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Devising a *Microsoft* Remedy That Serves Consumers

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DEVISING A *MICROSOFT* REMEDY THAT SERVES CONSUMERS

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INTRODUCTION

According to Judge Thomas Penfield Jackson, Microsoft was a "predacious" monopolizer that did extensive "violence . . . to the competitive process."[1] Through a "single, well-coordinated course" of anticompetitive action,[2] it suppressed competition from Netscape's Navigator, an Internet browser, and from Sun's Java programming language and related technologies. Microsoft "mounted a deliberate assault upon entrepreneurial efforts, . . . placed an oppressive thumb on the scale of competitive fortune, . . . and trammeled the competitive process."[3] Having colorfully concluded that Microsoft's offenses were extreme, Judge Jackson deferred to the government's demand for a drastic remedy.[4] He ordered that Microsoft be broken into two firms: one confined to the operating systems business, and the other to the applications business.[5] He also imposed a set of conduct restrictions, some applying to both firms, which remain in effect for the ten-year duration of the judgment, and some applying primarily to the operating systems business, which remain in effect until the two businesses establish their independent viability.[6] The Supreme Court refused expedited review of the district court's decision and remanded the case to the Court of Appeals for the District of Columbia Circuit,[7] where it is now pending.

This Article attempts to identify an appropriate legal response to the offenses Microsoft was found to have committed. The ultimate criterion of the appropriateness of a remedy is straightforward: a remedy should serve

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1 United States v. Microsoft Corp., 87 F. Supp. 2d 30, 44 (D.D.C. 2000) *appeal denied, cause remanded by* 121 S. Ct. 25 (2000).

2 *Id.*

3 *Id.*

4 *See, e.g.*, United States v. Microsoft Corp., 97 F. Supp. 2d 59, 62 (D.D.C. 2000) *appeal denied, cause remanded by* 121 S. Ct. 25 (2000) ("Plaintiffs won the case, and for that reason alone have some entitlement to a remedy of their choice."). The litigation against Microsoft was the consolidation of a case brought by the United States and one pursued by nineteen states. *See Microsoft*, 87 F. Supp. 2d at 35. For simplicity, we refer to the plaintiffs in these cases as the government.

5 *Microsoft*, 97 F. Supp. 2d at 64-65.

6 *Id.* at 65-71. Judge Jackson stayed the final judgment pending disposition of Microsoft's appeal. United States v. Microsoft Corp., Civ. No. 98-1232 (Order of June 20, 2000), *available at* http://www.dcd.uscourts.gov/98-1232v.pdf.

7 United States v. Microsoft Corp., 121 S. Ct. 25 (2000).

consumers. Such a remedy will result in markets that closely resemble those that would have emerged but for Microsoft's unlawful behavior. The optimal remedy will minimize the sum of the expected costs of future misconduct, anticompetitive effects of past misconduct, lost efficiencies in product composition, firm structure, and multi-firm collaboration, impaired incentives to innovate, and administration, including enforcement of the remedy and the antitrust laws. Judged by this standard, the court's decree falls short.

Part I begins by setting forth in some detail the conduct the court held illegal. Although we disagree with many of the court's factual and legal characterizations of Microsoft's conduct,[8] we generally accept them for purposes of analyzing the remedy. Part I then sets out briefly the terms of the court's remedial order. Part II, after a description of the conditions that might justify structural relief, presents the argument that structural relief is inappropriate in *Microsoft*. This Part concludes that any severe restructuring of Microsoft, including the separation of its applications and operating systems activities ordered by the court, will almost certainly raise prices to consumers and will likely fail to produce long-term competitive benefits. Part III sketches the content of a conduct remedy tailored to promote consumer interests and identifies a number of ways in which the decree's conduct provisions subvert that objective.

I. THE DISTRICT COURT'S ORDERS

As explained more fully below, any antitrust relief should address the violations proven.[9] This Part includes a description of the primary offenses found by the district court and a brief summary of the court's remedies for those offenses. The remedies are examined in greater detail in the remainder of the article.

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[8] For our views on the merits of the charges against Microsoft, see John E. Lopatka & William H. Page, *Antitrust on Internet Time: Microsoft and the Law and Economics of Exclusion*, 7 SUP. CT. ECON. REV. 157 (1999); William H. Page & John E. Lopatka, *The Dubious Search for "Integration" in the* Microsoft *Trial*, 31 CONN. L. REV. 1251 (1999); John E. Lopatka & William H. Page, *An Offer Netscape Couldn't Refuse?: The Antitrust Implications of Microsoft's Proposal*, 44 ANTITRUST BULL. 679 (1999). For our critique of earlier litigation against the firm, see John E. Lopatka & William H. Page, *Microsoft, Monopolization, and Network Externalities: Some Uses and Abuses of Economic Theory in Antitrust Decision Making*, 40 ANTITRUST BULL. 317 (1995) [hereinafter Lopatka & Page, *Network Externalities*]. We offered a brief analysis of remedies in the instant case, before the court issued its liability determination, in John E. Lopatka & William H. Page, *A (Cautionary) Note on Remedies in the* Microsoft *Case*, 13 ANTITRUST 25 (Summer 1999).

[9] *See, e.g.*, United States v. Nat'l Lead Co., 332 U.S. 319, 335 (1947) ("The essential consideration is that the remedy shall be as effective and fair as possible in preventing continued or future violations of the Antitrust Act in the light of the facts of the particular case.").

A. *The Liability Determinations*

The court found that Microsoft possesses monopoly power in "the licensing of all Intel-compatible PC operating systems worldwide,"[10] and that an "applications barrier to entry" protects Microsoft's dominant market share.[11] Because most applications are both costly to write and operate with only a single operating system, applications will tend to be written to the operating system with the greatest number of users; users, for their part, will choose the operating system to which the greatest number of applications have been written, thereby creating a "positive feedback loop."[12] In a phrase, the operating system market exhibits network effects. Thus, the court found that over 70,000 applications have been written to Microsoft's Windows,[13] a number far greater than the 12,000 plus applications written to the next most popular operating system, Apple's Mac OS,[14] and apparently the approximate number of applications the court believes any new operating system would have to offer users in order to be a viable competitor to Windows.

The thrust of the court's liability determinations is that Microsoft acted illegally to maintain an applications barrier to entry by excluding "middleware" competitors. Netscape developed Navigator, an Internet browser, which exposed some applications programming interfaces (APIs).[15] APIs allow an application program to call upon functions provided in an underlying program, so that the ability to perform the function need not be written into the application program itself.[16] Software producers could then write applications to Navigator instead of to the underlying operating system, and Navigator itself was written, or "ported," to multiple operating systems, so that the particular operating system to which any version of Navigator was written would have little commercial significance.[17] Navigator, therefore, is a form of middleware, because it relies on the APIs exposed by the underlying operating system while simultaneously exposing its own APIs. In the now-famous words of Bill Gates, Netscape threatened "to commoditize the underlying operating system."[18]

Similarly, Sun Microsystems developed a technology, called Java, that

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10 *Microsoft*, 87 F. Supp. 2d at 36-37. The court found that Microsoft's share of the market for Intel-compatible PC operating systems has exceeded ninety percent every year for the past decade and has been at least 95 percent for the last couple of years. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, ¶ 35 (D.D.C. 1999).

11 *Microsoft*, 87 F. Supp. 2d at 36.

12 *Microsoft*, 84 F. Supp. 2d at ¶¶ 36-42.

13 *Id.* at ¶ 40.

14 *Id.* at ¶ 47.

15 *See id.* at ¶¶ 68-69.

16 *Id.* at ¶ 2.

17 *Id.* at ¶ 69.

18 *Id.* at ¶ 72.

also functioned as middleware. It was intended to enable applications written in the Java language to run on multiple operating systems with minimal porting.[19] Sun's objective was captured in the slogan, "write once, run anywhere."[20] Though the Java technology has so far achieved limited success,[21] it posed the same kind of threat to Microsoft's market power in operating systems that Navigator represented.[22] Applications written in Java can only operate on computers that have been enabled to read Java "bytecode," or computers that carry a "Java runtime environment,"[23] and Netscape agreed to include a copy of Sun's Java runtime environment with every copy of Navigator.[24] As a result, any Windows computer in which Navigator has been installed is able to read Java bytecode. Navigator became the principal method by which Sun placed copies of its Java runtime environment on Windows computers.[25]

The court found that Microsoft acted illegally to impair the commercial success of middleware, primarily by impeding the distribution and use of Navigator. The court did not find, however, that Microsoft initially achieved its market dominance unlawfully. After all, the network effects that serve to maintain the applications barrier to entry naturally push a market toward a dominant supplier.[26] And, the court found insufficient evidence that "absent Microsoft's actions, Navigator and Java already would have ignited genuine competition in the market for Intel-compatible PC operating systems."[27] Rather, "Microsoft has retarded, and perhaps altogether extinguished, the process by which these two middleware technologies could have facilitated the introduction of competition into an important market."[28] The court concluded, therefore, that Microsoft violated section 2 of the Sherman Act by unlawfully *maintaining* monopoly power in the PC operating systems market.[29] The court also concluded that Microsoft violated section 2 by attempting to monopolize the Internet browser market,[30] and violated section 1 of the Sherman Act by unlawfully tying the Win-

19 *Id.* at ¶ 74.

20 *Id.*

21 *Id.* For a useful description of the technological limitations of Java, which have limited its popularity, see Andrew Shuman, *Weak Java*, Slate (Sep. 26, 1997) *at* http://www.slate.com/Webhead/97-09-26/WebHead.asp.

22 As the court stated the point, "Simply put, middleware threatened to demolish Microsoft's coveted monopoly power." *Microsoft*, 87 F. Supp. 2d at 38.

23 *Microsoft*, 84 F. Supp. 2d at ¶ 73.

24 *Id.* at ¶ 76.

25 *Id.*

26 The government recognized this in earlier litigation against Microsoft. *See* Lopatka & Page, *Network Externalities*, *supra* note 8, at 354.

27 *Microsoft*, 84 F. Supp. 2d at ¶ 411.

28 *Id.*

29 *Microsoft*, 87 F. Supp. 2d at 44.

30 *Id.* at 45-46.

dows operating system and the Internet Explorer (IE) browser.[31] Nevertheless, the court held that Microsoft's vertical arrangements with various online services (OLSs), Internet content providers (ICPs), independent software vendors (ISVs), and original equipment manufacturers (OEMs) did not violate section 1's prohibition against exclusive dealing.[32] Much of the conduct found anticompetitive related to more than one legal theory, and it is the conduct that informs the determination of remedies. We thus turn to a description of the major practices condemned by the court.

First, Microsoft bundled Windows and IE, initially by contract, and then technologically.[33] Microsoft included code for early versions of IE in the installation disks for Windows 95 shipped to OEMs. The Windows licenses prohibited OEMs from modifying or deleting any part of Windows, including IE, even though it was technologically possible to do so, prior to shipment to consumers.[34] As a result, every consumer who received a computer loaded with Windows automatically received IE. Microsoft bound a later version of IE to Windows 95 by placing browser-specific code in the same files as code that provided traditional operating system functions.[35] Shared files could not be entirely deleted without impairing the operating system. Though some of the browser-specific code could be removed without impairing the operating system, the removal process was not feasible for OEMs, and they remained contractually bound not to disable IE anyway.[36] But, Microsoft provided users with an easy method (i.e., use of the "Add/Remove" function) to configure the operating system so that IE would not launch.[37] Microsoft introduced IE 4.0 with Windows 98 and integrated the browser more deeply into the operating system by creating more shared files.[38] Windows 98 did not offer users a simple way to prevent IE from launching.[39] The result of all of this was to increase the probability that IE was accessible to users of Windows.

Second, Microsoft limited the freedom of OEMs to modify the Windows desktop or change the "boot" sequence in ways that might have increased consumer use of Navigator.[40] Specifically, Microsoft refused to permit OEMs to remove the IE icon or IE program entries from the desktop

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31 *Id.* at 47.

32 *Id.* at 53.

33 *Id.* at 39. The practice was relevant to the claim that Microsoft illegally maintained monopoly power in operating systems, *id.*, the claim that Microsoft attempted to monopolize the browser market, *id.* at 45, and the tying claim. *id.* at 49-51.

34 *Microsoft*, 84 F. Supp. 2d at ¶ 158.

35 *Id.* at ¶ 161.

36 *Id.* at ¶ 164.

37 *Id.* at ¶ 165.

38 *Id.* at ¶¶ 168-69.

39 *Id.* at ¶ 170.

40 *Microsoft*, 87 F. Supp. 2d at 39. This conduct was relevant to the monopoly maintenance and attempted monopolization claims and, to a limited extent, the tying claim. *Id.* at 45, 49-51.

or "Start" menu.[41] It refused to allow OEMs to add to the initial boot sequence any program promoting Navigator that might appear on a computer before the user is presented with Windows.[42] It prohibited OEMs from installing programs promoting Navigator that would launch automatically upon completion of the initial Windows boot sequence.[43] It prohibited OEMs from adding icons or folders that were not similar in size and shape to icons it supplied.[44] And, it prohibited OEMs from using its Active Desktop feature to display third-party brands.[45]

Third, Microsoft offered important OEMs positive inducements to favor IE over Navigator in promotion and distribution, and it threatened them with negative consequences if they favored Navigator.[46] In particular, Microsoft gave large-volume OEMs reductions in royalties, co-marketing funds, and in-kind assistance for promoting IE, such as by setting IE as the default browser, and it offered additional consideration to OEMs that agreed not to pre-install Navigator.[47] It threatened to terminate certain cooperative activities with OEMs that balked, and it initiated various cooperative ventures with the competitors of one OEM that announced its intention to work with Netscape.[48]

Fourth, Microsoft induced Internet access providers (IAPs) to act in ways that increased IE's browser usage share.[49] It licensed IE and the IE Access Kit to them for no charge,[50] though the government did not allege and the court did not find that Microsoft had engaged in predatory pricing.[51] Microsoft provided the ten most important IAPs placement in the Windows 95 Referral Server, which allowed a user to subscribe to an IAP's service easily through use of the Internet Connection Wizard contained in Windows 95 and displayed on the desktop; in exchange for this placement and other consideration, the IAPs agreed to promote and distribute IE preferen-

41 *Microsoft*, 84 F. Supp. 2d at ¶ 203.

42 *Id.* at ¶ 209.

43 *Id.* at ¶ 211.

44 *Id.* at ¶ 213.

45 *Id.*

46 *Microsoft*, 87 F. Supp. 2d at 39.

47 *Microsoft*, 84 F. Supp. 2d at ¶¶ 230-238.

48 *Id.* at ¶¶ 232, 236-37.

49 *Microsoft*, 87 F. Supp. 2d at 39. The conduct was relevant to the monopoly maintenance and attempted monopolization claims.

50 *Microsoft*, 84 F. Supp. 2d at ¶¶ 250-51.

51 Indeed, the court specifically found that

> [t]he inclusion of Internet Explorer with Windows at no separate charge increased general familiarity with the Internet and reduced the cost to the public of gaining access to it, at least in part because it compelled Netscape to stop charging for Navigator. These actions thus contributed to improving the quality of Web browsing software, lowering its cost, and increasing its availability, thereby benefiting consumers.

Id. at ¶ 408.

tially over Navigator.[52] These IAPs could not promote Navigator or provide Navigator to customers who did not specifically request it, and their distribution of Navigator could not exceed a given percentage of their total browser distribution, usually twenty-five percent[53] Microsoft provided America Online (AOL) and three other OLSs favorable placement on the Windows desktop and other consideration in exchange for their agreement to distribute and promote IE nearly exclusively.[54] Microsoft also granted rebates and made some payments to the ten most important IAPs in exchange for their efforts to upgrade existing subscribers to software that was bundled with IE rather than Navigator.[55]

Fifth, Microsoft supplemented its efforts to hamper the distribution of Navigator through the OEM and IAP channels by inducing Apple, ICPs, and ISVs to act to Netscape's disadvantage.[56] Specifically, Microsoft threatened to cancel the development and sale of its popular Office applications suite ported to the Mac OS, a product that was crucial to Apple's survival, unless Apple agreed to distribute and promote IE for Macintosh personal computers more favorably than Navigator.[57] As a result, ISVs were less likely to view Navigator as cross-platform middleware.[58] Microsoft offered benefits, such as free licenses to incorporate IE, to induce ICPs and ISVs not to focus on Navigator's APIs when developing their products.[59]

Sixth, Microsoft used various tactics to increase the difficulty of porting applications written in Java from Windows to other platforms, and vice versa.[60] In particular, it created a Java implementation for Windows that undermined the portability of programs written in Java. Thus, Java programs that were written to use Sun's method of interacting with the underlying operating system would not run on Microsoft's Java implementation, and those written to use Microsoft's method would not run on any implementation other than Microsoft's.[61] Microsoft then induced ISVs to use the Microsoft-specific Java technology, in part by making its implementation technically superior and by offering various benefits.[62] It also used its mar-

52 *Id.* at ¶¶ 253-58.

53 *Id.* at ¶ 258.

54 *Id.* at ¶¶ 272-306. The court used the term "Internet access provider" to encompass online services and Internet service providers (ISPs). *See id.* at ¶ 15.

55 *Id.* at ¶¶ 259-60.

56 *Microsoft*, 87 F. Supp. 2d at 42-43. These measures related to the monopoly maintenance and attempted monopolization claims.

57 *Microsoft*, 84 F. Supp. 2d at ¶¶ 341-56.

58 *Microsoft*, 87 F. Supp. 2d at 42.

59 *Id.* at 42-43; *Microsoft*, 84 F. Supp. 2d at ¶¶ 334-35, 340.

60 *Microsoft*, 87 F. Supp. 2d at 43. This conduct relates primarily to the monopoly maintenance charge.

61 *Microsoft*, 84 F. Supp. 2d at ¶¶ 387-90.

62 *Id.* at ¶¶ 395-402.

ket power to pressure firms like Intel from developing products that would benefit cross-platform Java implementations.[63]

Finally, when browsers were first being developed, Microsoft made a "market division proposal" to Netscape under which Netscape would abandon its plans to provide a browser for Windows operating systems, which could function as an applications platform, and focus instead on browsers for non-Windows operating systems and on other Internet-related software.[64] For its part, Microsoft would provide browsing technology for Windows machines, and it would grant Netscape preferential access to proprietary technical information.[65] Microsoft threatened to delay the provision of information necessary to ensure that Navigator would operate well on systems running Windows 95 unless Netscape agreed to the plan. Netscape nevertheless refused to assent, and Microsoft did in fact delay the provision of the technical information Netscape needed.[66]

The government also claimed that the restrictive agreements with various OLSs, ICPs, ISVs, Compaq, and Apple, which were an important part of the court's finding of section 2 violations, were independently illegal as exclusive dealing arrangements under section 1.[67] The court, however, held that the arrangements survived rule-of-reason scrutiny because they "failed to foreclose absolutely outlets that together accounted for a substantial percentage of the total distribution of the relevant products . . . ."[68] Still, the court emphasized that the lack of sufficient market foreclosure for a Section 1 violation "in no way detracts from the Court's assignment of liability for the same arrangements under [section] 2."[69]

B. *The Remedial Order*

To redress the violations found, the court ordered structural relief coupled with conduct restrictions. The divestiture, which would break Microsoft into an Operating Systems Business (OpCo) and an Applications Business (AppCo), is supposed to be completed within twelve months of the

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63 *Id.* at ¶¶ 396, 404-06.

64 *Microsoft*, 87 F. Supp. 2d at 45-46. The incident related solely to the attempted monopolization claim.

65 *Microsoft*, 84 F. Supp. 2d at ¶¶ 79-92.

66 *Id.* at ¶¶ 90-92.

67 *Microsoft*, 87 F. Supp. 2d at 51.

68 *Id.* at 52. The court stated:

> Notwithstanding the extent to which these 'exclusive' distribution agreements preempted the most efficient channels for Navigator to achieve browser usage share, however, the Court concludes that Microsoft's multiple agreements with distributors did not ultimately deprive Netscape of the ability to have access to every PC user worldwide to offer an opportunity to install Navigator.

Id. at 53.

69 *Id.* at 53.

expiration of the stay pending appeal.[70] Certain conduct restrictions are primarily of an interim nature, and most were intended to take effect almost immediately and remain in effect for at least three years after implementation of the reorganization plan, though they apply only to the OpCo for the post-implementation period.[71] Other restrictions, designed to implement the divestiture, become effective only upon reorganization, continue for the ten-year duration of the final judgment, and apply to both businesses.[72]

The heart of the decree is the divestiture. Assets related to the production and licensing of operating systems, narrowly defined, are assigned to the OpCo; everything else, including assets related to IE, the Office applications suite, and other client and server applications, is assigned to the AppCo.[73] Intellectual property related both to operating systems and other products is assigned to the AppCo, but the OpCo receives a perpetual, royalty-free license to use it.[74] The OpCo also receives the right to develop, license, and distribute modified or derivative versions of the joint intellectual property that is unrelated to the browser; it does not receive the right to develop derivative browsers.[75] Transactions between the two companies are restricted. The two are prohibited from "entering into any Agreement with one another under which one of the Businesses develops, sells, licenses for sale or distribution, or distributes products or services . . . developed, sold, licensed, or distributed by the other Business,"[76] with one exception. The two companies may "licens[e] technologies (other than Middleware Products) to each other for use in each others' products or services provided that such technology (i) is not and has not been separately sold, licensed, or offered as a product, and (ii) is licensed on terms that are otherwise consistent with this Final Judgment."[77]

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70 United States v. Microsoft Corp., 97 F. Supp. 2d 59, 64 (D.D.C. 2000).

71 *Id.* at 66, 70-71. These restrictions are to "remain in effect until the earlier of three years after the Implementation of the Plan or the expiration of the term of this Final Judgment," which is 10 years. *Id.* at 66. After the restrictions take effect and before the structural reorganization occurs, the restrictions apply to the single Microsoft Corporation; after reorganization and during at least the next three years, the restrictions apply only to the Operating Systems Business. *Id.* at 65, 66, 69. Though all of these restrictions were intended to take effect ninety days after entry of the order regardless of any appeal, the court subsequently stayed the final judgment "in its entirety until the appeal therefrom is heard and decided, unless the stay is earlier vacated by an appellate court." United States v. Microsoft Corp., Civ. No. 98-1232 (order entered June 20, 2000).

72 *Microsoft*, 97 F. Supp. 2d at 66, 70-71.

73 *Id.* at 64, 71-72.

74 *Id.* at 64.

75 *Id.*

76 *Id.* at 65.

77 *Id.* The decree defines "middleware product" as follows:

> i. Internet browsers, e-mail client software, multimedia viewing software, instant messaging software, and voice recognition software, or ii. software distributed by Microsoft that - (1) is, or has in the applicable preceding year been, distributed separately from an Operating System Product in the retail channel or through Internet access providers, Internet content providers, ISVs or OEMs, and (2) provides functionality similar to that provided by Middleware offered by a competitor to Mi-

II. CHOOSING BETWEEN STRUCTURAL AND CONDUCT REMEDIES

The Supreme Court has said that an antitrust remedy should "restore competition."[78] "Restore," not "create:" the goal of the remedy should be to return the market to a baseline condition that would have prevailed in the market but for the defendant's anticompetitive acts, not to reshape the market to approximate a competitive ideal. Moreover, the decree "must not be punitive."[79] A decree should be commensurate with the offense;[80] it should deprive the offender of the benefits of the violation[81] but not the benefits of lawful conduct. This means that the remedy should not harm consumers by deterring hard competition, efficient arrangements, or innovation. In general, the optimal civil antitrust remedy will minimize the sum of the expected costs of future misconduct of the kind found unlawful, anticompetitive effects of past misconduct, lost efficiencies in firm integration, multifirm collaboration, and product configuration,[82] impaired incentives to innovate,[83] and administration, including enforcement of the remedy and the antitrust laws.

Divestiture is the "most drastic" antitrust remedy,[84] and "it is not to be used indiscriminately, without regard to the type of violation or whether other effective methods, less harsh, are available."[85] It is appropriate only if it would restore competition and "other measures will not be effective to redress a violation."[86] A remedy is effective if it stops the anticompetitive

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crosoft.

Id. at 72-73.

78 United States v. E. I. du Pont de Nemours & Co., 366 U.S. 316, 326 (1961). *See also* United States v. Am. Tobacco Co., 221 U.S. 106, 185 (1911) (noting that an antitrust court has a "duty of giving complete and efficacious effect to the prohibitions of the statute").

79 *Du Pont*, 366 U.S. at 326. *Accord* United States v. Nat'l Lead Co., 332 U.S. 319, 338 (1947).

80 *See generally* H. L. A. HART, PUNISHMENT AND RESPONSIBILITY 25 (1968) ("The guiding principle is that of a proportion within a system of penalties between those imposed for different offences where these have a distinct place in a commonsense scale of gravity."); JACK M. KRESS, PRESCRIPTION FOR JUSTICE 69-70 (1980); Anthony Bottoms, *The Philosophy and Politics of Punishment and Sentencing, in* THE POLITICS OF SENTENCING REFORM (Chris Clarkson & Rod Morgan eds., 1995); MICHAEL TONRY, SENTENCING MATTERS 184-86 (1996).

81 United States v. Crescent Amusement Co., 323 U.S. 173, 189 (1944) ("Those who violate the Act may not reap the benefits of their violations and avoid an undoing of their unlawful project on the plea of hardship or inconvenience.").

82 We use the term efficiencies of "product configuration" to denote efficiencies in both production and consumption. As to consumption, it includes, for instance, benefits consumers might derive in the form of reduced search costs or convenience in acquisition or operation flowing from a particular product design as well as economies of scale in consumption, or network effects, incident to a common standard.

83 In this calculus, the expected cost of reduced incentives to innovate refers to incentives dampened by the remedy itself. Any loss in innovation caused by the defendant's wrongful conduct is taken into account as an anticompetitive effect.

84 *Du Pont*, 366 U.S. at 326.

85 Timken Roller Bearing Co. v. United States, 341 U.S. 593, 603 (1951) (Reed, J., concurring).

86 *Du Pont*, 366 U.S. at 327.

conduct and leads to the rapid restoration of markets untainted by anticompetitive effects. Even if structural and conduct relief would be equally effective, a conduct remedy is nevertheless preferable if any higher administrative costs it entails are outweighed by lower costs of lost efficiencies and stifled innovation. We argue in this Part that a conduct remedy in *Microsoft* would be effective and the structural remedies proposed in this case would in fact be not merely ineffective but, on balance, harmful to consumers and society.

A. *Conduct Relief Would Be Effective*

In general, conduct relief can be ineffective for two reasons. First, a conduct order might be unenforceable, and thus unsuccessful in stopping the defendant's illegal conduct. Second, even if a conduct decree were effective in blocking illegal conduct, it might nevertheless fail to restore competition if the market is locked into a position that is the result of prior exclusionary behavior. Neither of these conditions is present in *Microsoft.*

1. Stopping Illegal Activity

The district court suggested that Microsoft cannot be stopped from engaging in its predatory conduct, at least not without entangling the court in continuing and costly supervision.[87] This argument proceeds from the premise that Microsoft will defy or attempt to evade any restrictions imposed on its anticompetitive behavior. This asserted recalcitrance might relate to a conduct decree in two ways. First, Microsoft might simply disobey the clear mandates of an order, thereby necessitating future litigation. Second, it might be impracticable to draft an order that would constrain Microsoft and be enforceable at a reasonable cost. Neither possibility is an insuperable obstacle to conduct relief in *Microsoft.*

The first concern is insubstantial.[88] Nothing in Microsoft's history indicates the breath-taking insolence that deliberate defiance of a court order

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[87] According to one report, the court was strongly influenced by a desire to avoid ongoing supervision. Judge Jackson "called restructuring the company 'less regulatory' because it would ultimately require less continuing oversight by the court. 'The less supervision by this court, the better,' he said." John R. Wilke, *For Antitrust Judge, Trust, or Lack of It, Really Was the Issue*, WALL ST. J., June 8, 2000, at A1. But another report suggested that Jackson had a different motivation. *See infra* note 88.

[88] According to one newspaper report, Judge Jackson "decided on a breakup because he thought Microsoft had been responsible for the failure of out-of-court settlement talks. 'Judicial intervention—forcible application of law—became a last resort,' Jackson said. 'And in my judgment, Microsoft's intransigence was the reason.'" James V. Grimaldi, *Microsoft Judge Says Ruling At Risk*, Wash. Post, Sept. 29, 2000, at E1, *available at* http://www.washingtonpost.com/wp-dyn/articles/A39357-2000Sep28.html. This account suggests that the court was not as much concerned with future defiance of an order as with punishing Microsoft for refusing to agree to a settlement. That certainly is an impermissible justification to eschew a conduct remedy.

would represent. The court placed great weight on Microsoft's unwillingness "to accept the notion that it broke the law or accede to an order amending its conduct."[89] But failure to admit wrongdoing is surely not an indication of bad faith when the litigant is appealing the judgment. Certainly Microsoft's suggestion that it might appeal any remedial restrictions imposed by the district court does not imply that Microsoft would disobey the order.[90] The court also baldly stated that "Microsoft has proved untrustworthy in the past."[91] Whatever the truth of this characterization,[92] it ignores the power of a contempt citation. A "willful disregard of the authority of the court" is a contempt of court.[93] The kind of open defiance under consideration here would likely be both a criminal contempt and a civil contempt, justifying action both to vindicate the authority of the court and to induce compliance with the underlying decree,[94] and the associated

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89 United States v. Microsoft Corp., 97 F. Supp. 2d 59, 62 (D.D.C. 2000).

90 Judge Jackson "expressed skepticism that Microsoft would willingly comply with behavioral restrictions," reportedly supporting his view with the comment, "'Even the very mild conduct remedies they proposed, they said they might appeal those, too.'" Wilke, *supra* note 87. The court specifically noted that Microsoft "has announced its intention to appeal even the imposition of the modest conduct remedies it has itself proposed . . . ." *Microsoft*, 97 F. Supp. 2d at 62.

91 *Microsoft*, 97 F. Supp. 2d at 62.

92 The court supported its charge by saying, without elaboration, "In earlier proceedings in which a preliminary injunction was entered, Microsoft's purported compliance with that injunction while it was on appeal was illusory and its explanation disingenuous." *Id.* Judge Jackson entered an order in December 1997 prohibiting Microsoft from licensing Windows "on the condition, express or implied, that the licensee also license and preinstall any Microsoft Internet browser software." United States v. Microsoft Corp., 980 F. Supp. 537, 545 (D.D.C. 1997). Microsoft contended that it could not offer the latest version of Windows in operable condition with IE removed, because the two were highly integrated, and so it planned to comply with the order by offering OEMs either an outdated version of Windows or a new version, with IE removed, that did not work. Jackson reportedly was irate, describing Microsoft's response to his order as "a thumb in the eye." KEN AULETTA, WORLD WAR 3.0 14 (2001). When he learned of the plans the following month, he asked a Microsoft official, "It seemed absolutely clear to you that I entered an order that required that you distribute a product that would not work? Is that what you're telling me?" The official responded, "In plain English, yes. We followed that order. It wasn't my place to consider the consequences of that order." JOEL BRINKLEY & STEVE LOHR, U.S. V. MICROSOFT 9 (2000). This is probably the incident to which the court in its final judgment was referring. Even if it is, the accusation is nevertheless hard to assess rationally. If Microsoft believed it could not delete all of the files containing IE without breaking the operating system, it could not offer a functioning version of the new Windows without an implied condition that the licensee take IE, though a more prudent course in that event would have been to seek clarification from the judge. Still, this single incident does not imply the level of insolence that would warrant the conclusion that Microsoft would disobey clear restrictions that are capable of being followed. In any event, the preliminary injunction was set aside by the appellate court, and though the infirmity of an injunction is not an excuse to disregard it before it is reversed, one wonders whether the court's unflattering characterization of Microsoft's conduct was colored by the court's chafing at being reversed.

93 3 CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 702 (1982).

94 A federal court has the power to punish as contempt "[d]isobedience or resistance to its lawful writ, process, order, rule, decree, or command." 18 U.S.C.A. § 401 (2000). *See generally* 3 WRIGHT, *supra* note 93, § 704, at 823-28, § 714, at 864-66. *See also* United States v. Nichols, 629 F.2d 619, 627 (9th Cir. 1980) (explaining that "[p]unishment for civil contempt is usually considered to be remedial" and "must be lifted if the contemnor obeys the order of the court," whereas the penalty for criminal

penalties can be harsh.[95]

The second and more serious concern is that, even if Microsoft would not disobey a clear mandate, the court could not draft an order with sufficient specificity to prohibit the full range of exclusionary practices Microsoft might employ, at least not without forcing the court to incur intolerable administrative costs. If the decree prohibits *A*, Microsoft will substitute equally exclusionary practice *B* and avoid running afoul of the order. The court will inevitably be forced to assume a regulatory role, deciding time and again whether practices planned or adopted in fact violate the order, in other words, whether *B* is really *A*. If the court determines that the conduct violates the spirit but not the letter of the decree, it will have to modify the decree accordingly; if it finds that the decree did not comprehend the conduct, the government will have to institute another antitrust action. Proponents of this argument point to the current *Microsoft* litigation as proof. The government initially asserted that Microsoft's bundling of IE and Windows violated a consent decree resolving a prior case, and that issue was in litigation when the government reasserted the charge as part of an independent antitrust action.[96]

The argument depends first on the assumption that Microsoft can choose from among a large number of good substitutes for any exclusionary practice it used. To be sure, exclusionary practices, like efficient practices, have substitutes. But just as certainly, the supply is not infinitely elastic, and it is difficult to say ex ante how large the universe of relevant predatory conduct is. But the argument also depends on the assumption that, for an effective order, the government has to contemplate and address every specific act that Microsoft might use to subvert competition. In fact, a decree could be quite general while still complying with the requirement that an injunction "be specific in terms" and describe the conduct to be restrained "in reasonable detail."[97] It could, for example, prohibit exclusionary conduct that preserves or threatens to extend Microsoft's monopoly power in operating systems and the tying of any product to a dominant operating system. Indeed, one court has observed that it "is not uncommon for

contempt "is punitive in nature" and "does not terminate upon compliance with the order").

95 Criminal contempt can be punished by "fine or imprisonment," at the court's discretion. 18 U.S.C.A. § 401 (2000). The statute does not set a maximum penalty for contempts that are not independently criminal. Separate successive criminal contempts are punishable as separate offenses. United States v. Hawkins, 501 F.2d 1029, 1031 (9th Cir. 1974); United States v. Gebhard, 426 F.2d 965, 968 (9th Cir. 1970). "[T]he sanctions for civil contempt are severe." Eve of Milady v. Impression Bridal, Inc., 986 F. Supp. 158, 163 (S.D.N.Y. 1997). In order to compel compliance with an order, a fine for civil contempt can be set in relation to a firm's net profit, see *International Business Machines Corp. v. United States*, 493 F.2d 112, 115-116 (2d Cir. 1973), or its gross sales volume, see *Perfect Fit Industries, Inc. v. Acme Quilting Co.*, 673 F.2d 53, 57-58 (2d Cir. 1982).

96 *See* United States v. Microsoft Corp., 147 F.3d 935 (D.C. Cir. 1998) (reversing the entry of a preliminary injunction in the contempt action).

97 FED. R. CIV. P. 65(d) (West 2000).

an injunction to repeat a statutory or equivalent prohibition, and this is proper relief . . . in order to prevent the defendant from repeating his violation in slightly different form . . . ."[98] Such an order would likely increase the need for subsequent judicial interpretation. But it would have the important effect of issue preclusion in subsequent litigation.[99] For example, the government would not have to prove again that the licensing of PC operating systems is a relevant market, that Microsoft has monopoly power in it, or that operating systems and browsers are separate products. Moreover, the order would add the prospect of contempt penalties to the sanctions otherwise available for antitrust violations, including treble damages when such claims by injured private parties are not speculative.

A reasonably detailed conduct order, therefore, should be both an effective deterrent to future misconduct and capable of implementation without extraordinary effort. The court need not anticipate and specifically proscribe every permutation of the anticompetitive practices it found. It need only delineate with reasonable precision the categories of prohibited practices that encompass the conduct found unlawful, and set out plainly Microsoft's affirmative obligations. As we show more fully below, this is not a hopeless task.

A conduct remedy, however well-crafted, raises a significant possibility of future litigation, because it is likely to require some interpretation. In addition, the government may have to bring independent antitrust actions, because the conduct order will leave intact a monopolist presumably with the power to injure competition in ways that are unrelated to the case. But the total social costs of structural relief will dwarf the costs of a conduct remedy, even if it results in lower costs of antitrust enforcement. As we show in the next section, breaking up Microsoft would impose enormous efficiency losses. Moreover, the idea that structural relief could obviate the need for future supervision and independent antitrust enforcement in this industry is fanciful. No substantial structural remedy, including the one set out by the court, will be self-enforcing. In markets characterized by network effects and related economic conditions, a dominant firm is likely to emerge. In these markets, distinguishing between aggressively competitive and exclusionary practices is extraordinarily difficult. The firm that succeeds in dominating the market will be a ready target for antitrust attack. Computer software markets, such as those for operating systems and Internet browsers, will predictably breed antitrust litigation, whether in the form of injunction enforcement proceedings or independent actions, no matter what the court does to engineer the industry.

98 Power v. Summers, 226 F.3d 815, 819 (7th Cir. 2000) (Posner, J.) (citations omitted).

99 *See generally* 18 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & EDWARD H. COOPER, FEDERAL PRACTICE AND PROCEDURE § 4416, at 136-39 (1981).

2. Restoring Competition

If predatory behavior has irreversible anticompetitive effects, an order that does more than stop the anticompetitive conduct may be justified. But *Microsoft* is not such a case. If Microsoft is restrained, there is every reason to expect that the markets in which it has acted anticompetitively will rebound rapidly.[100] The markets for software are exceptionally dynamic, where innovation is key and entrepreneurs and capital are abundant. This is not to say that a perfectly competitive market in the classic sense, with a large number of price-taking suppliers having small market shares, would emerge were illegal activity to cease. Even without exclusionary behavior, the market for operating systems is likely to be dominated by a single supplier in a given period. As the district court recognized, the market is characterized by network effects, or economies of scale in consumption. Moreover, the market exhibits economies of scale in production, producers can expand output quickly without large product-specific and irreversible investments, and consumers must make substantial product-specific investments in learning to use a product.[101] All of these conditions push the market toward a single dominant supplier at any given time regardless of anticompetitive conduct. Indeed, the court admitted as much when it concluded that Microsoft's product initially "became the predominant operating system" through no culpable conduct[102] and found insufficient evidence that, "absent Microsoft's actions, Navigator and Java already would have ignited genuine competition in the market for Intel-compatible PC operating systems."[103]

If the operating system market is a "winner-take-most" market, one

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100 Posner has observed, "If the alleged misconduct consists of exclusionary practices rather than completed acquisitions, an injunction against continuation of the practices will normally be an adequate remedy (although it may be possible to argue in some cases that an injunction would take too long to eliminate a monopoly position obtained by exclusionary practices)." RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 85 (1976). Even Judge Jackson professed a preference for a conduct remedy that would allow the market to extirpate the anticompetitive effects. According to one report, Jackson stated, "The structural remedy was never my remedy of choice, and it is not even so today." Grimaldi, *supra* note 88. He continued, "It was always my preference that the market itself be allowed to rectify the dysfunction disclosed to me by the evidence, failing which a negotiated settlement was next-best." *Id. See also* AULETTA, *supra* note 92, at 370-71 (reporting that Jackson was initially "inclined to favor behavior remedies over what he saw as more draconian structural remedies," but ultimately concluded Microsoft could not be trusted).

101 *See* STANLEY J. LIEBOWITZ & STEPHEN E. MARGOLIS, WINNERS, LOSERS & MICROSOFT 80-82 (1999).

102 United States v. Microsoft Corp., 84 F. Supp. 2d 9, ¶ 6 (D.D.C. 1999). The court attributed Microsoft's early dominance to IBM's decision to select MS-DOS for pre-installation on its first generation of PCs. Indeed, in supporting the consent decree resolving earlier litigation against Microsoft, the government introduced the testimony of Nobel laureate Kenneth Arrow, who opined that Microsoft's monopoly was obtained innocently. *See* Lopatka & Page, *Network Externalities*, *supra* note 8, at 333.

103 *Microsoft,* 84 F. Supp. 2d at ¶ 411.

should not expect an antitrust remedy to yield a market that resembles the classic model of perfect competition. Instead, the remedy should facilitate competition *for* the market. A competitive market characterized by network effects is likely to exhibit a pattern of serial monopoly, with the winner in one period either giving way in the next period to another supplier with a better product or retaining its position by introducing a product better than the one developed by its competitors.[104]

The market for browsers also exhibits production scale economies and instant scalability. However, the consumption economies to scale in synchronization benefits as well as the increasing returns from product-specific investments in learning are less pronounced than in the case of operating systems. And because web sites are by and large written to open standards, the economic incentives of web site producers do not drive the market toward a single browser. On balance, the market may be one conducive to a dominant firm. The fact that IE and Navigator together have thus far accounted for the great bulk of the browsers in use suggests that the market in equilibrium would not have many suppliers. So once again, we can assume that a monopolist might emerge in a browser market devoid of exclusionary acts.

But what if the wrong monopolist won as a result of Microsoft's predation? The district court found "that Microsoft has retarded, and *perhaps altogether extinguished*," competition from Navigator and Java.[105] The implication is that Navigator might have won the browser monopoly but for Microsoft's exclusionary actions, and the market is now locked-in to an inferior standard. This application of the theory of path dependence is not helpful in designing a remedy.

First, there is no way to determine judicially that Navigator was in fact superior to IE while IE was gaining market share and Microsoft was attempting to suppress the rival browser, and there would be no way to determine that consumers would be better off in the future if Microsoft were somehow ordered to cede the market to Netscape. Indeed, some evidence suggests that the relative market shares of IE and Navigator tracked the perceived superiority of the products.[106] The court itself concluded that "there is no consensus [among product evaluations] as to which is the best browser overall."[107]

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104 *See* LIEBOWITZ & MARGOLIS, *supra* note 101, at 137.

105 *Microsoft*, 84 F. Supp. 2d at ¶ 411 (emphasis added). Similarly, the court concluded, "Microsoft's campaign succeeded in preventing—for several years, *and perhaps permanently*—Navigator and Java from fulfilling their potential to open up the market for Intel-compatible PC operating systems to competition on the merits." *Microsoft*, 87 F. Supp. 2d at 39 (emphasis added).

106 *See Microsoft*, 84 F. Supp. 2d at ¶ 195 (alluding to evidence introduced by Microsoft that browser usage is a function of product innovations); LIEBOWITZ & MARGOLIS, *supra* note 101, at 217-23.

107 *Microsoft*, 84 F. Supp. 2d at ¶ 195.

Second, lock-in is not permanent. Empirical studies indicate that "[g]ood products win."[108] If Navigator in fact is or becomes a better browser than IE, it should be able to supplant IE, assuming it is not impeded by exclusionary conduct. Consequently, any order now designed to supplant IE artificially would be inherently punitive.

B. *Structural Relief Would Be Ineffective and Would Harm Consumers*

In an earlier era, courts sometimes imposed a corporate death sentence on monopolists, annulling their corporate charters.[109] Today, divestiture is the most drastic form of antitrust relief. It has been rightly disfavored in monopolization cases because, except in limited circumstances, it is likely to do more harm than good.[110] One study found that, between 1940 and 1974, substantial divestiture was ordered in only four monopolization cases based solely on exclusionary practices, and the remedy in each of these was pursuant to a consent decree.[111] Divestiture makes sense where monopolization is the result of illegal acquisitions. In such cases, the firms that preceded the acquisitions presumptively reflect the efficiencies that are available and can be reestablished relatively easily.[112] Divestiture may also make sense in traditionally regulated industries, where the monopolist has been able to evade regulation. The existence of administrative regulation implies that the monopolist must be restrained, and the fact that the restraint was

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108 LIEBOWITZ & MARGOLIS, *supra* note 101, at 135.

109 *See* People v. North River Sugar Ref. Co., 24 N.E. 834 (N.Y. 1890), *aff'g* 7 N.Y. Supp. 406 (1889); State v. Nebraska Distilling Co., 29 Neb. 700 (1890); People v. Chicago Gas Trust Co., 22 N.E. 798 (Ill. 1889); California v. Am. Sugar Ref. Co., 7 RY. & CORP. L.J. 83 (1890); Louisiana v. Am. Cotton-Oil Trust, 1 RY. & CORP. L.J. 509 (1887). *See generally* WILLIAM LETWIN, LAW AND ECONOMIC POLICY IN AMERICA 82 (1965).

110 Detailed examination of remedies ordered in past cases would not be particularly valuable. As the Court has noted, "[I]n this field, such lines [of precedent] cannot be much more than guides. The essential consideration is that the remedy shall be as effective and fair as possible in preventing continued or future violations of the Antitrust Act in the light of the facts of the particular case." United States v. Nat'l Lead Co., 332 U.S. 319, 335 (1947).

111 POSNER, *supra* note 100, at 85. Substantial divestiture was ordered in two other exclusionary-practice cases between 1890 and 1939. *Id.* When divestiture is the result of a consent decree, rather than a contested order, the implication may be that the defendant was able to negotiate a breakup that did minimal or no damage to the fundamental efficiencies inherent in the firm. Such reassurance of the effect of the decree is lacking when, as in *Microsoft*, the defendant vigorously opposes the remedy. But the inference is not conclusive. The defendant may have agreed to a seriously disruptive reorganization only because the remedy or a worse one appeared to it to be the inevitable result of continued litigation. One cannot assume, therefore, that the divestitures made pursuant to consent decrees in exclusionary-practice cases reflect no serious efficiency losses. In any event, the results of divestiture, however brought about, are disappointing.

112 In *Ford Motor Co. v. United States*, 405 U.S. 562, 573 (1972), the Court noted that "divestiture is particularly appropriate where asset or stock acquisitions violate the antitrust laws" because it "is a start toward restoring the pre-acquisition situation." Posner similarly observed, "[D]ivestiture is simpler to effectuate where the firm to be broken up is itself the product of mergers. The mergers suggest the lines along which the firm can be broken up with minimal disruption." POSNER, *supra* note 100, at 84.

unsuccessful suggests that judicial regulation through a conduct remedy would be equally ineffectual.[113] Absent anticompetitive acquisitions and ineffective regulation, however, divestiture is inappropriate, and predictably it has produced disappointing results.[114] In *United States v. United Shoe Machinery Corp.*,[115] the Supreme Court ordered dismemberment of a one-plant monopolist;[116] the firm deteriorated, the price of shoe machinery increased, and the United States eventually lost its leadership of the industry.[117] The divestiture may not have been responsible for the takeover by foreign producers, but it surely did nothing to maintain the competitiveness of domestic producers.

Two basic kinds of structural remedies were considered in *Microsoft*. One would have sought to create immediate competition in the operating system market by forcing Microsoft to convey the source code for Windows to other firms. We refer to this as a "horizontal" divestiture, because it creates instant competitors in the relevant operating system market. The other, a variant of which was adopted by the court, forces Microsoft to separate its operating system business from its other businesses and spin-off the segments into independent corporations. We refer to this as a "vertical" divestiture. Both kinds of divestitures have unique advantages and disadvantages, but neither is appropriate.[118]

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113 In *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983), Judge Harold Greene approved the bulk of an antitrust consent decree that required in part the divestiture of the Bell operating companies from the rest of AT&T. Though the divestiture was not imposed by the court on an unwilling defendant, the opinion suggests that the court would have ordered divestiture in any event. *See id.* at 160-65. The court emphasized that divestiture, rather than a conduct remedy, was required because the FCC "is not and never has been capable of effective enforcement of the laws governing AT&T's behavior." *Id.* at 168. The court concluded that the difficulties in effective supervision "would be exacerbated if enforcement of a broad injunction were vested in court-appointed special masters." *Id.* That said, it is entirely possible that Judge Greene would have ordered divestiture regardless of the regulatory environment. He noted, for example, that AT&T had "a commanding position" in a key industry and declared that "the antitrust laws seek to diffuse economic power in order to promote the proper functioning of both our economic and political systems." *Id.* at 165, 164. Dicta in *AT&T* might support structural relief in *Microsoft*. To that extent, we find the opinion unpersuasive.

114 *See, e.g.*, POSNER, *supra* note 100, at 85 ("The picture that emerges of what antitrust divestiture has meant in practice is not an edifying one."). For a critical survey of cases in which divestiture was ordered, see William E. Kovacic, *Failed Expectations: The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 IOWA L. REV. 1105 (1989).

115 110 F. Supp. 295 (D. Mass. 1953), *aff'd per curiam*, 347 U.S. 521 (1954).

116 United States v. United Shoe Mach. Corp., 391 U.S. 244 (1968).

117 THOMAS D. MORGAN, MODERN ANTITRUST LAW 297-98 (1994). *See also* Lino A. Graglia, *Is Antitrust Obsolete?*, 23 HARV. J.L. & PUB. POL'Y 11, 17 (1999) ("[T]oday the plant stands boarded and idle in Belmont, Massachusetts, as a monument to antitrust.").

118 Of course, the two kinds of divestiture could be combined, for instance by ordering the separation of the operating system component from the applications component and breaking the operating system component into multiple firms. *See* United States v. Microsoft Corp., Civ. No. 98-1232 (Remedies Brief of Amici Curiae Robert E. Litan et al., Apr. 27, 2000). That kind of remedy simply combines the advantages and disadvantages discussed in the text.

1. Horizontal Divestiture

A horizontal divestiture could be accomplished in a number of ways. Because the essence of Microsoft's monopoly power in operating systems is intellectual property—the Windows source code—multiple competitors can be created, and the asset can simultaneously be used by Microsoft. Any number of rivals, or Microsoft "clones," could be established. The source code could be auctioned off or given away. The source code could be placed in the public domain, so that it becomes an open standard. The details are not critical. What is important is that any horizontal divestiture has two undesirable consequences.

First, the existence of multiple purveyors of Windows would threaten to destroy the substantial efficiencies of a dominant operating system standard. If multiple incompatible operating systems replaced Windows, incremental porting costs could be immense, and consumers might incur substantial costs in additional training, confusion, and file incompatibility.[119] Indeed, the court implicitly acknowledged that Microsoft achieved its monopoly in part because of the efficiencies inherent in a common standard. Some scholars argue that the Microsoft clones will produce operating systems that are entirely compatible, eliminating any need for porting.[120] But there are strong reasons to believe that if multiple operating system firms competed with each other through innovation—and innovation rather than price competition is touted as the chief benefit of a horizontal divestiture—the operating systems would inevitably diverge.[121] Further, neither Unix nor Linux, two existing alternative operating systems, has developed versions that are fully compatible, despite the network effects that would supposedly prevent the Windows platform from fragmenting.[122] A remedy that would risk serious fragmentation based on speculation that compatibility would prevail is unjustified unless every other potential remedy is demonstrably and dramatically inferior. That is not the case here.

Second, any horizontal divestiture would deprive Microsoft of much of

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119 Stan Liebowitz estimated that the porting costs for software developers associated with a breakup of Windows into three competing operating systems would be at least $30 billion dollars over a three-year period, and he did not attempt to quantify the other costs. Stan J. Liebowitz, *Breaking Windows: Estimating the Cost of Breaking up Microsoft Windows*, 32 U.W.L.A. L. REV. (forthcoming 2001).

120 *See, e.g.*, Robert J. Levinson, R. Craig Romaine & Steven C. Salop, *The Flawed Fragmentation Critique of Structural Remedies in the* Microsoft *Case* (Jan. 20, 2000) (unpublished manuscript), *at* http://papers.ssrn.com/sol3/papers.cfm?cfid=425418&cftoken=49765609&abstract_id=204874; Thomas M. Lenard, *Creating Competition in the Market for Operating Systems: Alternative Structural Remedies in the Microsoft Case*. 9 GEO. MASON L. REV. 803 (2001).

121 *See* Stan J. Liebowitz, *A Fool's Paradise: The Windows World After a Forced Breakup of Microsoft* 1, 5-11 (Feb. 25, 2000) (unpublished manuscript, presented by Ass'n for Competitive Technology) *at* http://papers.ssrn.com/sol3/papers.cfm?cfid=425002&cftoken=90302362&abstract_id=218178.

122 *See* Liebowitz, *A Fool's Paradise, supra* note 121, at 11-14.

the value of the monopoly it lawfully acquired. How much of the value that would be lost would depend on the mechanism used to effectuate the breakup. But to whatever extent that is, the remedy would dampen the incentives of future innovators by making the rewards from success risky, and it would represent a punitive decree. The court held only that Microsoft impeded the development of two immature technologies, both beset by their own technical shortcomings, that might someday have undermined its monopoly power in operating systems. Dismantling Microsoft is in no sense proportionate to that offense.

The advantages of a horizontal divestiture depend upon the reference point. Such a divestiture might entail less continuing judicial supervision than a conduct decree, though it would not be self-enforcing. Microsoft presumably would no longer have market power, and so it would have less ability to impair competition. But it would remain intact as a firm, and presumably would have the same corporate managers and ambitions. At least in the early stages of the newly-structured industry, the court likely would not be comfortable allowing Microsoft to compete freely. Further, any attempt to prevent operating system fragmentation by judicial control would imply continuing supervision.

Relative to a vertical breakup, to which we turn next, an advantage of a horizontal divestiture is that it would allow the firm to remain intact. Those intensely suspicious of Microsoft might view that as a disadvantage, of course. But as we discuss next, the efficiencies associated with a vertically-integrated firm are huge. A horizontal breakup would avoid the need to undertake a cumbersome and arbitrary division of assets. And it would avoid creating the potential for double-marginalization from successive monopolies. Because we believe a conduct remedy is far superior to any structural decree, we need not decide which form of divestiture is worse.

2. Vertical Divestiture

The kind of vertical divestiture ordered by the court is not the only one imaginable. For instance, an amicus brief submitted by Microsoft's competitors urged the court to create three firms, one for the operating system, one for the browser, and one for applications.[123] To focus the analysis, we address the vertical divestiture ordered by the court, which separates Microsoft's operating systems business from everything else and prohibits the two resultant firms from having much to do with one another. In particular, the OpCo is expected to market and develop new versions of Windows

123 Brief on Remedy of Amici Curiae Computer and Comm. Ind. Ass'n and Software and Information Ind. Ass'n, *at* http://eon.law.harvard.edu/msdoj/amicus5-19-00.htm. The government reportedly offered its own form of a three-firm divestiture as its first settlement proposal during unsuccessful mediation talks. AULETTA, *supra* note 92, at 341.

operating systems without IE, and the AppCo is expected to market and develop IE and Office. This division would certainly impose substantial costs, and it is unlikely to foster competition.

Costs of the court's divestiture plan. The divestiture is apt to reduce both productive and allocative efficiency. One indication that an organization is productively efficient is that firms without monopoly power choose it. Many software firms in the industry are vertically integrated, perhaps more so than Microsoft. This is not surprising because the production of complementary software through an integrated enterprise generates obvious efficiencies. Research and development is not likely to fall neatly into either the operating system or the applications category, and so at best, the decree threatens to result in needless duplication. Human capital will inevitably be squandered as personnel with broad expertise are forced into one part of the business or the other.

Vertical divestiture is also likely to result in higher prices from reduced allocative efficiency. The foundation of liability is that Microsoft has a monopoly in operating systems and nearly has one in browsers. By dividing the monopolies between two firms, the decree introduces the risk of double-marginalization. The firms may independently pursue profit maximization, and that would lead to higher prices for the products licensed separately than would be charged for the products licensed by a single firm.[124] A distinct but related concern is that Microsoft apparently was not pursuing a strategy of exploiting the monopoly power it has by charging high prices. The empirical evidence indicates that Microsoft has deliberately pursued a low-price strategy in the sale of its products generally[125] and that the price of Windows specifically has been well below the short-run profit maximizing monopoly price.[126] If one or both of the derivative firms adopted a conventional profit maximizing strategy for its products, as at least one would likely do, the resulting increase in the costs to consumers could be dramatic.[127]

Further, if vertical restructuring is truly responsive to the theory of liability, then one should expect the OpCo to be prevented from producing an operating system that contains a built-in browser or other middleware. To that extent, consumers would be denied the benefits of acquiring in a single transaction a relatively full-featured operating system, one that contains all of the functionality desired. This represents a lost efficiency of

124 *See generally* ROGER D. BLAIR & DAVID L. KASERMAN, LAW AND ECONOMICS OF VERTICAL INTEGRATION AND CONTROL 31-35 (1983).

125 *See* LIEBOWITZ & MARGOLIS, *supra* note 101, at 163-233.

126 *See* Stan J. Liebowitz, *An Expensive Pig in a Poke: Estimating the Cost of the District Court's Proposed Breakup of Microsoft*, 9 GEO. MASON L. REV. 727 (2001).

127 *See id.* at 730-44 (estimating an increase of $38 billion in the cost of operating systems and $14 billion in the cost of applications to U.S. consumers over a three-year period, based on stipulated assumptions).

product configuration. In fact, it is not altogether clear what the decree contemplates. Once the reorganization plan has been implemented and three years have passed, it might not prevent the OpCo from licensing a browser from a firm other than the AppCo But if this is so, and if after three years the OpCo has not lost its monopoly power, it could presumably attempt to replicate the strategy for which Microsoft was condemned. The divestiture would have accomplished nothing.

The breakup ordered by the court also poses unexamined corporate finance problems. Under the decree, large shareholders, those who own five percent or more of the voting stock of Microsoft, who are also present or former employees, officers, or directors of the company cannot own stock in both the OpCo and the AppCo[128] The intent apparently is to prevent individuals especially responsible for Microsoft's success from having the ability to influence the conduct of both resultant firms. But Lucian Bebchuk and David Walker argue that any method of distributing the securities in the resultant firms that complied with the order would impose a significant and unintended financial penalty on the large shareholders or create a risk of a substantial transfer of value among Microsoft's shareholders.[129] They contend that there is no simple solution to the finance issues posed by the divestiture. Resolving these issues may be costly.

The decree is also likely to involve significant costs of supervision. Without question, the court did not view its structural remedy as self-effectuating. The decree imposes a confusing set of restrictions on the dealings between the OpCo and the AppCo that remain in effect for the duration of the final judgment.[130] For example, the order prohibits the two firms, having been separated from each other, from thereafter merging, and the need for this restraint is obvious enough. But the court also imposes restrictions on licensing intellectual property to one another that can charitably be described as cumbersome. These are likely to require subsequent judicial interpretation.

Purported benefits of the court's divestiture plan. Although the decree will likely involve substantial direct costs of enforcement and increase prices to consumers in the short term, its proponents apparently believe that these costs will be outweighed by a long-term increase in competition in the platform market. The government argued, for example, that Microsoft's Office could develop into a platform competitor of Windows by exposing APIs and that existing alternative operating systems, in particular Linux, could become serious competitors to Windows if Office were ported to

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128 *Microsoft*, 97 F. Supp. 2d at 64-65 (decree §§ 1(c)(iii), 2(a)), 71-72 (decree § 7(h), defining "covered shareholder").

129 Lucian Arye Bebchuk & David I. Walker, *The Overlooked Corporate Finance Problems of a Microsoft Breakup* (Jan. 2001, unpublished manuscript), *at* http://papers.nber. org/papers/W8089.

130 *See Microsoft*, 97 F. Supp. 2d at 65 (decree § 2(b)).

them. According to the government, neither form of competition was likely to evolve unless the ownership of Office was severed from the ownership of Windows, because Microsoft now has no incentive to transform Office into a platform competitor or allow it to strengthen the market position of a rival.

But the government's argument is both unconvincing and inconsistent with its theory of liability. Firms other than Microsoft have sold applications programs as basic and dominant in their categories as Office, and none has attempted to turn one into a rival applications platform.[131] The idea that the vendor of Office would pursue a platform strategy is speculative. The record also belies the claim that Office would be ported to and markedly strengthen other operating systems.[132] The applications entry barrier exists because it does not make economic sense for ISVs to port applications to relatively unpopular operating systems. That condition would not change simply because a separate company owns Office. The government seems to believe that Microsoft has not ported Office to Linux solely for exclusionary reasons. But Microsoft has ported Office to the Macintosh, which the court found is the second most popular software platform. Microsoft's porting decisions seem to be driven by the same cost/benefit calculus that any other software developer uses. The fact that Corel, a firm in dire financial trouble that recently struck up an alliance with Microsoft, has ported WordPerfect to Linux most likely proves only that a struggling firm will assess the marginal costs and marginal benefits of porting differently, perhaps adopting a strategy that a healthy firm would deem too risky.[133]

In addition, the availability of Office would not likely have an appreciable impact on the popularity of Linux. The court found that Microsoft's monopoly power is protected by an entry barrier built of 70,000[134] applications and that the next most popular operating system supports 12,000 applications. The addition of one application, however popular, written to a little-used operating system is not likely to provide a large boost in demand. Indeed, the fact that Office was ported to the Macintosh was apparently not enough to turn that operating system into a serious competitor to Windows. Moreover, the claim that a single applications suite could turn a rival operating system into a viable substitute in consumption is entirely at odds with the government's fundamental argument that Microsoft's monopoly is protected by an insurmountable applications entry barrier. One suite of ap-

131 *See* Liebowitz, *Pig in a Poke*, *supra* note 126, at 743.

132 *See id.* at 743-46.

133 *See* Rebecca Buckman & Joel Baglole, *Microsoft to Invest $135 Million in Corel*, WALL. ST. J., Oct. 3, 2000, at B10.

134 This figure appears to be an exaggeration. One study found that the overwhelming majority of these never existed, no longer exist, or are out of date. *See* Richard McKenzie, *Microsoft's "Applications Barrier to Entry": The Missing 70,000 Programs*, (Aug. 31, 2000) (Cato Inst., Policy Analysis No. 380), *at* http://www.cato.org/pubs/pas/pa-380es.html.

plications is not an imposing obstacle to entry. In theory, the AppCo could develop IE itself into a rival platform to Windows. But again, the possibility is highly speculative, and the history of other potential platforms offers little reason for optimism.

Further, if the *platform* market is subject to network effects and related conditions, a dominant product is likely to emerge, whether in the form of Office, a browser, or some other application program. To replace a dominant Windows with a dominant alternative platform would do nothing more than substitute one monopolist for another, which suggests that the government is less concerned about the existence of a monopolist than with its identity. And, given the decree's legal restrictions on Windows, the victor in such a struggle would not necessarily be a better platform.

The process by which the decree was formulated casts substantial doubt on the weight to be given the government's predictions of competitive benefit. The court conceded that no one knows what effect the decree will have. Nevertheless, the court suggested that the government is entitled to complete deference in the framing of the decree. The court entered the final judgment proposed by the plaintiffs unexpectedly, without substantive change, and without affording Microsoft an opportunity to contest the factual issues posed by the decree.[135] The decree pertained to products like Windows CE and Windows 2000, even though little evidence about them was introduced at trial. The Office software suite was critical to the theory of the breakup plan, as discussed above, yet it was virtually ignored at trial. Microsoft was not permitted to depose the experts who submitted declarations in support of the government's proposal, and it was not given time to introduce the declarations of its own experts, though it did make an offer of proof.

The court brushed aside Microsoft's protests. It found that Microsoft's "profession of surprise is not credible."[136] It even suggested that antitrust defendants have no right to contest the remedy proposed.[137] And, astonishingly, it declared,

> Plaintiffs won the case, and for that reason alone have some entitlement to a remedy of their choice. Moreover, plaintiffs' proposed final judgment is the collective work product of [federal and state officials and their consultants]. These officials are by reason of office obliged

135 *Microsoft*, 97 F. Supp. 2d 59 (D.D.C. 2000).

136 *Id.* at 61.

137 "[A]re you aware of very many cases in which the defendant can argue with the jury about what an appropriate sanction should be? Were the Japanese allowed to propose the terms of their surrender? The government won the case." Wilke, *supra* note 87 (quoting Judge Jackson). In a similar vein, Judge Jackson compared Microsoft's "proclamations of innocence to those of four members of the Newton Street Crew convicted in a racketeering, drug dealing, and murder trial he had presided over five years before." AULETTA, *supra* note 92, at 369.

and expected to consider—and to act—in the public interest; Microsoft is not.[138]

What the court appeared to endorse, therefore, was a nearly *ex parte* process of remedy design that was all but certain to produce an extreme result. While the government officials in this case are undoubtedly well intentioned, they are in the end partisans in hotly contested litigation.[139] To defer to them, without subjecting their proposals to hard scrutiny through the adversarial process, invites a reckless decree.

III. CRAFTING AN APPROPRIATE CONDUCT DECREE

Just as in the case of choosing between structural and conduct relief, the objective in determining the content of a conduct remedy is to minimize the sum of the relevant expected social costs. In this section, we sketch the elements of an appropriate order, one tailored to the conduct found unlawful after trial. In so doing, we assess the provisions of the final judgment designed to restrict and mandate conduct before and during the first three years after the breakup of Microsoft. This represents the court's attempt to suppress Microsoft's anticompetitive behavior through a conduct-based order, albeit one intended to be temporary, and it serves as a useful focal point for an appropriate permanent decree of this kind. Our goal, however, is not to draft a model decree. Rather, we focus on the kinds of provisions that are necessary to redress the anticompetitive practices identified by the court.

In general, the provisions should reflect the products that were at issue in the trial. In particular, this case concerned efforts to protect the monopoly power associated with versions of the Windows operating system for Intel-compatible personal computers. Any conduct order should cover successor versions of Windows for personal computers. Because generations of PC operating systems are brief, a decree would accomplish little unless it applied to successor versions. But operating systems designed by Microsoft for servers and other computing devices should be affected, if at all, only tangentially. Similarly, Microsoft was found to have suppressed competition from a rival browser and the Java technology, largely by the anticom-

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138 *Microsoft*, 97 F. Supp. 2d at 62-63 (footnote omitted).

139 In fact, the suggestion that public officials, especially state officials, can be counted on in antitrust enforcement to serve the public interest is quaint. Judge Richard A. Posner, who was the court-appointed mediator in unsuccessful efforts to negotiate a settlement in *Microsoft*, see John R. Wilke, *Microsoft Judge Names Mediator to Seek Accord*, WALL ST. J., Nov. 22, 1999, at A3, recently suggested that states be "stripped of their authority to bring antitrust suits, federal or state, except under circumstances in which a private firm would be able to sue" in part because "they are too subject to influence by interest groups that may represent a potential antitrust defendant's competitors." Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 940 (2001). Judge Posner reportedly was outraged by the behavior of the states in the settlement negotiations. *See* AULETTA, *supra* note 92, at 360.

petitive use of its own browser. The decree should focus on these products, rather than other kinds of software that could function as platforms.

A. *Bundling the Operating System and Browser*

The contractual and technological bundling of Windows and IE was a major part of the court's liability determination. In this context, bundling means that Microsoft packaged Windows and IE and prevented OEMs that licensed Windows from removing any part of IE.[140] The vice of this practice was to give IE a competitive advantage over Navigator. Today, the relevant method of bundling is technological,[141] and so a remedy should prevent Microsoft from gaining a competitive advantage in attracting browser usage through the technological combination of IE and Windows. The order, therefore, might require Microsoft to permit OEMs to preinstall a version of Windows in which the means end-users employ to invoke IE for web browsing are removed or hidden. For example, Microsoft would be forced to allow OEMs to delete the IE icon from the desktop. If an OEM preferred to configure Windows so that the end-user had the option of removing end-user access to IE, Microsoft should be required to facilitate that preference as well. Microsoft should be allowed to contract with OEMs to offer, at the same price, a version of Windows in which end-user access to IE is not encumbered.

The technological bundling provision of the court's decree is too broad in a number of respects. First, the provision applies to the bundling of any "middleware product" to Windows, and the term is defined to include much more than browsers.[142] To that extent, it goes beyond the offense established at trial, and it exceeds the limits of any legitimate fencing-in objective. It also exacerbates the potential for platform fragmentation, as we explain below.

The provision allows Microsoft to offer Windows much as it does now, with its own middleware product included, but only if it also (1) offers an "otherwise identical version" of the operating system in which end-user

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140 For one attempt to distinguish among tying, packaging, and bundling, see Benjamin Klein, *Microsoft's Use of Zero Price Bundling to Fight the "Browser Wars," in* COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE (Jeffrey A. Eisenach & Thomas M. Lenard eds., 1999).

141 The decree contains a provision prohibiting the contractual tying of Windows to "any other Microsoft software product that Microsoft distributes separately . . . ." *Microsoft*, 97 F. Supp. 2d at 68 (decree § 3(f)("Bar on Contractual Tying")). Such a provision is appropriate, even if contractual tying is no longer an area of great concern.

142 *See supra* note 77. Middleware is any software that exposes APIs and that "could" allow applications written to those APIs to run on any operating system. A "middleware product" is middleware that Microsoft has distributed separately from the operating system; it is defined to include the browser, email, multimedia viewing, instant messaging, and voice recognition software. *Microsoft*, 97 F. Supp. 2d at 72 (decree § 7(g)).

access to that product can be easily removed and (2) charges a lower royalty for the modified version.[143] The principal defect of this provision is that it invites fragmentation of the Windows standard. If Microsoft licenses a version of Windows that contains all of the middleware functionality that a current version contains, it must offer versions that are designed so that OEMs can easily delete end-user access to any middleware product. Because the definition of "middleware product" is both broad and vague, OEMs may install a variety of Windows operating systems with varying functionality. One commentator likens the effect of the provision to ordering a meal in a restaurant where every item on the menu is à la carte.[144]

Whether Windows as a software platform becomes fragmented depends on whether Microsoft complies with the provision by simply facilitating the removal of end-user access to the middleware product, and leaving the underlying code otherwise intact and accessible to ISVs. If the code remains accessible, the ISVs can write programs with the expectation that all of the functionality contained in the full version of Windows is available, even if end users cannot access some of that functionality. No fragmentation of the platform standard results. Further, to the extent that the middleware product, such as the browser, is integrated into Windows, it shares code with the operating system, and Microsoft could not delete that code without breaking the operating system, a result it would avoid.

But Microsoft may be able to configure the operating system to preclude ISV access to the functionality that the OEM did not want and still comply with the decree, such as by eliminating APIs. And Microsoft, because of the pricing provision, might have an incentive to do just that. Any OEM is entitled to a discount for every middleware product it chooses to disable. If rejecting middleware components does not compromise the performance of the operating system as a platform, the OEM may well choose as few components as possible, perhaps none, thereby entitling it to the

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143 The provision in full is as follows:

> Restriction on Binding Middleware Products to Operating System Products. Microsoft shall not, in any Operating System Product distributed six or more months after the effective date of this Final Judgment, Bind and Middleware Product to a Windows Operating System unless:
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> i. Microsoft also offers an otherwise identical version of that Operating System Product in which all means of End-User Access to that Middleware Product can readily be removed (a) by OEMs as part of standard OEM preinstallation kits and (b) by end users using add-remove utilities readily accessible in the initial boot process and from the Windows desktop; and
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> ii. when an OEM removes End-User Access to a Middleware Product from any Personal Computer on which Windows is preinstalled, the royalty paid by that OEM for that copy of Windows is reduced in an amount not less than the product of the otherwise applicable royalty and the ratio of the number of amount in bytes of binary code of (a) the Middleware Product as distributed separately from a Windows Operating System Product to (b) the applicable version of Windows.

Microsoft, 97 F. Supp. 2d at 68 (decree § 3(g)).

144 *See* Liebowitz, *Pig in a Poke*, *supra* note 126, at 748.

lowest price. In order to induce OEMs to pay for components they are in fact receiving, though in disabled form, Microsoft may attempt to prevent those components from being available for ISVs. Fragmentation of the standard would then result.

ISVs can, of course, include in their programs the Microsoft libraries that would otherwise be provided by the operating system. But to the extent that those libraries are resident on the operating system but rendered unavailable to the ISVs, this response results in needless duplication. Further, whether or not that functionality remains resident, this response involves a significantly less efficient method of providing system services. Instead of providing code for a particular function once and making it generally available, all programs needing that function will have to contain the code.

Even if Microsoft avoids the fragmentation pitfall, because it either cannot or does not want to make middleware products unavailable to ISVs, the provision is likely to have undesirable consequences. The pricing provision requires a discount, but it does not set the baseline price of the operating system that contains the relevant middleware product. At the limit, if Microsoft anticipates that all OEMs will choose the least equipped version of Windows in order to receive the lowest price, it can increase the price for the full version of Windows by an amount equal to the expected discounts. If OEMs then pay alternative providers for their middleware products, the price to end-users of an operating system that contains middleware would increase. Of course, Microsoft's pricing problem is more complicated than suggested by this polar example. The demand for middleware functionality is likely to vary across products and OEMs, and the increase in the effective price of full functionality may reduce the quantity of Windows sold. What is critical is that the effects of this provision are uncertain and potentially costly.

In addition, the pricing formula itself is comically arbitrary. The discount that Microsoft must offer for versions of Windows in which end-user access to middleware products has been removed by the OEM bears no principled relation to the marginal cost of the product. Rather, Microsoft must discount the royalty on the basis of "the ratio of the number of amount in bytes of binary code of (a) the Middleware Product as distributed separately from a Windows Operating System Product to (b) the applicable version of Windows."[145] The value of software has little to do with the number of bytes in its code. It is as if a restaurant with an a la carte menu set prices according to the weight of the food, charging more for a potato than for a souffle.

To be fair, it is not clear what pricing formula could be specified that would be both accurate and administrable. This is particularly true because

145 *Microsoft*, 97 F. Supp. 2d at 68.

the most important middleware product, the browser, can generate revenue for the supplier from ancillary sources, such as web advertisers. The browser may thus have a negative marginal cost. As a matter of economic theory, if Microsoft were ordered to provide a version of Windows with IE disabled, it ought to be allowed to charge a *higher* price than for a version that is IE-enabled, one that reflects the lost supplementary income.[146]

Nevertheless, if Microsoft chose to offer a version of Windows that contained only end-user accessible Microsoft middleware, we would allow Microsoft to satisfy its anti-bundling obligation by licensing stripped-down versions at no higher royalty rates. This case was never about an "economic" tie, in the sense that OEMs refused to pay for Navigator because they had already "purchased" IE in the price of Windows; the browser is free in all channels of distribution. OEMs were consequently willing to delete end-user access to IE and install Navigator instead. If Microsoft is restrained from insisting that IE remain accessible on Windows, OEMs so inclined will not be deterred from substituting other browsers.

Under this arrangement, a rival supplier can pay OEMs to make its browser the only one accessible on Windows, something it may well do especially if the marginal cost of the browser is negative. Microsoft, by contrast, would be foreclosed from competing through price to induce OEMs to retain IE, either exclusively or in addition to the rival browser. Preventing that kind of competition cannot easily be reconciled with economic theory, and it does not bode well for consumers. But we see little choice. If Microsoft could charge more for the stripped-down version than for the full version, it could set prices strategically to make the stripped-down version uneconomical for all OEMs, thereby shutting out competitors, and we see no workable price standard that could force Microsoft to set prices equal to marginal cost. In the end, the kind of pricing restraint we are describing will hamper Microsoft and could injure consumers, but those are consequences of the liability determination.

Finally, Microsoft should in any event be permitted to label and configure its products in such a way as to minimize the risk of fragmentation through the action of end-users. For example, if the decree results in Microsoft licensing to an OEM a version of Windows from which middleware functionality has been removed, it ought to be able to insist that end-users be apprised of what they are receiving. Microsoft might designate stripped-down versions of its operating system "Windows" and the fully-loaded version "Windows Gold." There is no justification for preventing Microsoft from generating demand for its middleware by conveying information to end-users. Whether this practice would be permitted under the decree would depend on whether versions of Windows with different trademarks

146 *See* Klein, *supra* note 140.

are nevertheless "otherwise identical," and that is not clear. Similarly, Microsoft ought to be allowed to include links in its stripped-down versions that would allow the end-user easily to download middleware that the OEM has opted to disable. Facilitating consumer choice in this manner does not subvert the legitimate purposes of the decree.

B. *Screen and Sequence Restrictions*

To some extent, Microsoft's refusal to allow OEMs to modify the Windows desktop reinforced its bundling of IE and Windows, and the remedial provisions discussed above will address that practice. But its restrictions on screen modifications as well as on changes to the boot sequence were independently significant in preventing OEMs from promoting Navigator. We would simply compel Microsoft to allow OEMs to modify the Windows desktop and boot sequence to encourage the use of non-Microsoft middleware products, including by making a rival product the default browser, so long as the changes do not impair core operating system functions. The court's decree is basically consistent with this remedial objective.[147]

C. *OEM Inducements to Favor IE*

The court found that Microsoft induced OEMs to favor IE over Navigator by the use of both positive and negative incentives, particularly by offering large-volume OEMs royalty reductions for making IE the default browser or not preinstalling Navigator at all.[148] Consistent with our analysis of the bundling provision, Microsoft has to be restrained from offering OEMs a lower royalty solely in exchange for a commitment to pre-install a version of Windows that promotes IE usage instead of one that does not. The injunction should be more general, prohibiting the provision of other kinds of benefits for the same purpose. It should also prevent Microsoft from imposing any sanction on an OEM for encouraging the use of non-Microsoft middleware, such as refusing to supply Windows to an OEM that substitutes Navigator for IE.

The decree addresses these concerns primarily in two provisions, one banning any adverse action against an OEM for supporting non-Microsoft products,[149] and one requiring Microsoft to license Windows to the twenty largest OEMs pursuant to uniform license agreements.[150] The decree, how-

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147 *See Microsoft*, 97 F. Supp. 2d at 66-67 (§ 3(a)).

148 United States v. Microsoft Corp., 84 F. Supp. 2d 9, ¶¶ 230-31 (D.D.C. 1999).

149 *See Microsoft*, 97 F. Supp. 2d at 66 (§ 3(a)(i)) (providing that Microsoft may not take or threaten adverse action against any OEM based on action by that OEM "to use, distribute promote, license, develop, or sell any product or service that competes with any Microsoft product or service").

150 *Id.* (§ 3(a)(ii)) (requiring Microsoft to license Windows to "Covered OEMs," defined in § 7(g) as the largest 20, "pursuant to uniform license agreements with uniform terms and conditions").

ever, permits Microsoft to specify reasonable volume discounts in licensing agreements with the large OEMs, and it allows Microsoft to provide valuable technical information selectively if the information pertains to a confidential aspect of a bona fide joint development effort with the OEM.[151] The provisions generally are appropriate, though they do not go far enough in preserving the opportunity for productive joint ventures between Microsoft and individual OEMs. This kind of collaboration can yield significant consumer benefits, and it will likely be deterred unless Microsoft can offer royalty concessions to OEMs that participate in bona fide joint development efforts. One might argue that a provision permitting royalty reductions for legitimate efforts would be too costly to enforce. Though the concern is valid, it is not great enough to justify the uniformity requirement. Microsoft should be allowed to offer royalty concessions to OEMs, regardless of size, that participate in joint efforts to develop Windows.

D. *Transactions with IAPs*

Another major element in the court's liability determination is that Microsoft induced IAPs to distribute IE rather than Navigator to their subscribers. A responsive provision would enjoin Microsoft from offering anything of value, including a link in the Windows desktop to the IAP and monetary inducements, in exchange for the IAP's commitment not to distribute or promote a rival product. The form of the inducement does not matter. Such a prohibition would encompass the purchase of preferential treatment for IE, and it would eliminate the provision of benefits to an IAP for agreeing explicitly to limit the units of Navigator or any other browser distributed. Any specific provision has to make clear that a contract under which an IAP agrees to distribute IE does not constitute a prohibited commitment, given that the distribution of IE to a subscriber has the practical effect of foreclosing the provision of some other browser to that subscriber. Similarly, Microsoft should not be prohibited from providing assistance, such as in the form of free access kits, to IAPs that choose to distribute IE.

Section 3(e) of the decree prohibits Microsoft from entering into agreements with any third party, including an IAP, under which the third party agrees to "restrict its development, production, distribution, promotion or use of, or payment for, any non-Microsoft Platform Software," "distribute, promote or use any Microsoft Platform Software exclusively," or "degrade the performance of any non-Microsoft Platform Software."[152] It also prohibits agreements with IAPs and ICPs under which they promise to "distribute, promote or use Microsoft software in exchange for placement with

151 *Id.*

152 *Id.* at 68 (§ 3(e)).

respect to any aspect of a Windows Operating System Product."[153] The provisions, though unnecessarily cumbersome, are generally proper, with one exception. As suggested above, Microsoft should not be prohibited from entering into a contract with an IAP under which the IAP distributes IE, so long as the IAP makes no additional commitment not to distribute competing software. It should not matter what positive inducement Microsoft offers the IAP, whether a direct payment or some other benefit, such as placement on the desktop. The provision should not prohibit these transactions.

E. *Exclusionary Arrangements Pertaining to IHVs, ICPs, and ISVs*

The court found that Microsoft supplemented its efforts to inhibit the distribution of Navigator through its dealings with Apple, ICPs, and ISVs.[154] Microsoft should be enjoined from conditioning the production of any of its software for use in conjunction with an IHV's products on the IHV's agreement not to use or to disfavor non-Microsoft platform software. Microsoft should be prohibited from demanding that an IHV abandon its own efforts to develop competing software as a condition of supplying compatible software. Agreements with ICPs to promote IE rather than Navigator and to configure their web sites to favor access through IE were not a major part of the case against Microsoft. Any injunction should merely prohibit exclusive promotional arrangements with ICPs and commitments by ICPs to take affirmative steps solely to denigrate the quality of their sites when accessed through a rival browser. Similarly, Microsoft should be prohibited from providing positive or negative inducements to ISVs for their agreement not to develop products for rival platforms.

Further, the most direct way for Microsoft to injure a rival middleware producer is to configure Windows so that the non-Windows software will not operate on it, or to deny the producer the information necessary to enable the middleware to function. Microsoft should be enjoined from purposely impairing the ability of rival middleware to run on Windows and should be required to provide rival middleware producers the information they need to ensure that the products function together smoothly.

The decree addresses some of these concerns in section 3(e), discussed above, which bans "exclusive dealing." Section 3(d) appears to prohibit Microsoft from taking or threatening action to induce an ISV or IHV not to develop or use software that runs on a rival product or that competes with a Microsoft product.[155] The thrust of the provision is appropriate, but it is awkwardly drafted and overly broad. Section 3(c), by contrast, is well-

153 *Id.*

154 United States v. Microsoft Corp., 84 F. Supp. 2d 9, ¶ 139 (D.D.C. 1999).

155 *Microsoft*, 97 F. Supp. 2d at 67-68 (§ 3(d)).

drafted, prohibiting any action that Microsoft "knows will interfere with or degrade the performance of any non-Microsoft Middleware when interoperating with any Windows Operating System Product without notifying the supplier" of the impending action and ways to avoid product failure or quality degradation.[156] The requirement of prior notice, though not essential, is a reasonable measure.

Section 3(b) requires Microsoft to disclose to ISVs, IHVs, and OEMs all APIs, technical information, and communications interfaces that Microsoft uses to enable its own applications and middleware to interoperate with other platform software.[157] The first problem is that the provision also pertains to information on the interoperation of personal computer platform software and operating systems for servers and handheld devices. To that extent, the provision exceeds proper bounds. More importantly, "[t]o facilitate compliance, and monitoring of compliance" with the primary disclosure obligations, the provision requires Microsoft to provide OEMs, ISVs, and IHVs access to a secure facility in which they can "study, interrogate and interact with relevant and necessary portions of the source code and any related documentation of Microsoft Platform Software for the sole purpose of enabling their products to interoperate effectively with Microsoft Platform Software . . . ."[158] Certainly, steps reasonably calculated to facilitate compliance with basic obligations are themselves appropriate. But this requirement is patently excessive. It compels Microsoft to disclose the intellectual property that is fundamental to its business to its competitors, while offering it protection from misappropriation only by admonishing those competitors that they may use the information solely to enable interoperation. This is not a reasonable compliance measure.

The court found that Microsoft raises the royalty rate on a given version of Windows when it releases a new version, thereby encouraging OEMs to preinstall only the current version.[159] The decree requires Microsoft to continue offering to license any version of Windows on the same terms and conditions for three years after a major new release.[160] The rationale for the provision is obscure. First, the government asserts that it will encourage Microsoft to innovate because, unless a new version of Windows is substantially better than the old, consumers will refuse to pay a higher price for the new version.[161] But forcing a monopolist to compete against itself is not a proper objective of a remedy, and in any event, the evidence suggested

156 *Id.* at 67 (§ 3(b)(iii)).

157 *Id.*

158 *Id.*

159 United States v. Microsoft Corp., 84 F. Supp. 2d 9, ¶ 57 (D.D.C. 1999).

160 *Microsoft*, 97 F. Supp. 2d at 68-69 (§ 3(i)).

161 *See* United States v. Microsoft Corp., Civ. No. 98-1232, Plaintiffs' Memorandum in Support of Proposed Final Judgment (Public Redacted Version) 28 (filed Apr. 29, 2000); Declaration of Carl Shapiro 25-26 (filed Apr. 28, 2000) *at* http://usdoj.gov/atr/cases/f4600/4642.pdf.

that Microsoft was an aggressive innovator. Besides, if Microsoft is a monopolist, its profit maximizing price is a function of demand, and if it is charging the monopoly price, it could not profitably charge more for a new version than for the predecessor unless the new version was an improvement. The implicit strategy posited by the government—force consumers to pay more for a new product that is no better than the old by raising the price of the old product—is nonsensical.

The government also contends that the provision will encourage innovation by independent middleware developers by assuring them that any Windows platform to which they write will remain available for three years after release of a new platform.[162] Though the provision in theory could lower the expected cost of writing middleware by reducing the risk that the middleware would have to be ported to another incarnation of an operating system, no evidence at trial indicated that middleware producers were deterred by this prospect. The cost may have been insignificant. In a similar vein, the government claims that, if the new version of Windows incorporates functionality offered by the middleware, the middleware vendor will be able to continue marketing its product for use in conjunction with the old version, again increasing the expected return to middleware development. But it is difficult to see a need for this kind of protection when the decree elsewhere prohibits the very bundling that supposedly justifies this provision.

Finally, the government claims that the provision "should make it more difficult for Microsoft to use its Windows monopoly power to gain control over adjacent markets: if a new version of Windows favors Microsoft's complementary products, OEMs and consumers will at least have the choice to use the predecessor version, perhaps in conjunction with non-Microsoft complementary products."[163] But again, there was no evidence that Microsoft prevented competing applications from running on Windows, and the decree elsewhere purports to assure interoperability. At best, this provision is a cure in search of a disease. It should be deleted.[164]

F. *Undermining Java*

The court found that Microsoft suppressed the Java middleware threat in a number of ways, such as by impeding the distribution of Navigator,[165]

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162 Declaration of Carl Shapiro 25 (filed Apr. 28, 2000) *at* http://usdoj.gov/atr/cases/f4600/4642.pdf.

163 *Id.* at 26.

164 Even though we find no justification for the provision, Microsoft itself proposed an equivalent restriction. *See* United States v. Microsoft Corp., Civ. No. 98-1232, Microsoft Corporation's Proposed Final Judgment § 8 (filed May 10, 2000), *at* http://news.findlaw.com/legalnews/lit/microsoft. The explanation may be that Microsoft believed its past practice had no appreciable impact.

165 United States v. Microsoft Corp., 84 F. Supp. 2d 9, ¶¶ 90-92 (D.D.C. 1999).

and some of these are addressed above. But the court also found that Microsoft hijacked Java in part by creating a unique Java implementation for Windows and then inducing ISVs to write to it.[166] This undermined the cross-platform capacity of the Java technology. A responsive remedy would prohibit Microsoft from incorporating any Java technology in Windows that is incompatible with the standard Java implementation without the consent of Java's owner. Such a restriction would not necessarily benefit consumers. It could reduce Microsoft's incentive to improve the technology because it could force Microsoft to share the rewards from innovation, though this effect might be mitigated by the possibility of an agreement between Microsoft and Java's owner. The court's suggestion that it was anticompetitive to induce ISVs to use the Microsoft implementation by making it technically superior is perverse. But Microsoft's practice was condemned, and this kind of remedy is simple and effective. The court's decree contains no specific provision addressing this practice. Presumably the government and the court believe that it is covered by more general mandates. In particular, "middleware" is defined to include the Java Virtual Machine.[167] Section 3(c) of the decree prohibits Microsoft from taking "any action that it knows will interfere with or degrade" the middleware's performance when interoperating with Windows unless Microsoft informs the supplier of ways to avoid or reduce the problem.[168]

G. *Market Division Agreements*

The court found that Microsoft attempted to reach an agreement with Netscape to divide the browser market by offering valuable consideration if Netscape assented and threatening adverse consequences if it refused.[169] An overly broad restriction on this kind of conduct could deter the formation of productive joint ventures, for collaboration typically extinguishes some competition between the participants. A narrow injunction prohibiting Microsoft from proposing naked market divisions would do no harm, but it would not address the full extent of the court's liability determination. In light of the court's conclusion, Microsoft should be enjoined from offering consideration to a platform competitor in exchange for an agreement not to compete. If Microsoft wanted to enter into a joint venture with such a firm, it could, of course, apply to the court for approval.

The decree is generally consistent with this model.[170] But it prohibits

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166 *Id.* at ¶¶ 400-01.

167 *Microsoft*, 97 F. Supp. 2d at 72 (§ 7(q)).

168 *Id.* at 67 (§ 3(c)).

169 *Microsoft*, 84 F. Supp. 2d at ¶ 83.

170 *See Microsoft*, 97 F. Supp. 2d at 68 (§ 3(h)) ("Microsoft shall not offer, agree to provide, or provide any consideration to any actual or potential Platform Software competitor in exchange for such competitor's agreeing to refrain or refraining . . . from developing, licensing, promoting or distributing

agreements with "actual or potential" platform competitors.[171] Given the capacity of this kind of restriction to inhibit productive joint ventures, extending the restriction to potential competitors, a category that is undefined and potentially inclusive of most any firm in the industry, is excessive.

CONCLUSION

If Microsoft was a predacious monopolizer, it was because the firm engaged in specific anticompetitive practices. To break up the firm as a sanction would needlessly impose on consumers substantial, and potentially enormous, costs as efficiencies that contributed to the phenomenal success of the firm are destroyed. The only plausible justification for such a remedy is that the alternative, conduct-based order would be too costly to administer. In fact, antitrust enforcement will not be rendered unnecessary by a structural remedy, and a conduct remedy need not be extremely expensive. Sensible, enforceable conduct obligations can be drafted that would purge the market of anticompetitive practices and effects, and would quickly restore the but-for world.

any Operating System Product or Middleware Product competitive with any Windows Operating System Product or Middleware Product.").

171 *Id.*