, email programs, and the like are great for tourists who want to experience the Internet as Internet; however, for people who want to use the internet in a sophisticated and useful way, these programs are leading in the wrong direction. They perpetuate the notion that the Internet is something different and special rather than it is simply a part (albeit extraordinarily powerful) of the computing world of the early twenty-first century. Only by integrating the Internet into the work and play that we do on their computers can we stop being sightseers and start becoming more productive."

Apple later abandoned its Cyberdog project, but Apple plainly understood the benefits of Microsoft's integrated approach, even if Apple's implementation was unsuccessful.

263. In 1997, following its acquisition of NeXT Software, Apple began promoting a new operating system, code-named "Rhapsody," that Apple planned to develop. Avie Tevanian, one of the plaintiffs' witnesses in this case, made clear that Rhapsody would include strong support for the Internet, particularly the World Wide Web. He said in April 1997 that Rhapsody "will support all the things that people expect, like virtual memory protection; symmetric multi-processing, multi-tasking; enterprise communication; advanced networking; *great, great Web services*—all those modern features you expect these days"(emphasis added). www.mactech.com/mactech/news/97-02/970225Avie.html

264. At its May 1997 developers' conference, Apple continued to emphasize the benefits of integrating Internet support into the MacOS, namely MacOS 8.0, which was about to be released. In the opening keynote address at that conference, Avie Tevanian told the developers present "we focused on making the user interface even better than it has been

B. IBM

268. IBM's OS/2 came with IBM's own Web browser, called Web Explorer, before Windows 95 was released. Indeed, as I discussed in Section V, the part of the Windows team developing Internet support for Windows 95 was focused on this competitive offering from IBM. (See Defendant's Exhibit 251.)

269. IBM has continued to promote the Internet capabilities of OS/2. Packaging for the current retail offering, for example, bills OS/2 as “[t]he easiest way to a connected world.” In the list of features on the retail box, IBM explains that the “*IBM WebExplorer browser is built-in*, and when available, Netscape Navigator for OS/2 *at no additional charge*” (emphasis added). One of the bold headlines called out on the packaging states: “**Quick access to Internet sites from your desktop.**” (Defendant's Exhibit 1908.)

270. The packaging for OS/2 goes on to explain that “[t]he Internet-aware desktop makes it easy to access information on the World Wide Web.” Customers can put links to Web sites right on the OS/2 desktop screen, “[a]nd some superb Web sites have been pre-selected for you.” The packaging also tells customers that “[t]he built-in Web browser is your tour guide to the best places to visit on the Internet.” (Defendant's Exhibit 1908.)

271. John Soyring from IBM testified that IBM included Web browsing functionality in OS/2 because IBM thought it would be an attractive feature for customers that might increase demand for the operating system. He also testified that IBM positioned OS/2 as providing integrated Internet support because IBM thought that was something customers were interested in having. Although he claimed that neither Web Explorer nor Netscape Communicator are integrated into OS/2 in a technical sense, he did confirm Microsoft's

belief that such integration is viewed by customers as a useful feature of an operating system.

C. SUN MICROSYSTEMS

272. Sun's Solaris operating system runs on Intel microprocessors as well as on Sun's own Sparc microprocessors. Sun promotes "Web-enhanced Solaris 2.6"—which it says is the most popular version of UNIX—as "the WebTone for the Internet" (analogizing it to the ubiquitous telephone dial tone). In documentation for the client version of Solaris 2.6, many of the primary reasons offered by Sun for customers to license the operating system relate directly to Solaris' support for the Internet, such as its inclusion of Sun's HotJava Web browser, the ability to install the operating system through a browser interface, the ability to read Help files through a browser interface and improved built-in Web server capabilities.

D. BE, INC.

273. Be, Inc. has developed a new operating system called the BeOS. The BeOS is billed as "the first new operating system designed to unlock the door to much more powerful personal computers." The operating system is designed to be especially useful in creating multimedia content, and is thus promoted as a "Media OS." Be, Inc. calls out Internet features of the operating system as being among the most important benefits it provides to customers:

"The BeOS is designed as an Internet-native system. . . . The BeOS provides a wealth of integrated Internet services. Any BeOS can act as a file server on the network, using FTP protocols, allowing you to share files with any other computer on the Net. Mail and *worldwide Web client services are built-in*,

as well as Web server capabilities, allowing you to publish Web pages on the Internet or Intranet from day one."

(Defendant's Exhibit 2159 (emphasis added).) The BeOS includes a built-in Web browser, called NetPositive, and a built-in e-mail client, called BeMail.

274. In a technical paper entitled "The Media OS," Be, Inc. emphasizes the fact that the BeOS includes a wide range of Internet-related system services for software developers to use. (See Defendant's Exhibit 2160.) In fact, Be, Inc. identifies the "Native Internet Services" in the BeOS as one of six types of system services that are "of exceptional importance in a Media OS." The technical paper states (at 6) that:

"Today, it almost goes without saying that Internet capability is a standard option for personal computers. . . . A media-based system should be Internet-native, based in TCP/IP protocols and able to access and publish a wide range of Internet based services. Taking advantage of fast Internet networking hardware is the first step. Providing a wide range of Internet application services, from the Web, to mail, to secure layers, is the next."

The BeOS technical paper explains (at 12) why Be, Inc. elected to include Native Internet Services in its new operating system:

"One of the key reasons for the popularity of the Internet is that Internet-based services are standardized. This allows any type of system to interact with any other computer on the Internet without regard for processor type, OS, or application. What this also means is that Internet services can be integrated into a Media OS so that applications do not have to duplicate code."

Be, Inc. clearly "gets it" with regard to the importance of integrating strong Internet support into a modern operating system. Be, Inc. also understands the importance of exposing that support to developers through Internet-related APIs that obviate the need for them to build that support into their own products.

E. NOVELL

275. Novell includes a number of Internet-related technologies with its IntranetWare and recently released NetWare 5.0 operating systems. Both operating systems include support for a variety of Internet protocols such as TCP/IP, FTP, PPP and HTTP. Novell includes a copy of Netscape Navigator in the price of its operating systems, and recently licensed Internet Explorer from Microsoft for inclusion with NetWare 5.0. Novell is promoting NetWare 5.0, released in September 1998, as the number one network operating system for Internet-enabled businesses.

F. THE SANTA CRUZ OPERATION

276. The Santa Cruz Operation ("SCO") distributes two desktop operating systems, SCO UnixWare Personal Edition and SCO OpenServer Desktop System. Both of them include a variety of technologies designed to provide Internet connectivity, and SCO promotes them as offering "strong Internet capabilities." At the lowest level, SCO includes support for a variety of Internet protocols such as TCP/IP, PPP and FTP in both UnixWare and OpenServer. SCO also includes Netscape Navigator 3.0 in the price of both desktop operating systems. In fact, SCO has included Web browsing software with its operating systems since mid-1994, when it began including the Mosaic browser without separate charge. In addition to Netscape Navigator, SCO's OpenServer desktop operating system includes a separate HTML rendering engine to read online documentation (Help files), which are written in HTML.

277. I have not attempted to list all of the many operating systems in use today that provide Internet support, including Web browsing functionality. As a recent report from International Data Corporation shows, every operating system designed for Intel-compatible

investment because Windows has demonstrated the business opportunities associated with developing platform technology and software programs that leverage such technology.

286. Many of Microsoft's most important competitors are eager to support non-Microsoft operating systems with applications development because they wish to promote their own alternatives to Windows, or alternatives offered by their allies. For example, Sun Microsystems introduced Java in May 1995, billing it as a key platform technology for the Internet. Within months, Java had garnered a great deal of attention within the developer community, and today it is supported not only by Microsoft but also by a group of companies that are closely collaborating in their Java development efforts in competition with Microsoft—Netscape, Oracle, IBM, Sun, Novell and others.

287. Today, Sun reports that Java enjoys a great deal of developer support as a platform technology, though Java is still immature and its long-term value remains to be seen. As of May 1998, for example, Sun reported that there are "thousands of Java startups," "over a thousand" Java technology books, 70 million computers equipped with Java software, and "many hundreds of thousands" of developers. Sun claims that JavaOne is the world's largest developer conference, and that "Java technology is a major computing environment now, a river that has flooded its banks and is now coursing just about everywhere across industries and the enterprise." See <http://www.javasoft.com/features/1998/05/-birthday.html>; <http://www.javasoft.com/features/1998/03/year3.html>; <http://www.javasoft.com/events/berlin97/ias/momentum.html>.

288. As is obvious from its rapid success and current momentum, Sun was not prevented in any way by Microsoft from disseminating and promoting Java technology and "evangelizing" that technology to developers. No barrier to entry was created by the large

number of applications written for Windows, the large number of developers using Microsoft's programming languages, or the large number of utility and programming libraries that exist as adjuncts to Microsoft's development tools. To the contrary, developers who perceived value in Java flocked to it.

289. Linux is an operating system that has gained a lot of top-tier developer support recently. A wide range of leading applications—from Oracle, IBM, Informix, Corel (the WordPerfect suite of business productivity applications), Computer Associates, Netscape and others—are already available to run on Linux or currently under development. Linux is available for free, and many of the applications available for Linux are also available for free—as Corel has said the WordPerfect suite will be in some cases. The StarOffice suite of business productivity applications—a clone of Microsoft Office—is already available for Linux, and is bundled free by Caldera with its version of the operating system.

290. If Linux and the applications created for it work well, more customers will be attracted to Linux, leading to the development of more Linux applications, and so forth. Only a relatively small number of applications are needed to start the process off, because people generally don't need multiple word processors, multiple databases, and so forth (although, over time, variety is of course desirable). Already Linux is said to have between 5 million to 10 million users, and use of the operating system appears to be growing very rapidly. For example, IDC recently claimed that Linux shipments were up over 200% from a year ago.

291. Furthermore, Linux competes in a marketplace that is among the most conservative of all computer-related markets: that for "mission-critical" enterprise systems. The relevant decision makers—Information Technology managers at Fortune 500 companies—

an economist, but I do not understand how a company's efforts to improve its products can ever be "anticompetitive." I *am* a computer scientist, and I can state with certainty that Microsoft's development of operating systems designed to work well with the Internet provides very substantial benefits to customers, developers and hardware manufacturers. I hope this lawsuit does nothing to inhibit the ability of Microsoft, or any other successful company, from continually improving its products.

Jim Allchin