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Microsoft Redux
Anatomy of a Baseless Lawsuit

by Robert A. Levy

Executive Summary

Welcome to the postmodern world of high-tech antitrust where big is once again bad, lofty profit margins are a wakeup call to government regulators, executives are brought to heel for aggressively worded e-mails, pricing too high is monopolistic, pricing too low is predatory, propping up politically wired competitors is the surreptitious aim, bundling products that consumers want is illegal, and successful companies are rewarded by dismemberment. That's the Orwellian world in which Microsoft finds itself, a year into probably the most important and manifestly the least justified antitrust crusade of our generation.

Antitrust law aside, the principle of the matter is simple: Microsoft created its operating system and has a right to sell the system as it sees fit. But antitrust law pays little attention to such niceties as property rights. Instead, the reigning shibboleths are economic efficiency and consumer welfare. The antitrust questions, therefore, are whether Microsoft has a monopoly, whether it's misusing its market power, and whether government can find a cure that isn't worse than the disease. The answers are no, no, and no.

Microsoft is behaving not like a monopolist but like a company whose very survival is at stake. Its prices are down and its technology is struggling to keep pace with an explosion of software innovation. Facing competition from new operating systems, consumer electronics, and Web-based servers, Microsoft now operates in a world where anyone running a browser will soon have the same capabilities as today's Windows user.

Meanwhile, antitrust officials are preoccupied with antiquated notions—tying arrangements, exclusionary contracts, predatory pricing, and a host of other purported infractions—all wholly irrelevant, unless the real purpose, of course, is to pacify rent-seeking executives trying to attain in the political arena what they have been unable to attain in the market. It's time for our government to acknowledge that bankrupt antitrust doctrine is destructive of a modern Internet economy.

Robert A. Levy is senior fellow in constitutional studies at the Cato Institute.

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Introduction

Let's begin our examination of the Microsoft case with a statement of first principles. They are simple, they are straightforward, and they handily resolve this dispute. Stating them is necessary because the Department of Justice, joined by 19 state attorneys general,[1] wants to transform Microsoft's private property into something that belongs to the public, to be designed by bureaucrats and sold on terms congenial to rivals who are bent on Microsoft's demise. Some reputed advocates of the free market endorse that foolishness, evidently oblivious to the destructive implications when private property is stripped of its protection against confiscation.[2]

The principles are these: No one other than Microsoft has a right to the operating system that it alone created. Consumers cannot demand that it be provided at a specified price or with specified features. Competitors are not entitled to share in its advantages. Those are core principles of individual liberty and a free society. By insisting that the Windows desktop be exploited for the benefit of competitors—or even consumers—our politicians, some misguided businessmen, and not a few academics are helping people who debase private property and doing an enormous disservice to those of us who have a healthy respect for free markets and a free society.

Even people who don't accept that argument should be appalled at the workings of the legal system in this case. The focus of the case—and necessarily, therefore, of this paper—is on three issues: Does Microsoft in fact have a monopoly? If so, has the company exercised its power in a manner that somehow coerces consumers into buying goods they do not want or would rather have acquired by a different means? If so, does government have a solution that will make things better? That is, should we prefer political power in the hands of Bill Clinton to market power in the hands of Bill Gates? To justify a role for government, the answer to all three questions must be yes. If the answer to any of the questions is no, the Antitrust Division of the Justice Department should step aside.

The theses set out below are, first, Microsoft has no monopoly as that term should be understood in the context of the antitrust laws; second, consumers have not been harmed—indeed they have benefited—by Microsoft's aggressive competition; and third, government doesn't have the foggiest idea of how to redress a problem, if one existed, without butchering competition in the process. In making those points, I will be covering these related topics: existing and potential rivalry in the operating system market, tying arrangements, exclusionary contracts, proposed remedies, and the proper role of antitrust in a high-tech world. (For readers who are unfamiliar with the jargon of the browser wars, a miniglossary is attached as Appendix A, and for readers interested in the sequence of events in the Microsoft litigation, a condensed chronology is attached as Appendix B.)

Microsoft's Purported Monopoly

Price, Service, and Technology

Whether by the post office, the local phone company, or an electric utility, the exercise of monopoly power is typified by rising prices, inferior service, and stagnant technology. If those criteria are applied to Microsoft, it's apparent that the company doesn't conform to the monopoly mold. The price of Windows, on a comparable features basis, has plummeted. Windows 3.0, which required the added purchase of DOS, was introduced in April 1990 at a combined price of $205. More than eight years later, in November 1998, Windows 98, which does not require DOS, was introduced at a price of $169 for the full system and $85 for an update.[3] During the interval, countless features, once separately priced and packaged, became standard.[4] So prices are declining rapidly; and not only are they declining, they are low in absolute terms. A Windows update costs between 3 and 5 percent of the total cost of a personal computer.

Critics respond that the real test is not whether prices are increasing or decreasing but whether they are higher than they would be in a competitive market. Conveniently for the critics, that question cannot easily be answered. Most industry analysts concede, however, that if Microsoft were a monopoly, it could and would charge far more than it does; and users would gladly pay the higher price.[5] In an empirical study of software prices, economist Stan Liebowitz observes that prices rose 35 percent when WordPerfect (not a Microsoft product) was the dominant word processor but fell 75 percent after Microsoft's Word took the lead.[6] More broadly, he states that there have been much sharper declines in markets where Microsoft has a product (-65 percent) than in markets where it doesn't (-15 percent).[7] It's fair to conclude that if price gouging is the mark of a monopolist, Microsoft just doesn't qualify.

Nor does Microsoft act like a monopoly in servicing its customers. In April 1998, when *Computer Reseller News* asked which firm provides the best training to its customers, 46 percent of the survey respondents identified Microsoft. Running a distant second place, IBM polled 14 percent, followed by Novell with 8 percent and Sun Microsystems with 4 percent. Netscape Corporation, Microsoft's archrival in the browser wars, didn't make the list.[8]

In terms of technology, many new features are now a standard part of Windows—like modem support, fax utilities, and CD-ROM drivers. Some originally cost more than all of Windows costs today. National Economic Research Associates reports that Windows 98 users will pay less than one-fifth of what they paid in 1989 for software that, at the time, had far fewer features.[9]

Competition in the Operating System Market

What about Microsoft's purported 85 to 90 percent share of the PC operating systems market? Doesn't that, by itself, signify monopoly power? The answer is no, for five major reasons.

First, DOJ has stacked the deck by so narrowly circumscribing the relevant market that it appears as if Microsoft has it all. Economist Alan Reynolds points out that the government defines the market as operating systems for single-user desktop PCs that use an Intel-compatible microchip. Thus, Apple's market share, estimated at 10 percent in the fourth quarter of 1998, doesn't count because Apple uses a Motorola chip. Nor does Sun Microsystems' share—Sun's sales were up 30 percent in 1998—because Sun, too, isn't Intel-based. (Sun's Solaris system doesn't count because it isn't a single-user system.) Linux came too late to be included in DOJ's market share calculations. Then there are hand-held computer systems—sales climbed 61 percent in 1998—subnotebooks, and set-top TV boxes, none of which count because each uses a non-Intel chip. Finally, remarks Reynolds, 15 percent of PCs are marketed "naked"—that is, without an operating system. Reynolds estimates that Microsoft's share of all 1999 desktop shipments will be 70 percent. If that constitutes a monopoly, he notes, then DOJ better investigate Quicken and America On-Line, which have long enjoyed market shares exceeding 70 percent.[10]

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Second, the corollary of Microsoft's supposed 85 to 90 percent market share—call it 87.5 percent—is that 12.5 percent, one customer in eight, does not use Microsoft. That's not a huge number, but neither is it trifling. Alternative operating systems are available—MacOS, Unix, and Linux, to name a few. Apple, with 13 million users, reports sharply rising iMac sales of which nearly half are to new users or Microsoft converts.[11] And Linux, with up to 10 million users,[12] is now available on an Intel platform from more than 100 dealers worldwide.[13] In fact, Linux captured 17 percent of the server market in 1998,[14] and it's now exerting pressure on Microsoft in the PC market as well. Giant PC makers like IBM, Dell, Hewlett-Packard, and Silicon Graphics are all offering Linux on Intel-based machines.[15] Meanwhile, investment capital for Linux distributor Red Hat Software is cascading in from Microsoft's friends and rivals alike—including Dell, Compaq, IBM, Intel, and Netscape.[16] Thus far, an investment in Red Hat has paid off handsomely. One month after its August 11, 1999, initial public offering, Red Hat common stock exploded to $120 per share from its offering price of $14. Apparently, investors who put their own or their clients' money on the line know something about the Linux phenomenon that has eluded Antitrust Division chief Joel Klein and his minions at DOJ.

Third, Microsoft's new Windows 98 must compete against operating systems offered by a company that controls nearly 90 percent of the market—Microsoft itself. Even if Microsoft were to go out of business this afternoon, all of its installed systems would continue to function indefinitely. So to sell a new product Microsoft must convince customers to pay more money, learn the new system, and run the risk that existing applications software will be incompatible. That imposes a powerful discipline on Microsoft's behavior. It is utterly inconceivable that Microsoft would alienate the very consumers it must rely on for new sales. Roughly 2 million new PCs each month are sold with Windows 98 installed.[17] That's trivial compared to almost 300 million existing Microsoft users,[18] each of whom is a primary prospect for an upgraded system. In short, the major competition for Windows 98 is Windows 95, just as the competition for Windows 95 was Windows 3.1. Accordingly, the more relevant market share isn't the 85 to 90 percent that Microsoft controls in the aggregate but the 66 percent represented by Windows 95 and Windows 98 users. The other third of the market is still running Windows 3.1 or DOS or some other non-Microsoft system.[19] If Microsoft has such overwhelming market power, how come it couldn't persuade fully one-third of PC users to upgrade to its flagship product?

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Fourth, not only existing but also potential competition must be factored into an assessment of monopoly power. In that regard, Microsoft's dominance is threatened on many fronts: (1) Sun's Java programming language, if it's ever fully operational, promises an environment in which applications run both on stand-alone PCs and across the Internet without compatibility problems. (2) Low-cost network computers, with software downloaded from the Internet, could transform PCs into high-speed communications devices, thus jeopardizing Microsoft's control over the desktop. (3) Digital TVs, hand-held computers, and other consumer electronics devices have radically altered the scope, nature, and function of the operating system. (4) Mushrooming electronic commerce has shifted profit opportunities from the operating system to Internet portals, where Microsoft is already far behind AOL, whose merger with Netscape, first announced in November 1998, changed the competitive landscape overnight. More about that merger in a moment.

Fifth, Web-based software is perhaps the most formidable of Microsoft's potential competitors. That software runs on browsers, which have already overlaid and may eventually displace, major parts of Windows. Here's how the *Wall Street Journal* described this new happening:

> The Internet is fueling a fundamental shift in software development, from PCs to machines called servers connected to the Web. . . . Instead of buying and selling programs, users increasingly can rent the same functions from Internet services—or get them free if they sit through advertising . . . servers do the heavy duty processing, and the only essential user program is a Web browser. . . . If users don't need PCs with Microsoft's Windows operating system or Intel Corp. chips to use Web-based software, the vaunted market power of the duo called Wintel doesn't seem so unshakable.[20]

In the new Internet world, traditional application software developers are morphing into "applications service providers," or ASPs for short. They are rewriting popular software packages and creating new packages to run on Web-based servers. Thus, corporate users don't have to install and update large applications programs on each PC or rely on their own networks and servers. Instead, PCs will tap into the Internet to access customized corporate applications as well as standard programs such as word processing, spreadsheets, and presentation software.

"In the past six months, we have not seen a business plan for a conventional packaged software application," says James Breyer, a venture capitalist at Accel Partners. "It's the first time in our history I could say that."[21] For Microsoft, that means its putative "applications barrier to entry"—that is, the array of software programs written for Windows that might not be available to users of an upstart would-be Windows competitor—if it ever really kept rivals at bay, is unlikely to afford much protection in the future.

Indeed, to cite just one example of this new paradigm, on August 31, 1999, Sun Microsystems announced its acquisition of Star Division Corp., a company that makes StarOffice, a suite of software very similar to Microsoft Office. Sun insists, however, that it has no plans to go head-to-head against Microsoft. Rather, Sun will convert StarOffice into a free Internet-based service that can be run directly by any user with any Web browser.[22]

Sun CEO Scott McNealy writes that "a few years from now, savvy managers won't be buying many, if any, computers. They won't buy or build anywhere near as much software either. They'll just rent resources from a service provider."[23] McNealy, who may be Microsoft's most vitriolic critic, predicts that fewer than 50 percent of the devices accessing the Internet will be Windows-equipped PCs by the year 2002, just 2 1/3 years from now.[24] That forecast comes from the same antagonist who complains that "Microsoft operates beyond the constraints of market discipline."[25]

Of course, Web-based servers will themselves need an operating system. But that's a market where Linux leads the pack with a 31 percent share, and growing. Windows NT is second with 24 percent, followed by a trio of free operating systems—FreeBSD, NetBSD, and OpenBSD—developed at the University of California at Berkeley, with 15 percent. In fact, the world's busiest Web site, Yahoo!, serving nearly 80 million people per month, is run by 1,000 computers using FreeBSD. Even Microsoft's own Web-based e-mail service, Hotmail, runs on FreeBSD and not on Windows NT.[26]

The antitrust implications are crystal clear, especially to McNealy if not to his collaborators at DOJ. Microsoft has zero leverage in a world where applications are written so that any browser can run them and any operating system can access them. Whether a user has MacOS, Unix, Linux, or any other system, as long as he is running a Web browser he has much the same capabilities as a Windows user. That exciting development is here today; it's not a "could happen in the future" item. There's a good reason only a few companies are clamoring to compete against Microsoft in the PC operating system market: It isn't a growth market anymore. That opportunity has passed. The future is elsewhere.

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The AOL-Netscape Merger

When virtually no new application software is written using client-specific code, Windows is no threat to anyone with a browser. That may go a long way toward explaining AOL's willingness to fork up $10 billion for the company that controls 42 percent of the browser market.

After AOL announced its acquisition of Netscape, as well as its close working relationship with Sun Microsystems, federal judge Thomas Penfield Jackson acknowledged that the deal could have a major impact on the Microsoft case.[27] Ironically, the case itself probably delayed the merger. Why, after all, commit $10 billion to do battle against a rival that may be dissected by the government? And why not, at a minimum, wait until the government has irrevocably committed itself to the Microsoft litigation before announcing a merger that DOJ might otherwise have challenged?

The AOL-Netscape combination suggests that browsers and e-commerce—a $26 billion business in 1996, expected to grow to $1 tril-

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lion by 2005[28]—not operating systems, are where the greatest profit opportunities lie. Internet commercial traffic will be driven primarily by portals, or home pages; and when it comes to portals, AOL-Netscape is the leader, far ahead of Yahoo, with Microsoft a distant tenth.[29] With Netscape's Netcenter portal, its e-commerce software, and its newly updated Communicator 5.0 browser, which will be shipped in December 1999 and bundled with AOL's software CDs,[30] an AOL-Netscape-Sun alliance becomes a redoubtable competitor to Microsoft.

Despite pronouncements by Netscape CEO James Barksdale and AOL CEO Steve Case—in court and to journalists—that the AOL-Netscape-Sun alliance was not a threat to Microsoft, merger-related documents, subject to the antifraud provisions of the securities laws, said exactly the opposite.[31] The three companies intend to develop, jointly, a browser-based de facto operating system—yet another sign, for anyone who cares to look, of an explosive marketplace the contours of which change with every day's newspaper.

Microsoft's Tying Arrangements

The government-defined market for operating systems—single-user desktop PCs running Intel chips—is in its death throes. Even Microsoft seems to think so. That's why it's putting most of its marbles into Windows NT 5.0 (renamed Windows 2000), which is primarily a server operating system.

That said, let's assume for argument's sake that Microsoft enjoys sustainable monopoly power within a market properly defined to include all reasonable Windows substitutes. Monopolies per se are not illegal under the antitrust laws. The government is supposed to step in only if the alleged monopolist is misusing its power. Just what is it that Microsoft is doing to raise hackles at DOJ? For a clue, we turn to the government's 800-page Proposed Findings of Fact, which DOJ deposited with Judge Jackson on August 10, 1999. There we find the centerpiece of the government's antitrust case: "Microsoft substantially impeded the most effective channels of distribution . . . and, ultimately, effectively eliminated Netscape as a platform threat."[32]

That may sound to some as if the government's central focus is on safeguarding Netscape rather than on protecting consumers, which is after all the purpose of the antitrust laws. To be sure, DOJ has tried mightily to link one objective to the other. But even the government's own witness, MIT professor Franklin Fisher, when asked whether consumers have been harmed by Microsoft, responded, "On balance, I'd think that the answer is no."[33] Still, DOJ accuses Microsoft of barring consumers from access to Netscape, and vice versa, by a variety of exclusionary agreements.

On the facts, that claim is preposterous. More than 150 million copies of Netscape's browser were delivered in 1998 alone.[34] Over 65 million Internet users start up at Netcenter, which is the second most visited site on the Web after Yahoo; Microsoft is far behind.[35] Over 400,000 Web sites link to Netscape's home page—more than twice the number of links to Microsoft's home page.[36] Netscape still controls 42 percent of the browser market and will soon control an additional 16 percent[37] through its new partner, AOL, which paid more than $10 billion to acquire a four-year-old company purportedly mangled by Microsoft.

How, according to the government, did Microsoft banish Netscape from the market? DOJ claims that Microsoft told PC makers (original equipment manufacturers, or OEMs) they had to take its Internet Explorer browser or they couldn't have the Windows operating system—known as a tying arrangement.[38] That assertion by DOJ is correct as a matter of fact but not germane to DOJ's charge of exclusionary contracting. Plain and simple, Microsoft's tying contracts with OEMs are not exclusionary. To require Internet Explorer is not to exclude Netscape. By analogy, consider the *Washington Post*, with a virtual monopoly in the Washington, D.C., newspaper market. The *Post* "ties" its business section to the rest of the paper; to get the *Post,* you must also buy the business section. But the *Post* doesn't insist that its subscribers not buy competitive independent business publications like, say, the *Washington Business Journal.* Imagine the reaction if the *Post* were forced by the government to untie its business section from the rest of the paper.

Two kinds of tying can be exclusionary: a technological tie that disables other products and a contractual tie that forecloses other products by agreement. Microsoft uses neither. It uses bundling, which is nonexclusive. Microsoft merely prevents OEMs, by contract, from deleting the Internet Explorer browser. Microsoft does not prevent OEMs from using Netscape or any other browser, and many OEMs do just that.

Microsoft's nonexclusionary tying arrangements were not the cause of Netscape's decline. Nor has Microsoft been able to secure market leadership by bundling other products with Windows. For example, Microsoft Network (MSN), hasn't dented AOL's control of the online market. MSN loses about $200 million per year serving 2 million customers. AOL, with 15 million users, is making a ton of money.[39] So, despite all the complaints, Microsoft's tie-ins proved impotent; consumers didn't like the Microsoft Network, and they couldn't be forced to buy it. By contrast, when consumers decided that Microsoft's Internet Explorer was better than Netscape's browser, they switched.

That's the reason Netscape's browser share, once 90 percent,[40] declined to 42 percent. Remember, Netscape still controlled 90 percent of the browser market long after Microsoft began bundling its browser with Windows. Not until PC magazines, then consumers, discovered that newer versions of Internet Explorer were superior did Microsoft's market share explode.[41] A better product, not tying arrangements, won the battle for consumer acceptance. How else to explain the triumph of Microsoft's Word and Excel over their respective rivals, WordPerfect and Lotus, with users of Apple computers, for whom Windows was obviously not a factor?[42]

Meanwhile, as Microsoft improved Internet Explorer, Netscape made some key mistakes. First, it didn't offer software developers a viable platform onto which applications could easily be written. Then, it responded too slowly when its browser was outclassed: it twice spurned help from AOL; it was late in offering a free browser; and it took three years to exploit its Netcenter portal.[43] In a nutshell, that's how Netscape lost the browser wars—lost, that is, if you ignore the $10 billion payment from AOL. Perhaps Netscape's browser would still be the market leader if CEO Barksdale had spent more time on product development and less time cobbling together his anti-Microsoft coalition and pleading for government aid.

By the way, if DOJ were to look for an example of truly exclusionary behavior, it would find that Netscape, when it controlled the browser market, offered payment to OEMs if they would agree to ship computers without installing Internet Explorer. Microsoft countered with a three-part strategy: It expanded its research and development to create a better browser; it priced the browser at zero; and it bundled the browser with Windows, thereby guaranteeing that Internet Explorer would appear on the Windows desktop.[44] But Microsoft did not exclude Netscape. Nor did it try to "bribe" OEMs, as Netscape did. The end result: Netscape's near-monopoly crumbled; consumers benefited from zero price and a better product; competition thrived.

Paradoxically, DOJ appears to regard the dissipation of monopoly power as regrettable in the case of Netscape but eminently desirable in the case of Microsoft. Both firms stood to lose some portion of their dominant market shares as soon as a competent competitor surfaced. For Netscape, that competitor was Microsoft. But for Microsoft, no competent competitor emerged. Instead, IBM ineptly positioned its OS/2 system as a juiced-up version of Windows that needed more computer horsepower than users had or were willing to buy. And Apple blundered by forcing cus-

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tomers into a tying arrangement whereby they had to purchase Apple hardware if they wanted the MacOS operating system. Those wrong-headed management decisions backfired, through no fault of Microsoft's.

We see, then, that consumers are free to reject tie-ins like Apple's MacOS and Microsoft's MSN. More often, however, tying arrangements are welcomed for their beneficial effects. First, they facilitate quality control by preventing the use of inferior substitutes, especially when users have difficulty tracing the cause of a technical problem. Second, tie-ins curb pirating by linking software to physical product. If a large distributor openly pirates Microsoft software, Microsoft will take remedial action; but if I copy Windows or Internet Explorer for my neighbor, there's little that Microsoft can do. By attaching Windows to every outgoing computer and attaching Internet Explorer to every copy of Windows, Microsoft forces pirates to pay for the software they get. Third and most important, tie-ins are economically efficient. Consumers want an integrated operating system, which provides more bang for the buck: it's easier to operate, document, and debug; it's less expensive to market and distribute; and it provides a uniform standard for software developers.

Erasing Internet Explorer from Windows without affecting other operations, even if that were possible, as the government contends, would be like removing the speedometer from a new automobile. The key test is not whether two products can be separated but, in the words of the U.S. Court of Appeals, whether the product is integrated; that is, whether it "combines functionalities . . . in a way that offers advantages unavailable if . . . bought separately and combined by the purchaser." As the court concluded, Microsoft clearly met its burden to show "facially plausible benefits to its integrated design."[45]

Software vendors and their customers know that a system without truly integrated functions would be incomplete. That's why IBM and Sun, like Microsoft, package browsers with operating systems. And that's why Netscape ties a wide range of software products—such as security systems and graphics—to its browser. Indeed, when Netscape enjoyed its short-lived monopoly, it tied e-mail to its browser and almost destroyed a rival e-mail product offered by Eudora.[46] Still, Netscape's product design decisions, like Microsoft's, are better left to the manufacturer than to government lawyers.

Microsoft's Other Exclusionary Contracts

The government asserts that Microsoft has also employed nontying exclusionary devices in its contracting with OEMs. Supposedly, OEMs were coerced to "play by Microsoft's rules" by threatened price increases for Windows. IBM's Gary Norris, testifying for the government, complained that IBM faced retribution if it insisted on promoting competitive products, like OS/2 and Lotus.[47] Yet the resultant post-retribution price Microsoft charged IBM was no worse than the price other OEMs paid, even though IBM continued aggressively to market both OS/2 and Lotus. Similarly, DOJ charges that Compaq had to knuckle under to Microsoft in order to retain its discount price for Windows. But Compaq's general counsel has a different view: "Compaq is an independent company and we'll make our own decisions on products and services, and if they compete with Microsoft, so be it."[48] As already noted, both IBM and Compaq have invested in Linux distributors and are offering Linux on their PCs. Furthermore, Compaq installs a wide variety of other operating systems on its computers and makes Netscape's browser available on every PC it ships.[49] So much for being cowed by Microsoft.

DOJ points next to Microsoft's "exclusive" contracts with Internet service providers (ISPs), Internet content providers (ICPs), and online service providers (OLSs). Naturally, companies negotiate exclusive deals all the time, but those deals may run afoul of the antitrust laws if one of the companies is a monopolist. The question, then, is whether Microsoft tried to leverage its alleged operating system monopoly to obstruct ISPs, ICPs, and OLSs from doing business with Netscape.

Originally, in return for referring business to fewer than a dozen ISPs (of more than 4,000 firms offering ISP services),[50] Microsoft required that they use Internet Explorer as their default browser. In effect, Microsoft told its ISPs, "If Microsoft refers a customer to you, don't give that customer our competitor's browser." That arrangement gave way to a requirement for "parity of promotion" between Microsoft's browser and Netscape's. Later, Microsoft relaxed the deal still further, eliminating all restrictions. With Windows 98, Netscape can be the default, or even the exclusive, browser. At no time, however, did Microsoft insist that the favored ISPs totally exclude Netscape. Even when Internet Explorer was the default browser, ISPs could distribute non-Microsoft browsers to 25 percent of their users, and ISPs exceeded that cap without retribution from Microsoft. During the fourth quarter of 1997, one of the ISPs, Earthlink, actually distributed non-Microsoft browsers to 2.5 times as many users as received Internet Explorer.[51]

Microsoft's cross-promotional deals with ICPs were even less insidious. Before the release of Windows 98, Microsoft had "Active Channels" that guided users to 24 selected content providers, such as MSNBC. Netscape had similar cross-promotional deals—with ABC News, for example. With one restriction, Microsoft's "preferred" ICPs were at liberty to promote Netscape on any Web page they wished. Only the single page to which Microsoft directly linked was off limits. More important, while they were in effect, Active Channel accesses to two dozen ICP sites accounted for a minute fraction of total Web accesses to as many as 2.5 million sites, thousands of which are commercially significant.[52] Microsoft's ICP deals, by any rational standard, represented an infinitesimal "foreclosure" of Netscape's market penetration.

In its contract with AOL (an OLS), Microsoft provided for "preferential" promotion of Internet Explorer. To preserve its guaranteed position in Microsoft's online services folder, which is displayed on the Windows opening screen, AOL had to meet distribution targets—85 percent of AOL users had to use Internet Explorer, which was the default (but not the exclusive) browser. AOL's version of Internet Explorer was customized, however, to link to AOL's preferred sites, not Microsoft's. Moreover, AOL could have switched to Netscape after 1998 but chose not to do so—perhaps because Microsoft never enforced the 85 percent target, or perhaps because AOL's position in Microsoft's online services folder gave AOL leverage in negotiating for desktop space with OEMs.[53] Another possible reason, of course, is that AOL still considers Internet Explorer the better browser. In any event, AOL continues to offer Netscape to any user who wants it. Having now acquired Netscape, AOL will no doubt soon switch to its subsidiary's browser. The merger itself demonstrates, if nothing else, that AOL was not intimidated by Microsoft or forced to use Internet Explorer.

There's another aspect to Microsoft's dealings with ISPs, ICPs, and OLSs that seems to have escaped the attention of DOJ officials. Take Microsoft's contracts with AOL and Intuit (an ICP), for instance. DOJ gripes that Microsoft offered those companies a place on the Windows desktop if they would sever their dealings with Netscape. True or not—and Microsoft vigorously disputes the allegations—such offers are wholly irrelevant to this case. Whatever monopoly Microsoft may enjoy in the operating systems market, it plainly did not exploit *that* monopoly in negotiating the AOL and Intuit contracts. In short, DOJ has identified the wrong market. Here's how the government missed the boat.

Remember, Microsoft did not tell AOL or Intuit that they could not purchase the Windows system. Instead, Microsoft is charged with refusing to provide space on the Windows desktop—the means by which those companies could advertise and distribute their products. So the pertinent market in which to look for monopoly power is not the operating systems market but the market for advertising and software distribution.

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Consider the *Lorain Journal* case[54]—that's the case that former judge Robert Bork trots out in arguing, episodically, that the antitrust laws are good for us.[55] In that case, the *Journal* newspaper supposedly had a lock on advertising in Lorain, Ohio. When a radio station tried to compete for ad dollars, the *Journal* threatened not to accept advertising from any company that plugged its product on the radio—clearly an exclusionary deal. The Supreme Court ruled against the *Journal*, concluding that it had a monopoly—not in the news market but in the advertising market. To the extent that the *Journal* had any leverage over its advertisers, it was in withholding ad space, not in denying them the right to buy the daily paper. Similarly, Microsoft limits ads, not the purchase of Windows.

But in the current Microsoft case, unlike the *Lorain Journal* case, DOJ cannot reasonably claim that Microsoft has a monopoly in advertising or, for that matter, in software distribution. Vendors sell software through retail stores, over the Internet, by mail order, bundled with hardware, and through a variety of other channels. Internet service is advertised in newspapers and magazines, on radio and TV, by direct mail, on the Web, and on and on. Not even the Windows desktop is controlled by Microsoft, which uses only 7 of 49 possible icons. In other words, 85 percent of the desktop space is available to OEMs and consumers, who can display icons for any products they wish, including software produced by Netscape and other Microsoft rivals. To show that Microsoft used monopoly power to "coerce" customers into signing exclusionary contracts, the government first must examine the relevant monopoly. It has not done so.

Miscellaneous Affronts

To win its case against Microsoft, DOJ must prove all of these points: (1) Microsoft is a monopoly that can raise prices in the future without competitive consequences; (2) Internet Explorer is a separate product, tied by Microsoft to the Windows operating system without offering consumers any plausible benefit; (3) by tying and other exclusionary practices, Microsoft foreclosed Netscape's distribution of its own browser; and (4) in that manner, Microsoft has harmed consumers. Because it failed to prove any of those threshold points, much less all, the government has leveled a number of tangential charges, to which we now turn.

Specifically, the government alleges in its Proposed Findings of Fact that "Microsoft sought to curtail other actual or potential . . . threats to its operating system monopoly, including Sun's Java, Intel's Native Signal Processing (NSP), and Apple's Quick Time." DOJ adds that "Microsoft began its attack . . . by proposing to Netscape that it agree not to compete and to divide the browser market." In addition, says DOJ, Microsoft engaged in predatory pricing; it "gave its browser away for free, without any expectation or basis for believing that it could defray the huge development, promotion, and distribution costs associated with Internet Explorer."[56] Finally, according to the government, Microsoft cemented its monopoly position by imposing unreasonable restraints on OEMs and users who might wish to alter the Windows opening screen. Let's briefly review each of those allegations.

Microsoft's "Assault" on Sun, Intel, and Apple

Sun Microsystems, which licenses its Java software to Microsoft, has claimed in a private lawsuit that Microsoft "polluted" the software—altering it in a manner that renders it incompatible with non-Microsoft systems. In response, Microsoft contends that its license agreement allows alterations as long as Microsoft also makes available to any user who prefers it a version of Java that is compatible with non-Microsoft systems. Initially, a federal district court issued a preliminary injunction that precluded Microsoft from distributing its version. But in August 1999 an appeals court reversed the injunction because the lower court had not shown that Sun would be irreparably harmed pending final resolution of the dispute.[57]

The essential point is this: Whether the Sun-Microsoft dispute involves a copyright violation—the "pollution" charge—or merely a contract question, the parties are quite capable of resolving their dispute through ordinary litigation without DOJ intrusion. On the one hand, if Microsoft breached its license agreement, it should be enjoined from doing so and held liable for damages; but that is no concern of the Antitrust Division, whose mission does not include intervening in private quarrels. On the other hand, if Sun inadvertently opened itself up for competition in the Java arena by sloppy contracting, Microsoft's exploitation of the advantage hardly rises to the level of an antitrust infraction.

In August 1995, asserts DOJ, Microsoft also made "vague threats" against Intel to discourage that company from developing NSP, a competitive multimedia platform. Microsoft maintains that its concern centered on NSP's incompatibility with Windows 95, not on the development effort itself. Ultimately, Intel went ahead with parts of NSP, belying the contention that Microsoft was somehow able to convince its giant Wintel partner to withdraw from a potentially lucrative market. Moreover, Intel supports a number of Microsoft rivals—including Unix, Java, Solaris, and Real Networks—over Microsoft's vigorous objections.[58] Microsoft's discussions with Intel about NSP were known to DOJ when it filed its antitrust complaint in May 1998.[59] If those discussions had antitrust significance, surely DOJ would have questioned them in its initial complaint. NSP was not mentioned.

The government also protests Microsoft's relations with Apple Computer, which rejected Microsoft's request that it share the technical specifications for QuickTime, Apple's multimedia program. At one point there was speculation that Microsoft had sabotaged QuickTime by intentionally disabling the product on Windows-based PCs. It turned out, however, that the problem was Apple's bug, not Microsoft's sabotage.[60] Then, DOJ explored whether Microsoft had leaned on Compaq not to install QuickTime on Compaq PCs. That investigation proved futile; Compaq explained that its abandonment of QuickTime had nothing to do with pressure from Microsoft and everything to do with Apple's new pricing of a product that formerly had been free.[61] Currently, both Microsoft and Apple continue to produce their own multimedia products.

Market Splitting

In June 1995, according to the government, Microsoft met with Netscape and proposed that the two companies split the browser market, in violation of the antitrust laws. Microsoft responds that the meeting was initiated not by Microsoft but by Netscape and points to an earlier e-mail sent by Netscape's chairman, Jim Clark, to Microsoft. "We want to make this company a success," wrote Clark, "but not at Microsoft's expense. We'd like to work with you. . . . Depending on the interest level, you might take an equity position in Netscape."[62]

Was that meeting a setup? Hard to prove; but within 48 hours of the meeting, the government received detailed notes about it, recorded by Netscape officer Marc Andreessen, who had been present. Those notes were supplied to DOJ by Netscape's outside attorney, Gary Reback.[63] Yet, if DOJ possessed evidence of an illegal market-splitting proposal by Microsoft, why did it take three years for the government to press charges? Whatever the answer to that question, DOJ has fallen far short of fulfilling the requirement of the antitrust laws that it show that Microsoft extended to Netscape a clear and unambiguous invitation to engage in collusive, illegal acts. Attempted market splitting is just one more unsubstantiated accusation DOJ has raised to embellish a vacuous lawsuit.

Predatory Pricing

When Microsoft isn't being accused of monopoly price gouging (charging too much), it is accused of predatory pricing (charging too little). When Microsoft followed in Netscape's footsteps by giving away its browser, the government cried foul. But the antitrust standards for "predatory pricing" are more complex than that. First, the accused company must be charging less than its marginal cost. Microsoft

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Imagine the limitless control the government will have over access and content when it begins to dictate what icons are to appear on Microsoft's opening screen.

(supported by the U.S. Court of Appeals) treats Windows and Internet Explorer as a package, the aggregate price of which is far higher than Microsoft's near-zero cost to produce one additional copy of the software. Second, the accused predator must have the intent and realistic expectation of driving its victim out of business. Third, the predator must intend to then raise its price in order to recoup the losses it suffered during the predation period.

In this instance, Netscape has more than 40 percent of the browser market and close alliances with Microsoft's adversaries—Oracle, IBM, and Sun. Netscape's parent company, AOL, has an additional 16 percent market share. It's simply unthinkable that Microsoft would be able to drive Netscape out of business. And if it succeeded, Microsoft would find that Netscape's browser code is now part of the public domain, and there are three dozen other browsers that are both free and compatible with Windows.[64] That means Microsoft could not hope to raise its price and recoup its losses—assuming there were any.

Equally important, the payoff in browsers comes, first, from adding value to the operating system and, second, from revenues associated with advertising and electronic commerce on Web sites to which the browser directs the user. Like network TV and controlled-circulation magazines, the browser can profitably be given away because it generates ancillary revenue. Essentially, the browser's marginal cost is negative. Thus, neither Microsoft nor Netscape—whose browser is also free—is engaged in predatory pricing: the browser's zero price is more than its marginal cost. That alone defeats a predatory-pricing claim.

Whether the charge was predatory pricing or other illegal means of excluding Netscape from the market, DOJ's evidence consisted almost entirely of Microsoft's internal documents and e-mail. From 3.3 million pages of such documents, the government extracted a handful of statements—many from junior staff, some taken out of context. Bill Gates alone gets 37,000 e-mails each year; yet DOJ complained of his selective recall.[65] Moreover, aggressive language in e-mail or elsewhere is not an antitrust violation. The Sherman Act proscribes conduct, not mere intent.[66] Federal appellate judge Frank Easterbrook reminds us that "[v]igorous competitors intend to harm rivals . . . To penalize intent is to penalize competition."[67]

First-Screen Restrictions

Stretching to make its suit look plausible, DOJ argues finally that Microsoft uses its control over the Windows opening screen to dictate Internet access and content. On initial boot-up, Microsoft uses about 15 percent of its opening screen to display selected icons. But OEMs may easily remove icons, add icons to the large part of the screen that Microsoft doesn't use, install rival software, even make Netscape the default browser. Users can do all of that as well, then go a step further. With a few clicks of the mouse, they can substitute a shell for the opening screen—and the Internet Explorer icon will disappear altogether.

Ask yourself if you would be upset if a car dealer pre-set the stations on your car radio. Obviously not, because you can easily change the pre-sets. Microsoft's rules are even less restrictive than those imposed by your favorite restaurant. Try bringing your own dessert to a dining establishment. The rule is "If you eat in my restaurant, you select from the items on my menu." Microsoft is more user friendly. It displays its preferences, helps consumers get to preferred "desserts," but then allows the user to substitute his own dessert if he wishes.

If Internet restrictions are the issue, imagine the limitless control the government will have over access and content when it begins to dictate what icons are to appear on Microsoft's opening screen.

No Injury, but Plenty of Remedies

For nearly six months, DOJ and its hired gun, private attorney David Boies, hammered Microsoft witnesses in a futile attempt to show that the company's bad-boy tactics harmed consumers.[68] Never mind that it's not consumers but competitors who are grousing. That may be true today. But tomorrow, DOJ warns, consumers will certainly be paying too much—or is it too little?—for computer software.

Sad to say, the government's gloomy forecast might well prove accurate. Boies and antitrust chief Joel Klein have floated a number of "structural" remedies, the unintended consequences of which are guaranteed to harm consumers. So the damage that Microsoft has been accused of inflicting on its customers may finally materialize—but only if Judge Jackson buys DOJ's pathetic proposal to punish vigorous competition by dismembering the winning competitor. We'll soon know. If Jackson holds that Microsoft has violated the antitrust laws, he has broad discretion to determine appropriate relief—guided, but not bound, by the government's recommendations.

For good reason, DOJ has all but abandoned the remedies it sought in its original complaint. At first the government wanted Microsoft to stop tying Internet Explorer to the Windows operating system. That approach was gutted by the U.S. Court of Appeals, which declared the browser and operating system to be a single, integrated product. Next the government asked that Microsoft revise its contracts with ISPs, ICPs, and OLSs. But Microsoft had already eliminated any vestiges of exclusionary language from those contracts. Not a single ISP, ICP, or OLS is prohibited from offering the Netscape browser. Then DOJ insisted that Microsoft give OEMs more control over the Windows opening screen. But it turned out that OEMs could alter most of the screen at will, and users could get rid of it altogether.

As events unfolded, DOJ's original remedies sounded sillier than ever. And so we are beginning to hear musings from the government on a variety of alternative, more draconian approaches. The first idea was to force Microsoft to publish its APIs—the software by which applications programmers interface with the Windows system. Nice try, but DOJ hasn't produced any evidence that Microsoft withholds its APIs. Even Sybase's then-CEO, Mitchell E. Kertzman—no fan of Microsoft—says, "They're very timely with sharing technology. They don't withhold it."[69]

Then Klein and Boies pushed for "transparent pricing"—that is, full disclosure of all terms and conditions that affect the price Microsoft charges OEMs. Supposedly, Microsoft uses its arrangements with OEMs to "control" those clients. But virtually all of the major OEMs are now offering PCs loaded with the Linux operating system. Armed with new equity capital from Microsoft's rivals, Linux distributors are growing by leaps and bounds—fast enough to keep more than a few Microsoft executives awake at night.

That brings us to the latest round of so-called structural remedies. At first any conjecture that Microsoft might be dismembered was pooh-poohed as grandstanding by DOJ, smitten with itself after successfully demonizing Bill Gates. But now we're told that the 19 state attorneys general who are coplaintiffs, and thus must endorse any remedies proposed by DOJ, won't be satisfied with any outcome that doesn't essentially restructure Microsoft.[70] So here's a recap of the government's three favorite plans—from the moronic to the merely foolish.

The first option is vertical divestiture. Microsoft would be split into two or three parts. One company would keep the Windows operating system. A second company would get the application programs like Access, Excel, and Word. Perhaps a third company would take on the Internet and e-commerce products. Evidently, whoever designed that solution has never read DOJ's initial complaint, which after all is about a company that purportedly has a monopoly in PC operating systems. Normally one doesn't attack monopoly power by spinning off the monopoly into a separate company. But what is worse, vertical divestiture will require ongoing government decisions about whether a product is part of the operating system, or an application, or Internet related. Just look at the browser wars to see how difficult it is to compartmentalize a product within a nearly seamless operating environment. And look at the AT&T breakup to see how easy it is

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for a court to get bogged down in post-divestiture regulation.

DOJ's second trial balloon calls for horizontal divestiture. Each of several vertically integrated clones—"Baby Bills"—would receive full rights to Microsoft's source code and other intellectual property. They could then proceed to compete freely and fiercely against one another. May the better Bill win, at least until a new leader emerges, at which time DOJ will undoubtedly call for another divestiture to buy more time. No one seems to know which corporate Bill gets the real-life Bill, or whether new operating system features have to be shared and, if so, why any company would continue to innovate, knowing that its competitors will reap the benefits.

The third structural remedy is actually a variation on horizontal divestiture, with all of its problems and then some. Basically, Microsoft would be forced to license the Windows source code to several other companies, each of which could develop and sell it independently, thereby creating instant competition in the operating system business. Are new features from Microsoft within the scope of the license? If the licensee improves the product, does Microsoft have equal rights to the improvement? There are no good answers to those questions. If new technology is to be declared public property, it will not materialize. If technology is to be proprietary, then it must not be expropriated. Once expropriation becomes the remedy of choice, the goose is unlikely to continue laying golden eggs.

Meanwhile, government-driven Balkanization of operating system protocols will wipe out Microsoft's most important contribution to software markets: standardization. Like the Unix system, Windows will end up with a dozen or more variations—no common platform on which software developers can build. The result will be fewer application programs, increased costs of development, and higher user prices. Programmers all over the world have developed thousands of compatible programs, thanks to the standardized platform that Windows affords. If the government gets its way, that enormous value will disappear in a twinkling.

One can only speculate about the motives underlying DOJ's destructive campaign. When the head of the Antitrust Division meets on numerous occasions to discuss this case with a disaffected Microsoft competitor, including breakfast at the latter's home,[71] the conclusion is all but inescapable that the antitrust laws are being used as an anticompetitive subsidy to prop up less successful or unsuccessful firms. Or perhaps the motives are slightly less insidious: ordinary empire building that has become standard operating procedure in Washington, D.C.

President Clinton has asked for a 17 percent increase in funding for the Antitrust Division to pay for 943 employees (up 26 percent in two years) who will be working on 554 cases (up 35 percent in two years).[72] Citizens Against Government Waste estimates that the Microsoft litigation has slapped taxpayers with a $30 million to $60 million bill.[73] To justify that expenditure and those increases, DOJ must provide the American public with dramatic evidence of its effectiveness. Hence, a high-profile case with sensational remedies as the exit strategy, played to the media and focused not on substantive legal issues but on public ridicule of a company and its chief executive. We deserve better.

What Role for Antitrust?

To uncover what's really driving the browser wars, read DOJ's complaint and accompanying legal memorandum. There you will find Netscape mentioned 130 times in 130 pages[74]—government resources co-opted for the welfare of a competitor, not consumers. Thankfully, the putative victim, only four years old, is feeling much better—evidently comforted by $10 billion from AOL. As for others in the industry, instead of focusing on new and better products, software executives find themselves having to consort with members and former members of Congress, their staffers, antitrust officials, and the best lobbying and public relations firms that money can buy. Microsoft will learn to play that game and, of necessity, become adept at currying favor with politicians in Washington, D.C. Those who are fearful of Microsoft's competition in private markets should be even more concerned if the company decides that political clout better serves its interests.

The Supreme Court cautioned more than 60 years ago that an attorney for the state—whether a government employee like Joel Klein or a private subcontractor like David Boies—"is the representative not of an ordinary party to a controversy, but of a sovereignty whose obligation to govern impartially is as compelling as its obligation to govern at all."[75] That's because government is the single entity that may wield coercive power against private citizens. Therefore, in the criminal law context, adequate safeguards against abusive government conduct are essential—and so we have the Fifth and Sixth Amendments to the Constitution and the requirement for proof beyond reasonable doubt. But in civil litigation—where private parties, adverse to one another, seek remedies that redress the injured party, not the state—we neither have nor need the same protection against abusive government. When the state stays out, the risk of abuse is diminished; when the state is a party, as it is in this case, we must insist on scrupulous adherence to the rule of law—not pandering to the press, not courtroom histrionics, not preferential treatment of favored constituents, and not public harassment of companies whose only offense is to prevail over their competitors by creating better value for consumers.

Microsoft neither has the leverage it is said to have nor did the damage it is said to have done. Instead, lawyers with marginal understanding of how businesses talk and operate, and even less understanding of the technical subject matter, were bamboozled into bringing this case by rent-seeking executives like McNealy and Barksdale, who knew then and know now that software markets are intensely competitive. Disgruntled rivals played on the naivete and power lust of government officials and persuaded them that Microsoft's aggressiveness could be scripted into an antitrust suit. No doubt, McNealy and Barksdale are privately clucking because they see the fatuity of this lawsuit better than anyone. Yet they have succeeded in getting the government, at taxpayer expense, to do their competitive dirty work and, to boot, humiliate a rival whom they envy and despise.

The history of software is that better ideas mean better products, and better products win in the market. Most observers understand that excessive regulation can do great damage to that process. Yet government moves forward in the name of correcting "market failure," apparently giving little or no weight to the possibility of government failure. Economist Thomas Sowell asks whether the St. Louis Cardinals would "send in a pinch hitter whenever Mark McGwire strikes out." Of course not, he answers. They know that the pinch hitter would likely do worse.[76]

Joel Klein can profit from those insights. Indeed, he can profit from the words of his former coplaintiff, South Carolina attorney general Charles Condon, who withdrew from the Microsoft suit after AOL announced its acquisition of Netscape. Condon said: "Recent events have proven that . . . innovation is thriving. . . . Further government intervention . . . is unnecessary and . . . unwise. Consumers have not taken a leading role in this action. That's because there are no monopolies on the Internet."[77]

The government needs to rethink its entire approach to high-tech antitrust. What exactly will be accomplished by any of the proposed remedies? If the objective is to take away the "leverage" of Windows so that the industry isn't "forced" to live in a Windows world, well, the market has already attained that goal, without any "help" from DOJ. Yes, it will take a few years for the impact to play out fully, but that would be the case even if DOJ were to win its lawsuit. Years could elapse before a final disposition, and millions of users are not going to abandon Windows overnight.

Even assuming that DOJ had been correct on every point it has raised, the real-world case is over. What the government says it wants has

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already happened. Thus, the ineluctable conclusion must be that the whole concept of antitrust is flawed to the core. The market moves faster than antitrust could ever move. The assumption of would-be regulators—that inefficiencies, especially in high-tech markets, can lock a company into a position from which it can't be unseated—is a complete myth. Consumers rule, not producers. And consumers can unseat any product and any company no matter how "powerful." Antitrust, if it was ever needed, is now as obsolete as Windows will soon be.

Appendix A: Miniglossary

The following definitions were adapted in part from URL.http://www.users.bigpond.com /jenkos/G.htm, August 25, 1999.

API: Application Programming Interface. **Software** that allows the **application program** to interact with the **operating system**.

Application program: **Software** that performs a specific task for the computer user, as contrasted with software that handles the internal functions of the **PC**. Most people buy **PC**s so they can run application programs like **word processors**.

Browser: An **application program** used for exploring the **Web** or for connecting to a particular **Web site**. Examples include Microsoft's Internet Explorer and Netscape's Navigator.

Consumer electronics: In the context of this paper: hand-held computers, digital TVs with set-top boxes, subnotebook computers, and other new devices that offer an alternative to the standard **PC** for processing information and communicating with the **Internet**.

Desktop: The first screen displayed when a **PC** is started. It contains **icons** that can be used to start **application programs** and other **operating system** functions.

DOS: Disk Operating System. An IBM **operating system** that preceded **Windows**.

Download: To copy files from a distant to a local computer via a **network** or **modem**.

E-commerce: Electronic commerce. Transactions in goods and services that take place over the **Internet**.

E-mail: Electronic mail. A way of sending messages to and receiving messages from other **PC** users.

Hardware: The physical components of a computer and its connected devices.

Home page: The computer screen chosen by the user as the location from which other pages are accessed; ordinarily displayed when a user first enters the **Web**.

Icon: A small picture displayed on the screen, intended to depict a task graphically. A user can execute the task by clicking the icon with a **mouse**.

Internet: A worldwide computer **network** through which you can send a letter, chat with people electronically, or search for information on almost any subject. A "network of computer networks," the Internet was first conceived in the early 1960s under the leadership of the U.S. Department of Defense. It was intended to promote the sharing of supercomputers by researchers, and to avoid overreliance on one supercomputer that might fail or be destroyed.

Internet content provider (ICP): A company that maintains a presence on the **Internet** through which it provides users with goods or services. Examples include Amazon.com, Travelocity, and CNN.

Internet service provider (ISP): A company that provides communications by means of which **PC**s can connect to the **Internet**.

Java: A modern programming language developed in 1995 by Sun Microsystems. Java programs are intended to run on stand-alone **PC**s or across the Internet and to be compatible with different types of computers (e.g., IBM PCs, Apple Macintoshes).

Linux: A variant of the **Unix operating system** developed by Helsinki student Linus Torvalds, distributed without charge to **software** developers and **OEM**s. Software support is available, for a price, through Red Hat Software and others.

MacOS: A graphical **operating system** developed by Apple.

Modem: A device that converts information from analog form (like telephone sound waves) to digital form (zeroes and ones), which computers can understand. Modems are used to send information over phone lines from one computer to another.

Mouse: A common pointing device used to invoke certain computer tasks by clicking on displayed graphics or text rather than entering instructions via the keyboard.

Network: A number of computers linked by wires and cables by means of which information is exchanged and resources are shared.

Network computer: A low-cost **personal computer** touted by some as the ultimate replacement for today's **PC**. In a network computing environment, **software** applications reside on, and are accessible from, the **Internet**, which substitutes for the PC's hard disk. The network computer is thus more of a communications device than an independent processor.

OEM: Original Equipment Manufacturer. The company that manufactures the **PC**.

Online service provider (OLS): A company that offers both access to the **Internet**, like an **ISP**, and information content that is accessible online without using the **Internet**. Among the popular OLSs are America On-Line, CompuServe, and the Microsoft Network.

Operating system: Software that is responsible for running the **PC—**controlling and utilizing the processor and its peripheral devices, like printers.

OS/2: A graphical **operating system** developed by IBM.

Personal computer (PC): Broadly, a computer designed to be used by one person at a time. More narrowly, the term PC is sometimes used to mean personal computers with microchips manufactured by Intel—a restriction that would exclude Apple computers and many **consumer electronics** products.

Portal: A **Web site** that serves as a gateway to other services on the **Internet**, and frequently as a **home page** as well. Among the popular portals are Netscape's Netcenter.com, Microsoft.com, and Yahoo.com.

Server: Computer **hardware** and accompanying **software** that distributes processing between two or more computers on a **network** in a manner that makes most efficient use of each and facilitates multiple access to **application programs**.

Software: A series of instructions, sometimes called a program, that causes a **PC** to perform a task. The **operating system** is an example of systems software. A **word processor** is an example of an **application program**.

Unix: A modern **operating system** intended to be portable—i.e., capable of running on different computers without compatibility problems.

Web site: A group of **Web** pages or screens, developed to display related information that collectively represents a particular individual or entity.

Windows: The graphical **operating system** developed by Microsoft to overlay and later replace **DOS**. Widely used **PC** versions, from earliest to latest, include Windows 3.1, Windows 95, and Windows 98. Another version, Windows NT, is run primarily by larger users on **networks** and **servers**.

Word processor: An **application program** used mainly for creating text-based documents like letters, reports, and legal documents. Popular word processors include Microsoft Word and its principal competitor, WordPerfect.

Web: Originally used to denote a subset of **Internet** sites that featured graphic displays and icons with links to related content on other screens and other sites. Today, the term Web is roughly synonymous with the term **Internet**.

Appendix B: Condensed Chronology

The following key dates and events in the legal battle between Microsoft and the U.S. Department of Justice were extracted in part from URL.http://www.mocrosoft.com/presspass/doj/timeline.htm, August 25, 1999.

1991: The Federal Trade Commission (FTC) begins to investigate claims that Microsoft monopolizes the market for PC operating systems.

1993: The FTC deadlocks on two votes to file a formal complaint against Microsoft for antitrust infringements, then closes its investigation; but Department of Justice (DOJ) antitrust investigators begin their own independent probe.

July 1994: Microsoft and DOJ sign a consent decree with a provision that prevents Microsoft from requiring PC makers (OEMs) who license Windows to also license another software product. The consent decree explicitly states, however, that the provision "shall not be construed to prohibit Microsoft from developing integrated products."

August 1995: The consent decree signed by Microsoft and DOJ is approved by the U.S. District Judge Thomas Penfield Jackson.

October 1997: DOJ files a petition in U.S. District Court claiming that Microsoft's browser, Internet Explorer, is a product separate from, not integrated with, the Windows operating system. The government argues that Microsoft, by requiring OEMs to take the browser when they acquire Windows, is in contempt of the consent decree.

December 1997: Judge Jackson denies DOJ's petition for a contempt citation against Microsoft but issues a preliminary injunction, tentatively accepting DOJ's characterization of Internet Explorer as a "separate product." The injunction requires Microsoft to offer a version of Windows without Internet Explorer.

January 1998: Microsoft reaches agreement with DOJ regarding the company's compliance with the preliminary injunction until an appeal is resolved. Basically, Microsoft will offer OEMs the option of removing or hiding browser functionality while leaving essential Internet Explorer code intact.

May 1998: The U.S. Court of Appeals, District of Columbia Circuit, grants Microsoft's motion for a stay of the preliminary injunction insofar as it applies to Windows 98. The court's ruling clarifies that the release of Windows 98, scheduled for June 1998, will not be affected.

May 1998: DOJ and 20 state attorneys general (South Carolina has since withdrawn) file two antitrust suits in U.S. District Court. The suits are consolidated and assigned to Judge Jackson. The government charges Microsoft with attempted collusion with Netscape to divide markets, illegal tying arrangements in the sale of Windows to OEMs, and exclusionary contracts with Internet service and content providers.

June 1998: The U.S. Court of Appeals overturns the December 1997 preliminary injunction, stating that Microsoft had plausibly demonstrated that consumers will benefit from the integrated design of Windows 95 with Web browsing functionality. In effect, the court rejects the claim that Windows and Internet Explorer are separate products under the terms of the consent decree.

October 1998: Microsoft's antitrust trial begins.

June 1999: Microsoft's antitrust trial ends.

August 10–September 21, 1999: On August 10, Microsoft and the government submit their Proposed Findings of Fact—documents that set forth the facts of the case, as established by evidence, depositions, written testimony, and in-court testimony. On September 10, each party responds in writing to the other's findings. On September 21, the parties argue their respective versions of the facts orally before Judge Jackson.

Future: Later this year, Judge Jackson will weigh the parties' proposed findings and the evidence, then issue his own Findings of Fact. Thirty days thereafter, the parties are to submit briefs containing their proposed conclusions of law, based on the judge's fact finding.

Perhaps early next year, the judge will issue his own conclusions of law. He may, if he finds that Microsoft has violated the antitrust laws, order a new round of hearings on the appropriate remedies for such violations. Meanwhile, either side can appeal—first to the U.S. Court of Appeals and then to the Supreme Court. If Judge Jackson certifies that the case is of sufficient importance, and if a party so requests, the appeal may bypass the Court of Appeals and go directly to the Supreme Court, which need not, however, accept the direct appeal.

Of course, the case could be settled out of court, with the judge's subsequent approval, at any time. But a settlement could be construed in later private litigation as a legal finding that Microsoft is in fact a monopoly.

Notes

1. Originally, 20 state attorneys general filed suit against Microsoft, but South Carolina attorney general Charles Condon subsequently withdrew from the litigation.

2. See, for example, Robert Bork, "What Antitrust Is All About," *New York Times*, May 4, 1998, p. A19.

3. Stan Liebowitz, "A Defective Product: Consumer Groups' Study of Microsoft in Need of Recall," Competitive Enterprise Institute, Washington, February 9, 1999, p. 3.

4. Peter Huber, "Reno Rewrites Your Operating System," *Forbes*, December 1, 1997.

5. See, for example, Bernard J. Reddy et al., "Why Does Microsoft Charge So Little for Windows?" National Economic Research Associates, White Plains, N.Y., January 7, 1999.

6. Stan Liebowitz, "Bill Gates' Secret? Better Products," *Wall Street Journal*, October 20, 1998, p. A22.

7. Liebowitz, "A Defective Product," pp. 4–5.

8. "Annual Reseller Training and Services Survey," *Computer Reseller News*, April 6, 1998.

9. Reddy et al., p. 1.

10. Alan Reynolds, "The Monopoly Myth," *Wall Street Journal*, April 9, 1999, p. A12.

11. Jim Carlton, "Apple's Profit Tops Forecasts as iMac Sales Soar," *Wall Street Journal*, October 15, 1998, p. B6.

12. David Beckman and David Hirsch, "The Line on Linux," *ABA Journal*, October 1998, p. 81.

13. Data as of September 9, 1999, from URL.http://www.linux.org/vendors/systems.html.

14. Holman Jenkins, "Microsoft's Season of FUD," *Wall Street Journal*, March 31, 1999, p. A23.

15. Jon G. Auerbach, "IBM to Use Linux Operating

System on Several Servers, Workstations, PCs," *Wall Street Journal*, February 8, 1999, p. B8.

16. Eric Auchard, "Dell Boosts Windows Rival Linux," Reuters, April 6, 1999.

17. Rajiv Chandrasekaran, "Judge Sets Sept. Trial for Microsoft," *Washington Post,* May 23, 1998, p. D1.

18. Steve Lohr, "Microsoft Has Seen the Enemy," *New York Times,* July 5, 1998, sec. 4, p. 6.

19. Reynolds, "The Monopoly Myth."

20. Don Clark, "Software Becomes an Online Service, Rattling Industry," *Wall Street Journal,* interactive, July 21, 1999.

21. Quoted in ibid.

22. David P. Hamilton, "Sun to Challenge Microsoft 'Office' Suite," *Wall Street Journal,* August 31, 1999, p. A3.

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