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## Software Development as an Antitrust Remedy: Lessons from the Enforcement of the Microsoft Communications Protocol Licensing Requirement

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# SOFTWARE DEVELOPMENT AS AN ANTITRUST REMEDY: LESSONS FROM THE ENFORCEMENT OF THE *MICROSOFT* COMMUNICATIONS PROTOCOL LICENSING REQUIREMENT

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## I. INTRODUCTION

An important provision in each of the final judgments in the government's *Microsoft* antitrust case requires Microsoft to "make available" to software developers the communications protocols that Windows *client* operating systems use to interoperate "natively" (that is, without adding software) with Microsoft *server* operating systems in corporate networks or over the Internet.<sup>1</sup> The short-term goal of the provision is to allow developers, as licensees of the protocols, to write applications for non-Microsoft server operating systems that interoperate with Windows client computers in the same ways that applications written for Microsoft's server operating systems interoperate with Windows clients.<sup>2</sup> The long-term goal is to preserve, in the network context, the platform threat to the Windows monopoly that was the focus of the government's theory of monopolization.<sup>3</sup> The platform threat was the possibility that "middleware," like Netscape's browser or Sun's Java technologies, might evolve into a platform for other applications and thus erode the "applications barrier to entry" that protects Windows. This was the threat that the courts held Microsoft illegally thwarted by its contracts and product design.<sup>4</sup> The protocol licensing provision rests on the assumption that middleware running on servers might also pose a platform threat to the Windows monopoly of client operating systems. District Judge Kollar-Kotelly, in entering the final judgments, singled out this provision as the key to assuring that the other provisions do not become irrelevant as more applications move to servers in local networks or the Internet.<sup>5</sup> The provision has, however, proven to be by far the most difficult to implement. We argue in this Article that the provision has not

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1. Final Judgment § III.E, *United States v. Microsoft Corp.*, No. 98-1232(CKK), 2002 WL 31654530 (D.D.C. Nov. 12, 2002) [hereinafter *Consent Decree*]; States' Final Judgment, § III.E, *New York v. Microsoft Corp.*, 224 F. Supp. 2d 76, 269 (D.D.C. 2002) [hereinafter *D.D.C. States Remedy 2002*]. The Judgments have been amended to extend the term of this provision. Modified Final Judgment, § IV.E, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Sept. 7, 2006), available at <http://www.usdoj.gov/atr/cases/f218300/218339.pdf>.

Because of the multitude of opinions by various courts in the *Microsoft* litigation, the custom of numbering opinions by Roman numeral for citation (e.g., *Microsoft V*) is confusing and impractical. Consequently, for repeated citations of *Microsoft* opinions, we adopt the strategy of WILLIAM H. PAGE & JOHN E. LOPATKA, *THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE* 203-42 (2007), which includes the court, date and a citation of the volume and page number (e.g., *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 269).

2. See *infra* Part III.C.2.

3. See *infra* Part III.C.2.

4. See *infra* Part II.

5. *United States v. Microsoft Corp.*, 231 F. Supp. 2d 144, 192 (D.D.C. 2002) [hereinafter *D.D.C. Tunney Act 2002*].

accomplished its purpose and that courts and policymakers can draw some hard lessons from the experience.

A fundamental assumption of American antitrust policy is that private contracting will ordinarily erode monopolies and enhance social wealth better than a governmentally directed process.<sup>6</sup> By prohibiting “monopolization” and agreements “in restraint of trade,”<sup>7</sup> and by assigning the interpretation of those terms to courts in the process of litigation, Congress rejected the view that markets generally benefit from continuous governmental supervision.<sup>8</sup> Thus, wherever possible, antitrust remedies should rely on the market’s self-correcting forces rather than replace them with governmental mandates. The goal of remedies is to “restore competition”<sup>9</sup> by “eliminating the consequences of the illegal conduct.”<sup>10</sup> The court’s remedial task is not to create ideal competitive conditions or to direct equitable market outcomes, but to restore economic conditions that would have existed had the offenses not occurred. In doing so, the court’s role is to facilitate market processes by removing specific monopolistic impediments.

Antitrust courts ordinarily can best achieve the goal of restoring competition by imposing monetary penalties that deter anticompetitive conduct.<sup>11</sup> The penalty for an antitrust offense is the sum of the fines and private treble damage awards imposed in the initial and follow-on litigation. If the expected penalties make illegal conduct unprofitable, the offender and others like it will not undertake the conduct. Penalties, of course, should not be arbitrarily large because of the danger that they will deter “lawful conduct at the border of the prohibition.”<sup>12</sup> Overdeterrence is a special danger in antitrust, where “the line between efficient and inefficient conduct is often fuzzy.”<sup>13</sup> American antitrust law addresses this concern through the doctrine of antitrust injury, which

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6. *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128, 137 (1998) (observing that “the freedom of the individual right to contract when not unduly or improperly exercised [is] the most efficient means for the prevention of monopoly” (quoting *Standard Oil Co. v. United States*, 221 U.S. 1, 62 (1911))).

7. 15 U.S.C. § 1 (2000).

8. William H. Page, *Ideological Conflict and the Origins of Antitrust Policy*, 66 *TUL. L. REV.* 1, 37 (1991).

9. *United States v. E. I. du Pont de Nemours & Co.*, 366 U.S. 316, 326 (1961); see also John E. Lopatka & William H. Page, *Devising a Microsoft Remedy that Serves Consumers*, 9 *GEORGE MASON L. REV.* 691 (2001); John E. Lopatka & William H. Page, A (Cautionary) Note on Remedies in the Microsoft Case, 13 *ANTITRUST* 25 (Summer 1999). See generally, PAGE & LOPATKA, *supra* note 1, at 203–42.

10. *Nat’l Soc’y of Prof’l Eng’rs v. United States*, 435 U.S. 679, 698 (1978).

11. RICHARD A. POSNER, *ANTITRUST LAW* 266–67 (2d ed. 2001); see also William H. Page, *The Scope of Liability for Antitrust Violations*, 37 *STAN. L. REV.* 1445, 1452–62 (1985) (describing the role of the standard of optimal deterrence in antitrust damages).

12. Posner, *supra* note 11, at 267.

13. *Id.*

requires damages to be causally linked to the inefficiency associated with the defendant's conduct.<sup>14</sup> If courts impose an appropriate deterrent penalty, no further remedies should be necessary because the change in the offender's incentives should prevent recurrence of the offense. This outcome is more efficient and therefore preferable to any form of equitable relief, which necessarily imposes direct administrative costs, and may impose far greater indirect costs by inhibiting efficient conduct.

Equitable remedies may be needed where antitrust litigation is unable to identify or measure the harm from inefficient conduct. One example might be tacit collusion, the coordination of pricing by rivals without the sort of agreement required by section 1 of the Sherman Act.<sup>15</sup> In these circumstances, it may be necessary to enjoin mergers that make tacit collusion more likely. Exclusionary practices ordinarily pose fewer difficulties because they "impose costs on competing firms that are ordinarily quantifiable," and thus can form the basis of damage actions to impose an appropriate penalty.<sup>16</sup> Exclusionary practices may also result in measurable overcharges that the offender's customers can recover in damages. Nevertheless, in some cases it may be appropriate for courts to enjoin narrowly defined exclusionary practices that the record shows have proven anticompetitive.<sup>17</sup>

Once antitrust courts move beyond the imposition of penalties and the entry of focused injunctions, they enter foreign territory. Orders prohibiting conduct that was never held illegal, although sometimes permissible,<sup>18</sup> are less likely to remove a real impediment to market functions and are more likely to have unintentional anticompetitive consequences. Structural relief may be needed to dissolve recent mergers, but in most instances the enormous direct and indirect costs of court-ordered divestiture have not proven to be justified by any long-term competitive benefits to consumers.<sup>19</sup>

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14. Page, *supra* note 11, at 1459–83.

15. Posner, *supra* note 11, at 268.

16. *Id.*

17. *Id.* at 107. ("When the defendant's misconduct consists of exclusionary practices rather than of acquisitions, an award of damages for the harm caused by the practices or an injunction against their continuation will normally be an adequate remedy.")

18. *Zenith Radio Corp. v. Hazeltine Res., Inc.*, 395 U.S. 100, 132 (1969) ("In exercising its equitable jurisdiction, '(a) federal court has broad power to restrain acts which are of the same type or class as unlawful acts which the court has found to have been committed or whose commission in the future unless enjoined, may fairly be anticipated from the defendant's conduct in the past.'") (citation omitted).

19. See generally Robert W. Crandall, *The Failure of Structural Remedies in Sherman Act Monopolization Cases*, 80 OR. L. REV. 109 (2001); see also PAGE & LOPATKA, *supra* note 1, at 1–32. An important exception is the AT&T consent decree, which, for all its shortcomings, probably benefited consumers. See POSNER, *supra* note 11, at 111 (calling the AT&T divestiture "the most successful antitrust structural remedy in history"); Clement G. Krouse, et

Even more problematic are “regulatory decrees,” which Judge Posner characterizes as “a confession of failure to restore competitive conditions and a sign that the case was probably ill conceived.”<sup>20</sup> Then-professor Stephen Breyer notes that antitrust enforcers typically “act negatively” to prohibit anticompetitive conduct and “[o]nly rarely . . . create the detailed web of affirmative legal obligations that characterizes classical regulation.”<sup>21</sup> Dennis Carlton and Randall Picker similarly observe that “[a]ntitrust can say no but struggles with saying yes” because it “is a poor framework for price setting or for establishing affirmative duties toward rivals.”<sup>22</sup> The Supreme Court recently endorsed a similar view in *Trinko*, observing that “[e]nforced sharing [of a defendant’s productive resources] . . . requires antitrust courts to act as central planners, identifying the proper price, quantity, and other terms of dealing—a role for which they are ill suited.”<sup>23</sup>

Courts are ill suited to such a role because federal judges are generalists with diverse caseloads and with limited abilities within an adversary system to monitor market conditions continuously. These

al., *The Bell System Divestiture/Deregulation and Efficiency of the Operating Companies*, 42 J.L. & ECON. 61 (1999) (offering data showing the divestiture enhanced efficiency of the local exchange). *But see* RICHARD A. EPSTEIN, ANTITRUST CONSENT DECREES IN THEORY AND PRACTICE: WHY LESS IS MORE 58 (2007) (arguing that the AT&T “decree suffered from an excess of ambition and from a lack of focus and finitude” because Judge Harold Greene “could not control the unruly set of forces his divestiture . . . set in motion”).

20. POSNER, *supra* note 11, at 273; *see also* Deborah Platt Majoras, Antitrust Div., U.S. Dep’t of Justice, Antitrust Remedies in the United States: Adhering to Sound Principles in a Multi-faceted Scheme 6 (2002) (insisting that the Antitrust Division is “not a regulatory body”), <http://www.usdoj.gov/atr/public/speeches/200354.pdf>.

21. STEPHEN BREYER, REGULATION AND ITS REFORM 156–57 (1982). *But cf.* Spencer Weber Waller, *Prosecution by Regulation: The Changing Nature of Antitrust Enforcement*, 77 OR. L. REV. 1383 (1998) (showing that antitrust enforcement agencies have become more regulatory in recent years, in a variety of contexts, including merger consent decrees that may involve compulsory licensing and other continuing obligations).

22. Dennis W. Carlton & Randal C. Picker, *Antitrust and Regulation*, John M. Olin Law & Econ. Working Paper No. 312 at 1 (2d Series, 2004) [http://papers.ssm.com/sol3/Delivery.cfm/SSRN\\_ID937020\\_code249436.pdf?abstractid=937020&mirid=1](http://papers.ssm.com/sol3/Delivery.cfm/SSRN_ID937020_code249436.pdf?abstractid=937020&mirid=1) (follow “Download Document” hyperlink). The authors continue:

Price setting in a non-market context often requires detailed industry knowledge and often turns on political decisions about levels of service and the rate of return to capital needed to provide those services. The virtue and vice of federal judges is they are generalists, not industry specialists, and, once appointed, they are insulated from the political process. If there is a natural monopoly and prices need to be set or we are going to create a duty to, say, share an incumbent’s phone network with an entrant, the evidence suggests that it is generally best to do that through (enlightened) regulation, not antitrust, though obviously poor regulation can impose enormous costs.

*Id.* at 1–2.

23. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407–08 (2004).

deficits are particularly acute in cases involving high technology markets in which products are extraordinarily complex and change rapidly. As Judge Kollar-Kotelly observed, crafting a remedy in the government's *Microsoft* case was like "trying to shoe a galloping horse."<sup>24</sup> The record in such a case describes conduct that occurred well before the case was filed and that events may have rendered irrelevant by the time any remedial order is entered.<sup>25</sup> These considerations make it even more important to limit intervention to narrowly focused orders.

Remedies in the *Microsoft* litigation have generally recognized these concerns. Microsoft was held to have monopolized the market for PC operating systems through a variety of tactics that impeded the possible development of Netscape's web browser and Sun Microsystems' Java technologies into platforms that might have eroded Microsoft's dominance.<sup>26</sup> For the purposes of this Article, we assume those holdings to be correct.<sup>27</sup> They have stimulated follow-on private lawsuits that have ended in settlements totaling billions of dollars.<sup>28</sup> Much of the debate over injunctive relief during the trial of the government case focused on whether Judge Thomas Penfield Jackson should break Microsoft up.<sup>29</sup> Although he did order Microsoft divided into an applications company and an operating systems company,<sup>30</sup> the court of appeals reversed the order and strongly suggested that the liability holdings that had survived appellate review did not justify divestiture.<sup>31</sup> The plaintiffs abandoned their request for dissolution and Judge Colleen Kollar-Kotelly later determined that no form of divestiture was appropriate.<sup>32</sup> The final judgments that Judge Kollar-Kotelly is now administering impose only conduct orders, most of which sensibly proscribe specific conduct that the court of appeals found violated the antitrust laws. The remedy does not even address a few of the illegal actions because no further orders were thought necessary to prevent Microsoft from repeating them.

24. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 184.

25. *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) [hereinafter *D.C. Cir. 2001*].

26. *Id.* at 49 (noting that the six years since the conduct at issue in the case began "seems like an eternity in the computer industry," and that "[b]y the time a court can assess liability, firms, products, and the marketplace are likely to have changed dramatically").

27. *But see, e.g., PAGE & LOPATKA, supra* note 1, at 167-202 (questioning the holding that Microsoft's integration of the browser with the Windows operating system was monopolistic).

28. *Id.* at 203-42.

29. *Id.*

30. *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59, 64 (D.D.C. 2000) [hereinafter *D.D.C. Jackson Remedy 2000*].

31. *D.C. Cir. 2001*, 253 F.3d at 105-07.

32. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 177-78.

In some instances, however, the final judgments impose conduct measures that are, at most, only indirectly responsive to proven monopolistic acts. For example, the decree applies to “middleware,” a category that includes more software than the browser and Java technologies that formed the core of the government’s case.<sup>33</sup> Other provisions of the final judgments that the court characterized as “forward-looking” are even more tenuously linked to proven monopolistic conduct. Of these, the “most forward-looking”<sup>34</sup> and most problematic in terms of the principles of antitrust relief is the requirement that Microsoft “make available” its proprietary communications protocols that permit Windows servers to interoperate with Windows client computers.<sup>35</sup> These technologies had almost nothing to do with the government’s case, and there was no holding that Microsoft had manipulated them for exclusionary purposes. Even though the court of appeals affirmed this provision, it recognized “the difficulties inherent in crafting a forward-looking provision concerning a type of business conduct as to which there has not been a violation of the law.”<sup>36</sup> When a court tries to close “untraveled roads”<sup>37</sup> to monopolization, it risks “prevent[ing] the defendant from forging new routes to serve consumers.”<sup>38</sup> In expressing these misgivings, the court was prescient.

The protocol licensing requirement is meant to provide software developers with the information they need to ensure that applications they design to run on non-Microsoft servers can interoperate with Microsoft client computers. This superficially obscure and technical provision has proven by far the most difficult and costly part of the final judgments to enforce. Nevertheless, Judge Kollar-Kotelly has placed unusual emphasis on making the provision succeed. She has reasoned that the provision assures that the final judgments will have continuing relevance as the market evolves toward network computing. The provision, she found, “acknowledges the continuing change in the industry and expands appropriately from the imposition of liability” to assure that “the core of the decree [will not] prove prematurely obsolete.”<sup>39</sup>

Yet the provision has not succeeded in actually opening up the PC operating system market to greater competition. Despite Herculean—or, perhaps more accurately, Sisyphean—efforts by both regulators and

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33. *Consent Decree*, *supra* note 1, §§ VI.J, VI.K, & VI.N.

34. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 173.

35. *Consent Decree*, *supra* note 1, § III.E.

36. *Massachusetts v. Microsoft Corp.*, 373 F.3d 1199, 1223 (D.C. Cir.2004) [hereinafter *D.C. Cir. 2004 Remedy*].

37. *Id.* (quoting *Int’l Salt Co. v. United States*, 332 U.S. 392, 400 (1947)).

38. *Id.* at 1224.

39. *D.D.C. Tunney Act 2002*, 231 F. Supp. 2d at 192.



Microsoft, which we detail below, few firms have become licensees under the program, and fewer still have developed products that rely on the protocols. None of the products developed as a result of the program shows any prospect of becoming a platform that could rival the Windows desktop. The failure of the program holds important lessons for future courts in shaping remedies for single-firm monopolization in high technology markets.

We begin our analysis by briefly describing the liability holdings and the ensuing remedial proceedings in the Microsoft litigation. In the process, we provide an overview of the final judgments and the reasoning the courts offered for upholding them and rejecting any broader relief. We then narrow our focus to the communications protocol licensing provision, explaining its history, requirements, rationale, and mechanism of enforcement. We then analyze the administration of the program from its inception in 2003 to the most recent joint status report. In the final part, we argue that the program has failed because it violates basic principles of remedial design and implementation in monopolization cases.

## II. THE LIABILITY HOLDINGS AND FINAL JUDGMENTS

In May 1998, the United States and nineteen states sued Microsoft, alleging that it had monopolized the market for PC operating systems by binding its Internet Explorer web browser to the Windows operating system and by forming exclusive contracts with computer manufacturers, software developers, and firms that provide Internet access and content.<sup>40</sup> The trial ran from October 1998 to June 1999. In November 1999, Judge Thomas Penfield Jackson issued findings of fact<sup>41</sup> that accepted the government's account of Microsoft's conduct. Judge Jackson found that Microsoft had a monopoly in the market for PC operating systems<sup>42</sup> that was protected by network effects, which he termed the "applications barrier to entry."<sup>43</sup> As an operating system gains new users, Judge Jackson reasoned, its existing users benefit because developers will have an incentive to write more application programs that rely on the operating

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40. Complaint, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. May 18, 1998), available at <http://www.usdoj.gov/atr/cases/f1700/1763.htm>; *New York v. Microsoft Corp.*, No. 98-1233 (D.D.C. May 18, 1998). The state and federal suits were filed separately, and later consolidated, *D.C. Cir. 2001*, 253 F.3d at 47, but diverged again in the remedies phase. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 87.

41. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999) [hereinafter *D.D.C. Findings 1999*].

42. *Id.* at 15-19 (defining the relevant market and calculating Microsoft's market share above ninety percent).

43. *Id.* at 18-24. For discussion of issues of market definition in the case, see PAGE & LOPATKA, *supra* note 1, 115-65.

system's programming interfaces, or APIs.<sup>44</sup> The growth in the number of applications spurs more users to choose the operating system. This "vicious cycle"<sup>45</sup> protects Microsoft as the dominant supplier because many users will not switch from Windows simply because there are so many applications—70,000, according to Judge Jackson—that are compatible only with Windows. Some applications, however, like Netscape's web browser and Sun Microsystems' Java technologies, were "middleware" because they exposed their own APIs. They posed a "middleware threat" to the Windows monopoly because one or both of them may have evolved into a rival platform for applications.<sup>46</sup> Because such a platform might allow developers to write applications that would run on any operating system, it could weaken the applications barrier to entry protecting Windows.

Judge Jackson found that Microsoft embarked on a broad campaign to crush the middleware threat. It first offered to divide the browser market with Netscape, but when Netscape spurned the offer, it withheld valuable technical information.<sup>47</sup> It then used a variety of contractual and design measures to exclude Netscape's browser from the most efficient distribution channels to prevent Netscape from gaining a sufficient usage share to succeed as an alternative platform.<sup>48</sup> Microsoft also took steps to prevent adoption of Sun's cross-platform Java, including developing its own Windows-specific version of Java, and tricking developers into writing programs in that version.<sup>49</sup> In an important passage, however, Judge Jackson found that there was "insufficient evidence to find that, absent Microsoft's actions, Navigator and Java already would have ignited genuine competition" in the operating systems market, although "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."<sup>50</sup>

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44. An API is an interface that permits developers to provide convenient access to standard, low-level system functions. For example, a developer that wanted to implement a "File Open" dialog in its application, could program all the discrete components of putting the dialog on the computer screen, including writing to the video buffers directly on a bit-by-bit basis. Alternatively, the developer could call a simple Windows API that performs the entire function. Using the API saves substantial development time and gives the developer's software the same look and feel of other Windows applications. Microsoft provides thousands of APIs for developers, including APIs for network interoperability. For an overview of the Windows API on the MSDN site, see Microsoft Developer Network, <http://msdn2.microsoft.com/en-us/library/Aa383723.aspx> (last visited Oct. 1, 2007).

45. *D.D.C. Findings 1999*, 84 F. Supp. 2d at 20.

46. *Id.* at 28–30.

47. *Id.* at 30–33.

48. *Id.* at 46–105.

49. *D.D.C. Findings 1999*, 84 F. Supp. 2d at 105–10.

50. *Id.* at 111–12.

After intensive settlement negotiations mediated by Judge Richard Posner failed in April 2000,<sup>51</sup> Judge Jackson held that Microsoft had attempted to monopolize the browser market by its offer to divide the browser market,<sup>52</sup> and had unlawfully maintained its monopoly of PC operating systems by its various contractual and design measures aimed at Netscape's browser and Java.<sup>53</sup> Shortly thereafter, he ordered Microsoft broken up into an applications company and an operating systems company and imposed extensive conduct restrictions, including a protocol licensing requirement.<sup>54</sup>

In June 2001, the Court of Appeals for the D.C. Circuit unanimously affirmed many of Judge Jackson's holdings, but reversed others. The court held that the binding of Internet Explorer and Windows by various contractual and design measures,<sup>55</sup> along with exclusive contracts with other firms,<sup>56</sup> were monopolistic because they threatened to prevent Netscape's browser from achieving the critical mass necessary to evolve into a rival platform. The court also condemned Microsoft's efforts to hinder Java by, among other things, deceiving developers into using a Windows-specific version of Java rather than a cross-platform version.<sup>57</sup> Crucially, however, the court reversed the holdings that Microsoft had monopolized by offering better products or services at low prices—for example by developing an Windows-specific version of Java—noting that “a monopolist does not violate the antitrust laws simply by developing a product that is incompatible with those of its rivals.”<sup>58</sup> The court also reversed the holding that Microsoft had attempted to monopolize the market for browsers by offering to divide that market with Netscape. This reversal mooted the finding that Microsoft had withheld valuable technical information from its rival.<sup>59</sup> Nothing in the opinion supports the proposition that a monopolist has a general obligation to make its products compatible with those of its rivals or to help its rivals develop products that can interoperate with its own.

In affirming the liability rulings, the court acknowledged that the evidence did not establish that Netscape or Java would actually have evolved into a rival platform absent Microsoft's actions.<sup>60</sup> Despite this

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51. See KEN AULETTA, *WORLD WAR 3.0: MICROSOFT AND ITS ENEMIES* 340–62 (2001).

52. *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 45–46 (D.D.C. 2000) [hereinafter *D.D.C. Conclusions 2000*].

53. *Id.* at 35–45.

54. *D.D.C. Jackson Remedy 2000*, 97 F. Supp. 2d at 64.

55. *D.C. Cir. 2001*, 253 F.3d at 60–64, 67–74.

56. *Id.* at 64–67.

57. *Id.* at 74–78.

58. *Id.* at 75.

59. *Id.* at 80–81.

60. *D.C. Cir. 2001*, 253 F.3d at 78.

gap in the evidence, the court found it sufficient that Microsoft had harmed “nascent” rivals by conduct that had no procompetitive justification.<sup>61</sup> But the court stressed that dearth of causation evidence did matter on the issue of “whether the court should impose a structural remedy or merely enjoin the offensive conduct at issue.”<sup>62</sup> It reversed the entire remedial order,<sup>63</sup> and remanded the case to a different judge<sup>64</sup> for further proceedings on the remedy.<sup>65</sup>

In November 2001, the United States and nine states,<sup>66</sup> later called the New York Group, reached a settlement with Microsoft and proposed a consent judgment,<sup>67</sup> which Judge Kollar-Kotelly reviewed under the Tunney Act to determine if it was in the public interest.<sup>68</sup> Other states, later called the California Group, pursued more extensive relief in their pending action,<sup>69</sup> which Judge Kollar-Kotelly evaluated in an evidentiary hearing that paralleled the Tunney Act proceeding. In both proceedings, Judge Kollar-Kotelly followed the instructions of the court of appeals that the “remedy imposed should be carefully ‘tailored to fit the wrong creating the occasion for the remedy.’”<sup>70</sup> She weighed the remedy against the evidence that the conduct actually caused a reduction in competition. Neither side’s expert in the remedial phase offered new evidence that would change the court’s assessment of the proof of causation.<sup>71</sup> Consequently, Judge Kollar-Kotelly upheld the consent decree in November 2002 with only a minor modification<sup>72</sup> and limited the nonsettling states to essentially the same relief.<sup>73</sup> (We will refer to the United States’ and settling states’ judgment as the “consent decree” and to the nonsettling states’ judgment as the “states’ judgment” respectively. We will refer to

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61. *Id.* at 79.

62. *Id.* at 80.

63. *Id.* at 98.

64. *Id.* at 105–07.

65. *D.C. Cir.* 2001, 253 F.3d at 116–17.

66. Illinois, Kentucky, Louisiana, Maryland, Michigan, New York, North Carolina, Ohio, and Wisconsin. Competitive Impact Statement at 8, *United States v. Microsoft Corp.*, Div. No. 98-1232 (D.D.C. Nov. 15, 2001), available at <http://www.usdoj.gov/atr/cases/f9500/9549.pdf>.

67. The United States and Microsoft submitted a proposed final judgment on November 2, 2001. After further mediation, the United States and the settling states submitted a slightly revised proposed final judgment on November 6, 2001. *Id.* at 9 n. 2.

68. *United States v. Microsoft Corp.*, 215 F. Supp. 2d 1 (D.D.C. 2002).

69. *New York v. Microsoft Corp.*, 209 F. Supp. 2d 132 (D.D.C. 2002).

70. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 97 (quoting *D.C. Circuit 2001*, 253 F.3d at 107).

71. *Id.* at 149–51.

72. The court insisted that the decree provide that the court would “retain jurisdiction to take action *sua sponte* in conjunction with the enforcement of the decree.” *D.D.C. Tunney Act 2002*, 231 F. Supp. 2d at 202.

73. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 266–77. The court rejected the broad definition of middleware advocated by the nonsettling states.

them collectively as the “final judgments.”) In June 2004, the court of appeals affirmed both final judgments.<sup>74</sup> Judge Kollar-Kotelly is currently supervising their enforcement.

In keeping with the court of appeals’ instruction to impose relief closely tailored to the liability holdings, the final judgments address most, but not all, of the conduct found illegal. The prohibitions and mandates apply to a class of middleware broader than the browser and Java, which were the subject of the case.<sup>75</sup> “Microsoft Middleware Product,” for example, is defined to include “Internet Explorer, Microsoft’s Java Virtual Machine, Windows Media Player, Windows Messenger, Outlook Express and their successors.”<sup>76</sup> Judge Kollar-Kotelly rejected the nonsettling states’ proposals to expand this definition to include essentially all code that exposes an API.

The remedial provisions apply to both the design of the operating system in its relationship to middleware and to contractual terms affecting the development and distribution of middleware. Microsoft, for example, was found to have monopolized by limiting the ability of OEMs to remove means of access to Internet Explorer and to alter Windows’ initial boot sequence to promote rival products. The decree addresses these concerns by requiring Microsoft to provide utilities in Windows that give computer manufacturers and users the flexibility to enable or delete various means of access to Microsoft middleware products<sup>77</sup> and to designate non-Microsoft middleware to launch in place of Microsoft middleware,<sup>78</sup> except in limited circumstances.<sup>79</sup> Microsoft must also permit OEMs, within some limits, to install icons and other means of launching non-Microsoft middleware.<sup>80</sup>

74. *Massachusetts v. Microsoft Corp.*, 373 F.3d 1199, 1224, 1250 (D.C. Cir. 2004) [hereinafter *D.C. Circuit 2004 Remedy*].

75. Non-Microsoft Middleware includes products that serve as platforms that allow applications to run on more than one operating system. *Consent Decree*, *supra* note 1, § VI.M. Non-Microsoft Middleware Products are widely distributed and thus have more platform potential. *Id.* § VI.N. Microsoft Middleware Products are IE, Microsoft’s JVM, Media Player, Messenger, Outlook Express, and comparable future technologies. *Id.* § VI.K. Microsoft Middleware covers the code of middleware products that are separately distributed and trademarked. *Id.* § VI.J.

76. *Id.* § VI.K.

77. *Id.* § III.H.1. The mechanisms must provide separate and unbiased choices in these actions.

78. The invocation must be in a “separate Top-Level Window” and display either the full interface or the MMP trademark.

79. *Consent Decree*, *supra* note 1, § III.H.2.

80. *Id.* § III.C. The states’ judgment requires Microsoft to allow OEMs to configure the initial boot sequence to allow more non-Microsoft middleware to launch and to insert their own IAP offers, *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 268, without meeting Microsoft’s technical restrictions, *id.*

In response to the holdings that Microsoft formed contracts with Internet access providers and software developers that gave preference to Internet Explorer over Navigator, the decree forbids Microsoft from paying software developers not to distribute rival middleware, except in limited instances.<sup>81</sup> Microsoft may not pay firms to use its platform software exclusively or in a fixed proportion.<sup>82</sup> In response to the holdings that Microsoft punished firms using its rivals' products,<sup>83</sup> the final judgments forbid retaliation (or, in the states' judgment, *threats* of retaliation<sup>84</sup>) against OEMs for installing rival middleware or operating systems,<sup>85</sup> although Microsoft may enforce its intellectual property rights and may pay OEMs market development fees for distribution services.<sup>86</sup> Microsoft also must license Windows to all for a single royalty, with limited exceptions.<sup>87</sup>

Not all of the conduct the courts held unlawful warranted a corresponding remedial order. The courts had held, for example, that Microsoft tricked software developers into using Windows-specific directives in its Java development tools, thus leading them unwittingly to write programs that would run only on Windows. No remedial provision responds directly to this conduct, because there was no evidence the conduct was continuing or likely to be repeated.<sup>88</sup> Moreover, despite the holding that Microsoft unlawfully "commingled" browsing code with operating system code, the final judgments do not require Microsoft to allow removal of the code that supported the relevant functionality, only the visible means of invoking that functionality.<sup>89</sup>

Although the provisions we have just described apply to a wider range of products than those at issue in the government case, they are narrowly tailored to the conduct actually found unlawful. Some provisions, however, impose obligations that have no direct connection to illegal conduct. These provisions were thought necessary "to foster competition in the monopolized market in a manner consistent with the theory of liability in this case"<sup>90</sup> by assuring interoperability. One of these provisions requires Microsoft to disclose "APIs used by Microsoft

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81. *Consent Decree*, *supra* note 1, § III.F.2. These requirements do not prohibit Microsoft from enforcing an IP right that is consistent with the judgment.

82. *Id.* § III.G.1.

83. These included Microsoft's threat to Intel that it would favor AMD technologies if Intel aided Sun in developing Java, and its threat to Apple that it would drop MacOffice if Apple did not give preferential placement to IE in the MacOS.

84. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 163–68.

85. *Id.* at 267.

86. *Consent Decree*, *supra* note 1, § III.A.

87. *Id.* § III.B.

88. *D.C. Circuit 2004 Remedy*, 373 F.3d at 1213–15.

89. *Id.* at 1210.

90. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 193.

Middleware to interoperate with a Windows Operating System Product.”<sup>91</sup> Disclosure of these APIs was thought necessary to place rival middleware suppliers on an equal footing with Microsoft in writing Windows applications.

The decree’s “*most forward-looking provision*,” however, is § III.E, which requires Microsoft to

make available for use by third parties, for the sole purpose of inter-operating or communicating with a Windows Operating System Product, on reasonable and non-discriminatory terms . . . , any Communications Protocol that is . . . (i) implemented in a Windows Operating System Product installed on a client computer, and (ii) used to interoperate, or communicate, natively (*i.e.*, without the addition of software code to the client operating system product) with a Microsoft server operating system product.<sup>92</sup>

This provision is the basis for the protocol licensing program that we examine in Part IV. But first, we have to unearth the rationale for such a unique requirement.

### III. THE PROTOCOL LICENSING REQUIREMENT

As we saw in the last Part, the protocol licensing requirement differs from other provisions of the final judgment in that it does not respond directly to any illegal conduct. Nevertheless, Judge Kollar-Kotelly was able to approve the requirement as sufficiently linked to the broader theory of the case. In this section, we briefly describe network computing and the role of communication protocols in its processes. We then show that the government first proposed measures aimed at assuring interoperability during the initial unsuccessful settlement negotiations and incorporated similar measures in its proposed remedy, which Judge Jackson entered without change. After the reversal of that order, the De-

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91. *Id.* at 268. The district court rejected proposals for more sweeping disclosures, *id.* at 173–77, and the court of appeals affirmed, *D.C. Circuit 2004 Remedy*, 373 F.3d at 1244.

92. *Consent Decree*, *supra* note 1, § III.E. “Communications Protocol” was defined as “the set of rules for information exchange to accomplish predefined tasks between a Windows Operating System Product and a server operating system product connected via a network, including, but not limited to, a local area network, a wide area network or the Internet. These rules govern the format, semantics, timing, sequencing, and error control of messages exchanged over a network.” *Id.* § VI.B. Thus, the “definition includes both the rules for information exchange and transmittal (‘format, timing, sequencing and error control’) as well as the meaning of the information contained within the protocol (‘semantics’).” Response of the United States to Public Comments on the Revised Proposed Final Judgment, ¶ 328, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Feb. 27, 2002) [hereinafter *CIS Response*], available at <http://www.usdoj.gov/atr/cases/f10100/10145.pdf>.

partment of Justice and Microsoft agreed to include a protocol licensing provision—what we call limited disclosure—in the consent decree. The nonsettling states, however, pursued what we call comprehensive disclosure. In the final section, we show that Judge Kollar-Kotelly rejected any requirement of comprehensive disclosure as inconsistent with the theory and holding of liability in the case, but endorsed the requirement of limited disclosure. That requirement has led to the creation of the communications protocol licensing program.

### A. Networks and Communications Protocols

Microsoft rose to dominance in a market in which most personal computers exclusively ran their own operating systems and applications. Increasingly, however, personal computers have been linked as clients in networks managed by a set of server computers that perform centralized tasks. Server operating systems execute server-based applications for the client computers.<sup>93</sup> Communications protocols are the “rules for the transmission of information between”<sup>94</sup> the servers and clients, and between servers and other servers. The protocols provide the form and content of a language used by computers on a network to accomplish the myriad tasks that make up normal network communications. Like diplomatic protocols, communications protocols on a network are part of a complex and interdependent set of challenges and responses.

During the process of booting, a computer listens to a hardware port for communications protocols, in this instance, the packets of data that indicate that the computer is connected to a network. If it discovers an active network, the computer sends a packet of its own to a server. If the server recognizes the packet, it initiates a dialogue that results in a connection between the client computer and the server for the current session. Although the names of protocols may seem alien to non-technical readers, recognizable user-level events like printing to a network printer, saving a file on a network drive, sending an email, and viewing a web page, are entirely made up of, and enabled by, the building blocks of discrete communications protocols. In executing these functions, a user’s workstation and the servers will exchange millions of occurrences of thousands of types of communications protocols.

When client and server computers exchange and use information through protocols they *interoperate*. As Judge Kollar-Kotelly recognized, however, interoperability is a matter of degree. If all of the clients and servers on a network are part of the same “hardware-software platform family,” they can interoperate relatively easily and fully because

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93. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 121.

94. *Id.* at 233.



they share “a common base of code.”<sup>95</sup> The client operating systems in this kind of homogeneous network will typically include native software that permits interoperation with the servers.<sup>96</sup> Most networks, however, are *heterogeneous* in that most of the client computers run a version of Windows, while the servers run operating systems from a variety of vendors, including Microsoft.<sup>97</sup> In these networks, the server operating systems have different code bases and different ways of accomplishing functions like storing files and tracking their characteristics.<sup>98</sup> A client may nevertheless interoperate with different types of servers by relying on shared communications protocols.<sup>99</sup> Some communications protocols are standard in the industry.<sup>100</sup> Firms may, however, formulate protocols specific to their needs, in some cases by adding proprietary extensions to standard protocols. Microsoft has added extensions to some standard protocols that allow Windows clients to interact differently with Microsoft servers than with other servers. Some protocols are built into Windows and thus allow “native” interoperation. These include standard Internet protocols, like TCP/IP, HTTP, and FTP,<sup>101</sup> among many others. Others can be added either to Windows or to the server operating system.<sup>102</sup>

Developers can also achieve interoperation by adding software to the Windows client.<sup>103</sup> Microsoft provides developers with a rich set of APIs that the developers can use to achieve interoperability with Windows networking products. By using the existing APIs, developers can focus on adding functionality to their products, without having to understand low-level protocols. Novell’s NetWare,<sup>104</sup> for example, competes with Microsoft’s Windows server products and also interoperates with Microsoft clients and servers. In order to provide networking services to Windows clients, Novell provides software that runs on Windows and

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95. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 122.

96. *Id.*

97. *Id.* at 121–22.

98. *Id.* at 122.

99. *Id.* at 122–23.

100. Microsoft has stated that most of the protocols are (1) within the TCP/IP stack, and (2) are proprietary additions to or extensions of existing industry-standard protocols. See Microsoft Developer’s Network (MSDN), Interoperation Using MCPP Non-RPC Protocols, available at <http://msdn2.microsoft.com/en-us/library/ms817901.aspx> (last visited Oct. 4, 2007).

101. *D.C. Circuit 2004 Remedy*, 373 F.3d at 1222, n.15.

102. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 122–23, 234.

103. See Direct Testimony of Stuart E. Madnick, ¶¶ 76–85, *New York v. Microsoft Corp.*, No. 98-1233 (CKK) (D.D.C. submitted Apr. 26, 2002) [hereinafter *Madnick Direct*], available at <http://www.microsoft.com/presspass/download/legal/RemediesTrial/madnick.pdf>.

104. See Novell NetWare Product Page, <http://www.novell.com/products/netware> (last visited Oct. 16, 2007).

emulates the existing Microsoft software using the publicly available Windows API rather than any disclosed protocol.<sup>105</sup> The Novell network client software actually offers users more features than the comparable Windows tools.<sup>106</sup> It would have been far more costly and needlessly duplicative for Novell to achieve the same functionality using disclosed protocols directly and foregoing reliance on the Windows API. Although one might think Microsoft would have an incentive to manipulate APIs to disadvantage a direct competitor like Novell,<sup>107</sup> it could not do so without denying noncompetitive developers access to the same resources,<sup>108</sup> thus undermining the value of the Windows platform.<sup>109</sup>

### B. Origins of the Protocol Licensing Requirement

The Microsoft case did not hold that Microsoft violated the antitrust laws by making Windows incompatible with other products.<sup>110</sup> Microsoft's rivals, however, have long alleged that Microsoft preserved and extended its monopoly by manipulating its operating system interfaces in discriminatory ways, so that rival applications would appear to be incompatible with Microsoft operating systems. The oft-spoken (if implausible) claim, years ago, was that "DOS isn't done until Lotus [1-2-3, then the dominant spreadsheet application] won't run."<sup>111</sup> Similar concerns entered the thinking of the parties to the Microsoft case early and became paramount during settlement negotiations, even though the notion that Microsoft would deliberately sabotage its own API was in some tension with the court's finding that the Windows API supports 70,000 applications.<sup>112</sup>

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105. Examples of the client software would be software that achieves connection with servers, handles network print jobs, allows a user to set properties of files and folders, etc.

106. For example, a Windows user can select a folder on a Windows server network drive, right-click, and choose "properties." One option shown will allow the folder to be "compressed." Under NetWare, however, the user has several options regarding compression of folders, reflecting the extended functionality that NetWare offers over the competitive Windows server product. *Madnick Direct*, *supra* note 103, ¶ 82.

107. *Id.* ¶ 85.

108. *Id.*

109. Essentially, developers create the demand for Windows products by writing applications that run on the Windows platform. Without developers, the business case for acquiring Windows relative to competitive products is greatly diminished.

110. *D.C. Cir. 2001*, 253 F.3d at 75.

111. For an interesting investigation of this assertion and its origins, albeit by a Microsoft employee, see Adam Barr, *DOS Ain't Done til Lotus Won't Run?* (Aug. 1, 2005), [http://www.proudlyservicing.com/archives/2005/08/dos\\_aint\\_done\\_t.html](http://www.proudlyservicing.com/archives/2005/08/dos_aint_done_t.html). Cf. ANDREW SCHULMAN, ET AL., UNDOCUMENTED WINDOWS: A PROGRAMMERS GUIDE TO RESERVED MICROSOFT WINDOWS API FUNCTIONS (1992).

112. *D.C. Cir. 2001*, 253 F.3d at 55.

### 1. The Netscape White Paper

In 1996, Gary Reback and Susan Creighton, then attorneys for Netscape, submitted to the government a lengthy White Paper outlining a theory for a government antitrust action against Microsoft.<sup>113</sup> This document was the first to assert that Netscape<sup>114</sup> and Java<sup>115</sup> posed a platform threat to the Windows monopoly, and to describe various measures Microsoft had directed at Netscape, including bundling of the browser and the operating system and predatory pricing.

Among its many claims, Netscape alleged that Microsoft had “sabotage[d]” Netscape’s ability to innovate “with its manipulation of the disclosure of program interfaces—interfaces already shown to Microsoft’s own engineers, and incorporated into its own products.”<sup>116</sup> The White Paper continued:

Every day that a[] [Netscape] engineer wastes trying to work around Microsoft’s stonewalling, or implementing an alternative solution to what Microsoft already has in place, or tearing down a solution that Microsoft effectively renders inoperable—that is a day when the engineer is *not* innovating, *not* pushing the envelope of product performance, *not* developing features desired by consumers. It is pure social waste: it is a monopolist saying, “I have the combination that will unlock the safe; see if you can figure out what it is.”<sup>117</sup>

The White Paper offered several instances of this tactic, including the withholding of key technical information from Netscape in the months prior to the release of Windows 95.<sup>118</sup> It also alleged that Microsoft had sought to encourage developers to use its own version of Java technologies rather than Sun’s cross-platform version.<sup>119</sup> Versions of these claims would later appear in the government’s 1998 case,<sup>120</sup> although they were never found to be illegal themselves.

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113. Gary Reback & Susan Creighton, White Paper Regarding Recent Anticompetitive Conduct of Microsoft Corporation (July 1996) (unpublished manuscript, on file with authors).

114. *Id.* at 48–51.

115. *Id.* at 88–91.

116. *Id.* at 117.

117. *Id.* at 118.

118. *Id.* at 120–24.

119. *Id.* at 91.

120. Direct Testimony of Jim Barksdale, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. May 18, 1998), ¶ 106 (“[W]e needed the Remote Network Access (“RNA”) phone-book API from Microsoft. We also needed other technical information from Microsoft, including a scripting engine in beta, and the most recent version of Windows 95.”); *id.* ¶ 114 (“Interestingly, we did not receive the APIs and other technical information we had been seeking until October 1995—or approximately three months later, which was well after the launch

The White Paper also suggested that Microsoft's long-term goal was to dominate "the enterprise," that is, business networks or intranets.<sup>121</sup> Netscape argued that Microsoft intended to leverage its monopoly of the desktop to gain control of the server operating systems that coordinate business computing. Novell historically "dominated" the file and print sharing functions of business networks with its NetWare product, while (usually separate) Unix servers ran applications like databases and email.<sup>122</sup> Microsoft, however, had begun to "dominate both markets" with Windows NT servers by exploiting its control of the dominant client operating systems.<sup>123</sup> From this base, Microsoft's goal was to "dominate the next layer up—server applications," by promoting the integration of Microsoft's server applications with the operating system.<sup>124</sup>

The White Paper suggested that Microsoft feared Netscape would thwart its plans to dominate network computing. Netscape's model placed a browser on the client computer and a web server on the server operating system, an arrangement that allowed server-based applications to communicate with client operating systems through the browser, using the standard HTML language.<sup>125</sup> This arrangement threatened Microsoft, because "all of the Web server applications may be written using an OS-independent Web server API, instead of making calls directly to server operating systems such as Microsoft's Windows NT Server or Unix."<sup>126</sup> This arrangement allowed Netscape's server-based applications to interoperate with any other application "that supports open protocols."<sup>127</sup> Microsoft, according to the White Paper, had sought to undermine this strategy by attempting to supplant standard protocols with proprietary ones. These allegations did not appear in the government case, although they (or others like them) may have influenced the European case against Microsoft.

## 2. The Litigation, the First Settlement Negotiations, and Judge Jackson's Remedy

The government's case alleged that Microsoft monopolized the market for client operating systems by its actions against middleware, a

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of Windows 95 and was precisely what Microsoft had threatened at the June 21 meeting."), available at <http://www.usdoj.gov/atr/cases/f1900/1999.pdf>.

121. Reback & Creighton, *supra* note 113, at 41–47.

122. *Id.* at 44–45.

123. *Id.* at 45.

124. *Id.* at 46–47.

125. *Id.* at 56. *Cf. Madnick Direct*, *supra* note 103, ¶ 70 ("Many companies are turning to Web-type interfaces to achieve interoperability, both over the Internet and on internal organization networks.")

126. Reback & Creighton, *supra* note 113, at 58.

127. *Id.*

“nascent” platform. It did not focus on server operating systems or the programs that run on them. Judge Jackson did recognize that a client computer could access applications running on server operating systems, including ones hosted on web sites,<sup>128</sup> and speculated that “the growth of server- and middleware-based applications development might eventually weaken the applications barrier to entry” and thus allow rivals to “present a viable alternative to Windows.”<sup>129</sup> Nevertheless, he found that it was “not clear whether ISVs will ever develop a large, diverse body of full-featured applications that rely solely on APIs exposed by servers and middleware.”<sup>130</sup> (Interestingly, eight years later, web service applications are beginning to appear, all of which are cross-platform and run well in most browsers.)<sup>131</sup> Consequently, he concluded, server operating systems were not in the PC operating system market because they did not yet prevent Microsoft from exercising monopoly power. The D.C. Circuit affirmed this conclusion.<sup>132</sup>

Judge Jackson also found that Microsoft at least considered the possibility of gaining control of the Internet protocols that are the basis of web browsing. He held, for example, that had Netscape accepted the 1995 market-division proposal, Microsoft would have had a sufficient lead in browser development to “add[] proprietary extensions to the browsing software under its control and . . . extract[] commitments from” computer and Internet firms to use those extensions.<sup>133</sup> He found that:

Although the suspicion lingers, the evidence is insufficient to find that Microsoft’s ambition is a future in which most or all of the content available on the Web would be accessible only through its own browsing software. The evidence does, however, reveal an intent to ensure that if and when full-featured, server-based applications begin appearing in large numbers on the Web, the number of them relying solely on middleware APIs (such as

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128. *D.D.C. Findings 1999*, 84 F. Supp. 2d at 16; *see also id.* at 17 (“As the bandwidth available to the average user increases, ‘portal’ Web sites, which aggregate Web content and provide services such as search engines, E-mail, and travel reservation systems, could begin to host full lines of the server-based, personal-productivity applications that have begun to appear in small numbers on the Web.”).

129. *Id.* at 25.

130. *Id.*

131. *See, e.g.*, Google Docs and Spreadsheets, <http://www.google.com/google-ds/b1.html> (last visited Oct. 16, 2007); Zoho Office Suite Home Page, <http://www.zoho.com> (last visited Oct. 16, 2007).

132. *D.C. Cir. 2001*, 253 F.3d at 52.

133. *D.D.C. Conclusions 2000*, 87 F. Supp. 2d 46.

those exposed by Navigator) will be too few to attenuate the applications barrier to entry.<sup>134</sup>

Server operating systems and applications based on them did not figure in Judge Jackson's liability holdings or in the D.C. Circuit's review of them.

Why, given the marginal role of server operating systems and applications in the litigation, do these products figure so prominently in the remedy? The idea of requiring Microsoft to disclose protocols for interoperation of server-based applications and Windows seems to have arisen during the settlement negotiations mediated by Judge Posner between January and March of 2000, long after the record in the liability phase of the case had closed. According to Ken Auletta's fascinating account,<sup>135</sup> the negotiations did not focus on the same conduct as the findings of fact because no one thought Microsoft wanted to continue that specific conduct. The browser wars were essentially over. Microsoft had already dropped its exclusive contracts and had stopped charging substantially different prices for Windows to different OEMs.

Consequently, "[t]he central point of contention became whether Microsoft would share more technical information. The Justice Department, which had been canvassing Microsoft's enemies, had grown ever more concerned that Microsoft would keep non-Windows operating systems and non-Office software from interoperating smoothly with Windows."<sup>136</sup> On March 2, 2000, Judge Posner circulated the thirteenth draft of a settlement document and told Microsoft that "Joel Klein [then the Assistant Attorney General for Antitrust] had added a new demand: Microsoft must disclose to competing software developers the Windows APIs invoked by Microsoft programs that run on servers, thus assuring that non-Microsoft software could connect to a Windows PC."<sup>137</sup> The new demand reflected the government's fear, apparently encouraged by Microsoft's rivals, "that Microsoft would maintain its dominance by retarding the ability of non-Microsoft servers—servers being the vital, digitized, data-filled libraries that served corporate networks and the Internet—to hook onto PCs powered by Windows."<sup>138</sup>

Posner was reportedly initially "exasperated" by the new demand and refused to include it in the new draft. Later, however, he suggested to Microsoft that, if it agreed to the demand, the Justice Department would settle the case. At this point, Microsoft CEO Bill Gates "decided to

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134. *D.D.C. Findings 1999*, 84 F. Supp. 2d at 104.

135. AULETTA, *supra* note 51, at 340–62.

136. *Id.* at 345.

137. *Id.* at 346.

138. *Id.*

surrender” and signed the fourteenth draft.<sup>139</sup> Many of the states, however, objected to the new draft, and Klein himself began having misgivings about some of the technical terminology of the proposed agreement. He sent Posner a new demand that the disclosures would have to include not only the APIs that rival server-based applications would need to connect to a Windows client, but “also the APIs used by Microsoft’s own software applications for servers.”<sup>140</sup> The states wanted the obligations extended to hand-held devices as well. Enforcement officials apparently thought Microsoft “had a sinister plan to extend its empire” because of an email Gates sent in 1999 arguing that Microsoft needed “to demonstrate to people like Nokia why our PDA will connect to Office in a better way than other PDAs even if that means changing how . . . we tie some of our audio and video advanced work to only run on our PDAs.”<sup>141</sup>

This kind of talk led enforcers to believe Microsoft might reprise something like its Netscape strategy in the network environment: “As the industry and consumers moved toward network solutions where various devices talked not just to the PC but to powerful servers on or off the Internet, Justice reasoned, if non-Windows users couldn’t effortlessly connect with Windows they would be compelled to switch to Windows products.”<sup>142</sup> Thus, more disclosures were necessary to “frustrate Microsoft’s ability to leverage its Windows power into the post-PC world.”<sup>143</sup> The new draft would have required Microsoft to reveal not only APIs but “communications interfaces” and “technical information” used to allow Windows servers and clients to interoperate, and could have been interpreted to require disclosure of Microsoft’s source code.<sup>144</sup> The draft also included, for the first time, the creation of a technical committee—apparently Posner’s brainchild—to oversee the enforcement of the judgment. Microsoft, also concerned about the vagueness of some of the language in the draft, sought to “allay[] the government’s fears concerning interoperability”<sup>145</sup> by proposing to “reengineer Windows so that all protocols supported in it would be ‘plug replaceable’ through interfaces that were open.”<sup>146</sup>

In late March, Microsoft and the Justice Department sent new proposals for the terms of settlement. The primary differences lay in the

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139. *Id.* at 347.

140. AULETTA, *supra* note 51, at 348.

141. *Id.* at 349.

142. *Id.*

143. *Id.* at 351.

144. *Id.* at 351–52.

145. AULETTA, *supra* note 51, at 354.

146. *Id.*

measures to assure interoperability. The government's proposal would have required Microsoft to disclose "technical information and communications interfaces that Microsoft employs to enable . . . a Windows operating system and middleware distributed with such operating system installed on one personal computer to interoperate with . . . software installed on a different personal computer or on a server."<sup>147</sup> The government's definition of "technical information" encompassed anything a developer would need to make software running on any device interoperate with Windows.<sup>148</sup> In response, Microsoft submitted a new draft agreement, but, at that point, a group of state officials submitted a new list of "preliminary" demands that Posner considered unreasonable. Posner terminated the mediation.<sup>149</sup>

Shortly after the collapse of the settlement negotiations, Judge Jackson issued his conclusions of law. He held that Microsoft had monopolized the market for PC operating systems by its actions aimed at Netscape and had attempted to monopolize the market for browsers. In early May, the government submitted its proposal that Microsoft be broken up and subjected to a variety of conduct restrictions. Both the breakup proposal and the conduct restrictions reflected the government's concerns about interoperability. The memorandum in support of the proposed judgment argued that the findings showed Microsoft had withheld interfaces and technical information strategically to disadvantage competitive middleware.<sup>150</sup> In a critical passage, the memorandum suggested

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147. Mediator's Draft No. 18 of Settlement Stipulation and Proposed Consent Decree, *United States v. Microsoft Corp.*, No. 98-1232; *New York v. Microsoft Corp.*, No. 98-1233, available as Attachment B of ProComp, Comments to the Proposed Final Judgment in *United States v. Microsoft Corporation*, § 3(8), available at [http://www.usdoj.gov/atr/cases/ms\\_tuncom/major/mtc-00030608.pdf](http://www.usdoj.gov/atr/cases/ms_tuncom/major/mtc-00030608.pdf).

148. The draft defined technical information as:

all information, regarding the identification and means of using APIs (or communications interfaces), that competent software developers require to make their products running on a personal computer, server, or other device interoperate satisfactorily with Windows platform software running on a personal computer. Technical information includes reference implementations, communications protocols, file formats, data formats, data structure definitions and layouts, error codes, memory allocation and deallocation conversions, threading and synchronization conventions, algorithms for data translation or reformatting (including compression/decompression algorithms and encryption/decryption algorithms), registry settings, and field contents.

*Id.* § 2(11); see also AULETTA, *supra* note 51, at 358.

149. AULETTA, *supra* note 51, at 360.

150. Plaintiff's Memorandum in Support of Proposed Final Judgment, at 5, 20, *United States v. Microsoft*, Civ. No. 98-1232 (D.D.C. filed Apr. 28, 2000) ("Microsoft has withheld, threatened to withhold, and discriminated in the disclosure of the APIs, interfaces, and technical information required to enable ISVs, IHVs, and OEMs to make their products interoperate with Windows so that competitive middleware cannot connect to Windows in a timely way, or



that it would be insufficient simply to enjoin the same conduct held illegal in the case because Microsoft was likely to use the same conduct against new middleware threats, including ones that did not yet exist:

In crafting an effective Sherman Act remedy, a court must use the record of a backward-looking trial to fashion forward-looking relief. Looking forward, the Court must anticipate that Microsoft, unless restrained by appropriate equitable relief, likely will continue to perpetuate its monopoly by the same anti-competitive methods revealed at trial, although directed at whatever new competitive threat arises. Neither the Netscape browser nor Java continues to have the prospect of lowering the applications barrier to entry, and it is not certain where future threats to Microsoft's operating system will arise.<sup>151</sup>

Despite this uncertainty, the memorandum undertook to identify potential threats, one of which was middleware running on servers:

As computing continues to move off the desktop and into the Internet, middleware threats could develop on servers, in either server operating systems or server applications. Microsoft cannot defeat these threats by bundling its own version of such software into its PC operating systems, but it could use its operating system monopoly in other ways to crush any such middleware threats. For example, [Windows 2000] is designed with proprietary features and interfaces that enable Microsoft's server operating systems to interoperate with PCs more effectively than other server operating systems . . . . If Microsoft were in a competitive market, it would disclose its confidential interface information to other server software developers so that their complementary software would work optimally with, and thereby enhance the value of, Microsoft's PC operating systems. But, if faced with a middleware threat on the servers, Microsoft is likely to continue to withhold that information from competitors in order to protect its operating system monopoly . . . .<sup>152</sup>

Both the government's breakup proposal and some of the conduct remedies were designed to address this possibility. The vertical divestiture proposed by the government was puzzling at first glance. Unlike some divestiture proposals, vertical divestiture would have left Microsoft's monopoly in the market for PC operating systems intact. The

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at all, or so that use of such competitive middleware will be a 'jolting experience' to the user"), available at <http://www.usdoj.gov/atr/cases/f219100/219107.pdf>.

151. *Id.* at 27–28.

152. *Id.* at 29.

proposed divestiture was responsive, however, to the government's fears about interoperability. All of those concerns related to Microsoft's perceived incentives to leverage its Windows monopoly in ways that gave it advantages in downstream markets. If the Windows business were separated from the applications business, these concerns would recede because each of the separated firms would "seek to maximize its own profits and will have incentives to ensure that its products interoperate with operating systems and applications produced by others."<sup>153</sup>

In addition to the divestiture order, the government proposed conduct restrictions based on the drafts exchanged in the failed settlement negotiations. The key one for our purposes would have required Microsoft to disclose "all APIs, Technical Information and Communications Interfaces that Microsoft employs to enable" Microsoft software, including server operating systems, to interoperate with a Windows client PC operating system.<sup>154</sup> The provision would have required Microsoft to give computer manufacturers and software and hardware vendors access to Windows source code in order to achieve interoperability.<sup>155</sup> This provision, the government claimed, would have allowed ISVs "to compete on a level playing field" by giving them access to "information that Microsoft's own developers use" so they "will have a reasonable opportunity to make their software run as well with Windows as Microsoft's software does."<sup>156</sup> The government (naively, it turns out) added that "Microsoft already routinely documents and distributes technical information, so the provision will not place a significant burden upon it."<sup>157</sup>

Despite Microsoft's objections to the government's proposals, Judge Jackson entered the judgment unchanged, without further proceedings and essentially without explanation. The court of appeals, however, reversed the entire remedy because Judge Jackson had erred in failing either to conduct a hearing on the remedy or to explain how the remedy was necessary to restore competition.<sup>158</sup> The court also noted that because it had reversed the attempted monopolization and tying claims, it would be necessary for the district court, on remand, to determine whether the "equitable remedies were required to rectify a § 2 monopoly maintenance violation taken alone."<sup>159</sup> The court did not address the substance of Judge Jackson's remedy, except to suggest that divestiture was

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153. *Id.* at 36.

154. *D.D.C. Jackson Remedy 2000*, 97 F. Supp. 2d at 67.

155. *Id.*

156. Plaintiff's Memorandum in Support of Proposed Final Judgment, *supra* note 150, at 40.

157. *Id.* at 40–41.

158. *D.C. Cir. 2001*, 253 F.3d at 98.

159. *Id.* at 104.

inappropriate where the defendant is a “unitary company” and where the evidence fails to show “a sufficient causal connection”<sup>160</sup> between the defendant’s unlawful conduct and its dominant position.

### C. *The Remedial Proceedings after Remand*

Three months after the remand, on September 28, 2001, Judge Kollar-Kotelly ordered the parties to attempt to settle the case, imposing a deadline of October 12, 2001 for unmediated discussions, and another deadline of November 2, 2001 for any mediated discussions that might become necessary.<sup>161</sup> Invoking the terrorist attacks on the World Trade Center that had occurred just days before, she warned the parties that she expected them to “act in good faith and [to] engage in an all-out effort to settle these cases, meeting seven days a week and around the clock, acting reasonably to reach a fair resolution.”<sup>162</sup> Following these instructions, and with the assistance of two mediators,<sup>163</sup> the United States and nine of the states reached agreement on a proposed final judgment, which was filed November 6, 2001.<sup>164</sup> The California group of nonsettling states pursued their pending case, seeking more extensive relief.

The proposed consent decree was, with a few modifications, the same as the final judgments Judge Kollar-Kotelly would enter about a year later in both tracks of the litigation. She rejected the objections to the consent decree raised in the Tunney Act proceedings, and entered an essentially identical final judgment.<sup>165</sup> In the litigating states’ parallel proceeding, she rejected the states’ demands for much broader relief and approved Microsoft’s proposed relief based on the consent decree.<sup>166</sup> The final judgment in the states’ case differed from the consent decree almost exclusively in the method provided for enforcement. The provisions of the two final judgments that require disclosure of communications protocols differ only in the dates they took effect. Again, the

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160. *Id.* at 106.

161. Order, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Sept. 28, 2001), available at <http://www.dcd.uscourts.gov/opinions/misc/microsoft/98-1232gg.pdf>.

162. *Id.*

163. Eric D. Green & Jonathan B. Marks, Op-Ed, *Mediating Microsoft*, BOSTON GLOBE, Nov. 15, 2001, at A23, available at <http://www.resolutionsllc.com/documents/011114%20globe%20final%20cut.pdf>.

164. Stipulation and Revised Proposed Final Judgment, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. Nov. 6, 2001), available at <http://www.usdoj.gov/atr/cases/f9400/9495.pdf>.

165. The only change was in § VII, in which Judge Kollar-Kotelly insisted on retaining jurisdiction to modify the judgment on her own motion. *D.D.C. Tunney Act 2002*, 231 F. Supp. 2d at 202.

166. *New York v. Microsoft Corp.*, 209 F. Supp. 2d 132 (D.D.C. 2002).

court of appeals in 2004 affirmed the provision and rejected more extensive disclosure requirements.<sup>167</sup>

### 1. Rejecting Comprehensive Disclosure

The nonsettling states proposed that Microsoft be required to make a comprehensive disclosure of, among other things, all interfaces and technical information that any Microsoft program used to interoperate with any Microsoft platform software installed on any computing device.<sup>168</sup> Judge Kollar-Kotelly rejected this much broader disclosure requirement, observing that it “would require Microsoft to disclose vast amounts of its intellectual property across product lines unrelated to the relevant market in this case.”<sup>169</sup> She rejected the nonsettling states proposal that the licenses be made royalty-free, reasoning that any such requirement would represent an unjustified “forced divestiture of assets” and therefore a “structural remedy.”<sup>170</sup> She also rejected the nonsettling states’ proposed definition of “interoperate,” as “the ability of two products to effectively access, utilize, and/or support the full features and functionality of one another.”<sup>171</sup> Such a definition would have equated interoperability with interchangeability, and would have permitted, in effect, the cloning of Windows. Such a result would provide “a windfall for competitors,”<sup>172</sup> but would reduce the value of Microsoft’s intellectual property and undermine its incentive to innovate.<sup>173</sup>

The nonsettling states sought to justify comprehensive disclosure by pointing to both old and new “bad acts” in which Microsoft allegedly used incompatibilities to gain a competitive advantage.<sup>174</sup> For example, Judge Jackson found that Microsoft had withheld technical information that Netscape needed to run properly on Windows 95.<sup>175</sup> Judge Kollar-Kotelly held, however, that Judge Jackson’s findings of fact describing “bad acts” that were never held illegal, and never “weighed for competitive and anticompetitive effect[,] . . . cannot be utilized to justify specific remedial provisions.”<sup>176</sup> Harm to rivals is lawful unless it also harms the “competitive process,” and thus consumers.<sup>177</sup>

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167. *D.C. Circuit 2004 Remedy*, 373 F.3d at 1222–25.

168. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 226.

169. *Id.* at 227.

170. *Id.* at 236.

171. *Id.* at 227.

172. *Id.* at 229.

173. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 229–30.

174. *Id.* at 143.

175. *D.D.C. Findings 1999*, 84 F. Supp. 2d at 33–34.

176. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 138.

177. *Id.* at 139.

New bad acts that the plaintiffs alleged during the remedial phase were also irrelevant to the remedy unless related to the liability findings.<sup>178</sup> The plaintiffs offered testimony that Microsoft had impeded interoperation in network computing in order to gain a competitive advantage. The network services affected included authentication,<sup>179</sup> file and print sharing,<sup>180</sup> directory services,<sup>181</sup> databases,<sup>182</sup> messaging,<sup>183</sup> and communications between server and client computers.<sup>184</sup> Judge Kollar-Kotelly concluded that these new bad acts relating to interoperability

178. *Id.*

179. Kerberos is an open security protocol that authenticates users on a network. In implementing the protocol Microsoft added a proprietary extension that allowed a Kerberos "ticket" both to authenticate and authorize the user. "As a result, a non-Windows client inter-operating with a Microsoft server cannot make use of all of the same authorization services as a Microsoft Windows client interoperating with a Microsoft server," *id.* at 140, although a developer could still extend the open protocol for its own implementations. Microsoft had submitted information about its extension to a standards-setting body, but plaintiffs nevertheless complained that Microsoft's action "violated the 'spirit' of the open standard." *Id.* Microsoft responded, however, that it did not intend to impede interoperability by its proprietary extensions, but that sometimes it may indirectly do so, because of how it directs its resources in developing its products. *Id.* at 143.

180. Microsoft developed SMB, a proprietary protocol for file and print sharing, one subset of which, called CIFS, allowed secure file access over the Internet and local networks. Other developers reverse engineered these protocols to create SAMBA, an open-source clone implementation "that enables non-Microsoft servers to perform file and print sharing functions with Microsoft server and client operating systems," albeit imperfectly. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 140–41. The plaintiffs claimed Microsoft's actions impeded interoperability; Microsoft stated it would disclose the SMB and CIFS protocols under the consent decree.

181. Server operating systems must maintain a directory of information about components of the network. Client computers can interoperate with directories on different servers through LDAP, a standard protocol. Microsoft, however, developed ASDI, a proprietary extension of LDAP that allows Windows clients to interoperate with a variety of directories. Plaintiffs claimed that this action disadvantaged vendors of other server operating systems in interoperating with Windows Clients. Microsoft claimed that its protocol was disclosed on the Microsoft Developers Network. *Id.* at 141–42.

182. Microsoft's relational database application, SQL Server, relies on Microsoft's proprietary TDS protocol to communicate with Windows clients. It allows Office programs, for example, to access data on SQL server. Although TDS has been reverse-engineered, the plaintiffs' witness alleged that, without disclosure of TDS, Linux clients and servers are disadvantaged in a SQL server network. *Id.* at 142.

183. Microsoft developed the MAPI protocol, which has become the industry standard for server-based messaging. After MAPI was adopted, Microsoft added proprietary extensions that allow Microsoft servers to communicate with Microsoft Outlook clients in ways that non-Microsoft servers cannot. The plaintiffs' witnesses asserted that the proprietary extensions were designed to create incompatibility. Microsoft claimed they were innovations to make their products work better than others. *Id.*

184. Windows relies on MUP to regulate communications between clients and servers. When Microsoft revised MUP for one update of Windows NT in 1996, it slowed requests for information on Novell servers—a result that Novell contended was intentional and not remedied quickly enough. Microsoft denied this, and noted that the problem had been resolved. *Id.* at 142–43.

were only remotely connected to the liability holdings and therefore should play little if any role in shaping the remedy.<sup>185</sup> They were not linked to Microsoft's actions that led developers unwittingly to use a Windows-specific version of the Java technologies, because liability in that instance was limited to the deception itself. The court of appeals had specifically upheld Microsoft's development of an incompatible, but faster version of Java.<sup>186</sup> It followed that "a monopolist's decision to alter industry standards or implement a proprietary version of such standards in its own product or technology, without more," does not violate the antitrust laws.<sup>187</sup>

Similarly, the bad acts were not related to the holding that Microsoft had provided valuable technical information to software developers in return for their agreement to promote Internet Explorer and the Microsoft Java technologies exclusively. The court of appeals emphasized that providing technical information as an inducement was lawful. What was unlawful was the exaction of the agreement to develop Microsoft's products exclusively.<sup>188</sup> The new bad acts were somewhat more closely related to the old bad acts described in Judge Jackson's findings of fact, but that linkage was irrelevant because the old bad acts were not themselves illegal. Merely withholding "proprietary technical information unrelated to any exclusive deals" was not a continuation of conduct held illegal.<sup>189</sup>

## 2. Approving Limited Disclosure

Although Judge Kollar-Kotelly refused to order Microsoft to undertake the sort of comprehensive disclosure the nonsettling states demanded, she approved the consent decree's requirement of limited disclosure. This required the licensing of communications protocols implemented in Windows client operating systems to allow native interoperation with Microsoft server operating systems.<sup>190</sup> She also approved Microsoft's proposal for the same relief in the nonsettling states'

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185. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 144.

186. *Id.* at 144–45.

187. *Id.* at 145.

188. *Id.*

189. *Id.* at 146.

190. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 129; *Consent Decree*, *supra* note 1, § III.E. "Communications Protocol" was defined as "the set of rules for information exchange to accomplish predefined tasks between a Windows Operating System Product and a server operating system product connected via a network, including, but not limited to, a local area network, a wide area network or the Internet. These rules govern the format, semantics, timing, sequencing, and error control of messages exchanged over a network." *Id.* § VI.B. Thus, the "definition includes both the rules for information exchange and transmittal ('format, timing, sequencing and error control') as well as the meaning of the information contained within the protocol ('semantics')." *CIS Response*, *supra* note 92, ¶ 328.

proceeding. In doing so, she accepted the stated rationale for the provision, which was to preserve, in the network context, the middleware threat to the applications barrier to entry in the market for PC operating systems.<sup>191</sup> “Although this aspect of the remedy plainly exceeds the scope of liability it is appropriately forward-looking,” and thus in the public interest, because it is “closely connected with the theory of liability in this case and further[s] efforts to” prevent future monopolization.<sup>192</sup>

It accomplishes this goal by assuring that middleware on non-Microsoft servers can interoperate as well with Windows client computers as middleware on Microsoft servers.<sup>193</sup> Although servers and server-based applications do not reside on the PC, they nevertheless “have the capacity to function in a manner similar to that of traditional middleware by providing a layer between the operating system and the top-level applications.”<sup>194</sup> Moreover, “given the rapid pace of change in the software industry,” without this sort of relief, “it is quite possible that the core of the decree would prove prematurely obsolete.”<sup>195</sup> The provision preserves “the new model of the ‘platform threat’”<sup>196</sup> and “ensure[s] that the ‘untraveled roads’ toward illegal maintenance of a monopoly are not ‘left open.’”<sup>197</sup>

Judge Kollar-Kotelly rejected challenges to the limitations on the licensing requirement. First, she found that it would be inappropriate to extend the requirement to non-native communications between Windows and servers because, by definition, those communications use protocols that are added to Windows, and thus do not “involve[] capabilities of the monopoly product—the PC operating system,” which Microsoft’s anti-competitive conduct was aimed at protecting.<sup>198</sup> Thus, Microsoft should

191. According to the government, the “competitive significance” of rival middleware depended on data and applications on servers. The provision thus prevents Microsoft from adding features to Windows client operating systems that would allow it to interoperate “natively” with Microsoft server software, and yet deny to rivals the information about those features that would allow their servers and server-based software to have the same opportunities to interoperate with Windows. *CIS Response*, *supra* note 92, ¶¶ 313, 336, 460.

192. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 189–90.

193. *Id.* at 189–90.

194. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 129. For example, in the states’ proceeding, the vice president of Novell “predicted that [s]erver operating systems, if they are a platform for enough applications and if they function efficiently with non-Microsoft client PCs, could enable consumers to receive the applications they want using desktop PCs that run non-Microsoft operating systems.” *Id.* at 123 (quoting Testimony of Dr. Carl S. Ledbetter ¶ 50). Thus, server/network computing might “challenge the applications barrier to entry in a manner similar to that of Navigator and Java.” *Id.* at 123. This goal would be facilitated by disclosure of the interfaces Windows clients use to interoperate with servers. *Id.*

195. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 192.

196. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 129.

197. *Id.* at 130 (quoting *Int’l Salt Co. v. United States*, 332 U.S. 392, 400 (1947)).

198. *Id.* at 234–35.

not be required to disclose the proprietary protocols used by its Microsoft Office Outlook email client (which is added to Windows) and Microsoft Exchange Server.<sup>199</sup> Second, Judge Kollar-Kotelly found that requiring Microsoft to license its protocols without a reasonable royalty would be “unduly confiscatory”<sup>200</sup> and would inhibit innovation. Third, restrictions on licensing to preserve security were reasonable.<sup>201</sup> Finally, she found that the five-year time limit of the requirement,<sup>202</sup> although half the usual limit, was appropriate given the rapid pace of change in the industry. A ten-year term would create “a substantial risk that the decree will become highly regulatory in nature.”<sup>203</sup>

The area of greatest uncertainty left open by the provision was the extent of disclosure required. In defending the proposed decree during the Tunney Act proceedings, the Department of Justice asserted that the protocol licensing provision would ensure that software developers “will have full access to, and be able to use, the protocols that are necessary for software located on a server computer to interoperate with, and fully take advantage of, the functionality provided by” Windows client operating systems, including Microsoft middleware included in the operating system.<sup>204</sup> Moreover, because the protocols are to be licensed “for use” by rivals to interoperate with Windows, “the licensing necessarily must be accompanied by sufficient disclosure to allow licensees fully to utilize all the functionality of each” protocol.<sup>205</sup> A Windows client should interact “identically” and “seamless[ly]” with Microsoft servers and

199. *Id.* at 234. *D.C. Circuit 2004 Remedy*, 373 F.3d at 1224.

200. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 193.

201. Judge Kollar-Kotelly upheld this provision. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 193–95.

202. *Consent Decree*, *supra* note 1, § V.A.

203. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 195.

204. Competitive Impact Statement, United States v. Microsoft Corp., No. 98-1232 (D.D.C. Sept. 28, 2001), at 36, available at <http://www.usdoj.gov/atr/cases/f9500/9549.pdf>. The government explained its understanding of what Microsoft must disclose:

Microsoft must license for use by non-Microsoft server operating system products the Communications Protocols that Windows Operating System Products use to enable network services through mechanisms such as Windows server message block protocol/common Internet file system protocol communications, as well as Microsoft remote procedure calls between the client and server operating systems. Communications Protocols that permit a runtime environment (*e.g.*, a Java Virtual Machine and associated class libraries or competing functionality such as the Common Language Runtime) to receive and execute code from a server also will be required to be licensed for use by non-Microsoft servers if those protocols are implemented in a Windows Operating System Product.

*Id.* at 38–39.

205. *Id.* at 38.



non-Microsoft servers that have licensed the protocols.<sup>206</sup> Microsoft never explicitly endorsed this interpretation.

### 3. The Technical Committee

The key enforcement mechanism applicable to Section III.E under the consent decree is the Technical Committee (TC), a device originally conceived during the first unsuccessful round of negotiations. The Technical Committee, composed of independent and impartial<sup>207</sup> “experts in software design and programming,”<sup>208</sup> is supposed to “assist in enforcement of and compliance with” the decree<sup>209</sup> by “monitor[ing] Microsoft’s compliance.”<sup>210</sup> In doing so, it can receive and investigate complaints,<sup>211</sup> interview Microsoft’s staff and require them to produce information,<sup>212</sup> and study Microsoft’s source code,<sup>213</sup> subject to confidentiality requirements.<sup>214</sup> Microsoft must provide space for the committee and pay for all of its “reasonable” expenses, including salaries of any staff or consultants the committee hires.<sup>215</sup> The committee must report to the government semiannually<sup>216</sup> and whenever Microsoft fails to comply with the decree.<sup>217</sup>

The consent decree also requires Microsoft to appoint an internal Compliance Officer, who, although an employee of the company, is separately obligated to “help[] . . . ensure compliance” by receiving complaints, by informing Microsoft’s leaders of their obligations under the decree, and by obtaining from them signed certificates that they understand those obligations.<sup>218</sup> The decree spells out the steps both the TC and the Compliance Officer are to take to resolve the complaints each receives.<sup>219</sup> Despite these provisions, the responsibility to enforce the decree remains with the plaintiffs, who may conduct their own investiga-

206. *Id.*

207. The decree disqualifies individuals with ties to Microsoft or its opponents. *Consent Decree*, *supra* note 1, § IV.B.1. It provides that each side will select a member and those two will select the third, all to serve 5-year, renewable terms. *Id.* § IV.B.3–4.

208. *Id.* § IV.B.2.

209. *Id.* § IV.B.1.

210. *Id.* § IV.B.8.a.

211. *Consent Decree*, *supra* note 1, § IV.B.8.d.

212. *Id.* § IV.B.8.b.

213. *Id.* § IV.B.8.c. Unlike the final judgment proposed by Judge Jackson, the consent decree does not require the disclosure of Windows source code to third parties. Judge Kollar-Kotelly held that this provision allowed all of the access necessary to the legitimate concerns of the decree. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 193.

214. *Consent Decree*, *supra* note 1, § IV.B.8.g., 9–10.

215. *Id.* § IV.B.6–8.

216. *Id.* § IV.B.8.e.

217. *Id.* § IV.B.8.f.

218. *Id.* § IV.C.

219. *Consent Decree*, *supra* note 1, § IV.D.

tions and, on notice to Microsoft, apply to the court for an enforcement order.<sup>220</sup>

Judge Kollar-Kotelly emphasized that, although the TC is designed to be impartial, and to assure fair and nonadversarial resolution of disputes, it “exists to assist the government in enforcing the decree” and therefore “should not be viewed as a hindrance or a cause of delay.”<sup>221</sup> It was not an impediment to the TC’s role that its members will not have legal expertise because that remains the domain of the plaintiffs.<sup>222</sup> Although the committee’s “work product, findings or recommendations” are not to be used directly in legal proceedings,<sup>223</sup> the plaintiffs may rely on the TC’s work to obtain their own evidence.<sup>224</sup>

Despite her endorsement of the TC under the consent decree, Judge Kollar-Kotelly did not require the plaintiffs in the nonsettling states’ proceeding to use it. Because the TC “exists largely to assist Plaintiffs in enforcing the provisions of the final judgment,”<sup>225</sup> it was up to the plaintiffs to decide whether to accept that assistance. Instead, the nonsettling states have hired a consultant to assist with the technical aspects of their obligations under the decree. Judge Kollar-Kotelly also approved the states’ proposal for a separate, somewhat more independent internal compliance officer at Microsoft.<sup>226</sup> Despite these differences, the plaintiffs in both final judgments have coordinated their enforcement efforts,<sup>227</sup> and there have been no public disagreements among them about the enforcement process.

#### D. *The European Commission Proceedings*

The European Commission’s antitrust investigation of Microsoft has focused on streaming media players and on the interoperability of “low-end,” or work group, server operating systems with Windows PCs. After rejecting Microsoft’s settlement proposals in 2004, the EC decided that Microsoft had abused its dominant position in violation of Article 82 of the EC Treaty, the European counterpart of section 2 of the Sherman Act, by tying the Windows Media Player to Windows and by refusing to disclose technical information in circumstances that hindered the interoperation of Windows PCs and Microsoft servers with rivals’ work

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220. *Id.* § IV.A.

221. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 199.

222. *Id.*

223. *Consent Decree*, *supra* note 1, § IV.D.4.d.

224. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d at 199–200.

225. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d at 182.

226. *Id.* at 182–83.

227. Joint Status Report on Coordinating Enforcement of the Final Judgments, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Apr. 17, 2003) [hereinafter *JSR April 2003*] available at <http://www.usdoj.gov/atr/cases/f200900/200953.pdf>.

group servers.<sup>228</sup> It fined Microsoft almost €500 million and issued two remedial orders.

First, the EC ordered Microsoft to “offer a version of Windows for client PCs which does not include the Windows Media Player.”<sup>229</sup> Microsoft complied with this order by developing “Windows XP N,” which it released in June 2005 to the complete indifference of computer manufacturers and consumers. We will have little to say about this part of the EC decision, other than to note that it suggests that government agencies have a limited ability to identify market needs.

The EC’s second order required Microsoft to disclose to its rivals, on reasonable and nondiscriminatory terms, “complete and accurate specifications for the protocols used by Windows work group servers in order to provide file, print, and group and user administration services to Windows work group networks.”<sup>230</sup> The agency defined the relevant markets as client PC operating systems, in which Microsoft is undoubtedly dominant, and “work group server operating systems,”<sup>231</sup> a segment in which Microsoft has more than a sixty percent share.<sup>232</sup> The EC found that Microsoft had abused this “dominant position,”<sup>233</sup> by refusing Sun Microsystems’ request that it disclose specifications that would help Sun’s Solaris server operating system interoperate with Windows client PCs and Windows servers in work group networks.<sup>234</sup> Although the EC acknowledged that a unilateral refusal to deal is abusive only in “exceptional circumstances,”<sup>235</sup> it ordered disclosure based on its finding that Microsoft’s refusal put its rivals in the work group server operating system market “at a strong competitive disadvantage . . . to an extent where there is a risk of elimination of competition.”<sup>236</sup> The agency rejected Microsoft’s argument that the American licensing program would meet any legitimate need of its rivals because the program was not specifically aimed at work group server operating systems<sup>237</sup> and did not require disclosure of server-to-server protocols.<sup>238</sup> The Commission limited its order by assuring Microsoft that it need not reveal its source code or its own

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228. Commission Decision of 24 March 2004 Relating to a Proceeding under Article 82 of the EC Treaty (Case COMP/C-3/37.792 Microsoft) [hereinafter *EC Decision*], available at <http://europa.eu.int/comm/competition/antitrust/cases/decisions/37792/en.pdf>.

229. *Id.* ¶ 1011.

230. *Id.* ¶ 999.

231. *Id.* ¶ 347.

232. *Id.* ¶ 491.

233. *EC Decision*, *supra* note 228, ¶ 541.

234. *Id.* ¶¶ 185–86.

235. *Id.* ¶ 550.

236. *Id.* ¶ 589.

237. *Id.* ¶ 276.

238. *EC Decision*, *supra* note 228, ¶¶ 277–78.

implementation of the specifications,<sup>239</sup> and that it would be entitled to reasonable compensation for turning over its intellectual property.<sup>240</sup>

In response to the EC decision, Microsoft has created its Work Group Server Protocol Program, which licenses protocols “for more than 20 work group server services . . . tasks and scenarios.”<sup>241</sup> Nevertheless, Microsoft has appealed the Commission decision to the European Court of First Instance.<sup>242</sup> In the meantime, the EC has aggressively enforced its decision. In November 2005, the EC decided that Microsoft had produced inadequate technical documentation at unreasonable prices and tentatively imposed a new penalty of €2 million per day unless Microsoft complied by December 2005.<sup>243</sup> In July 2006, the EC “definitively” imposed a fine of €280.5 million for failure to provide adequate technical documentation, and increased the fine to €3 million per day after that.<sup>244</sup> In March 2007, the EC “warned” Microsoft that its license fees were unreasonable because their protocols “lack[ed] significant innovation” and threatened further penalties.<sup>245</sup>

The EC’s analysis of a monopolist’s obligation to deal with its rivals has been criticized as an application of European competition law,<sup>246</sup> and

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239. *Id.* ¶ 569. Microsoft, however, has revealed its server source code in an effort to meet the demands of the EC for adequate documentation of the covered protocols. Press Release, *Microsoft Goes Beyond EU Decision by Offering Windows Source Code*, (Jan. 25, 2006), available at <http://www.microsoft.com/presspass/press/2006/jan06/01-25EUSourceCodePR.mspx>.

240. *EC Decision*, *supra* note 228, ¶¶ 1005–09.

241. See Microsoft Work Group Server Protocol Program (WSPP), <http://www.microsoft.com/about/legal/intellectualproperty/protocols/wspp/wspp.mspx> (last visited Oct. 5, 2007).

242. The court refused interim relief on the ground that Microsoft will not suffer irreparable harm before a final decision, because Microsoft has already licensed many of the protocols. Case T-201/04, *Microsoft Corp v Comm’n of the European Communities*, 2004 WL 2951977, 4 C.M.L.R. 5 (2005) (Ct. of First Instance Dec 22, 2004). The oral argument in the appeal occurred in April 2006, but a decision is not expected until late 2007.

243. Commission Decision of 11 October 2005 Imposing a Periodic Penalty Payment Pursuant to Article 24(1) of Regulation No 1/2003 on Microsoft Corporation (Case COMP/C-3/37.792 Microsoft), available at [http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/art24\\_1\\_decision.pdf](http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/art24_1_decision.pdf).

244. Commission Decision of 12 July 2006 Fixing the Definitive Amount of the Periodic Penalty Payment Imposed on Microsoft Corporation by Decision C(2005)4420 Final and Amending that Decision as Regards the Amount of the Periodic Penalty Payment (Case COMP/C-3/37.792 Microsoft), available at [http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/art24\\_2\\_decision.pdf](http://ec.europa.eu/comm/competition/antitrust/cases/decisions/37792/art24_2_decision.pdf).

245. EC Press Release, *Competition: Commission warns Microsoft of further penalties over unreasonable pricing as interoperability information lacks significant innovation* (Mar. 1, 2007), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/269&format=HTML&aged=0&language=EN&guiLanguage=en>.

246. Katarzyna A. Czapracka, *Where Antitrust Ends and IP Begins—On the Roots of the Transatlantic Clashes*, 9 YALE J.L. & TECH. 44 (2007); Roberto Pardolesi & Andrea Renda, *The European Commission’s Case against Microsoft: Kill Bill?*, 27 WORLD COMPETITION 513 (2004).

is inconsistent with U.S. antitrust law.<sup>247</sup> Nevertheless, the enforcement of the EC decision has influenced the enforcement of the protocol licensing requirement under the U.S. final judgments. We note this influence in the next part and briefly consider its propriety in Part V.

#### IV. THE PROTOCOL PROGRAM

In response to the protocol licensing requirement of the final judgments, Microsoft created the Microsoft Communications Protocol Program (MCP).<sup>248</sup> The MCP is an access-controlled extension of the documentation Microsoft provides online under the Microsoft Developer's Network<sup>249</sup> and is similar to MSDN documentation in design, format, and usage. The MCP consists of *technical documentation* of the covered protocols and a *license* to use the protocols on specified terms. The technical documentation, currently available in a DRM<sup>250</sup>-protected PDF format,<sup>251</sup> is the tangible deliverable required by the final judgment. As we saw in Part III, Microsoft must disclose the protocols that Windows clients use to interoperate natively with Microsoft servers, so that rival middleware vendors can compete with Microsoft middleware that resides on servers. The scope and quality of this documentation has been the most important focus of the enforcement and compliance efforts.

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247. *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004); see, e.g., Eleanor M. Fox, *Monopolization, Abuse of Dominance, and the Indeterminacy of Economics: The U.S./E.U. Divide*, 2006 UTAH L. REV. 725, 730–32. Fox summarizes *Trinko*:

In elaborating on the bases for the freedom-to-not-deal principle, the Court stressed that duties to deal are duties to assist rivals, and duties to assist rivals usually harm competition and innovation. Firms will tend to invest less in property that they must share with rivals. Moreover, as for Section 2 duties in general, it is hard to distinguish illicit exclusion from legitimate competition, and “[m]istaken inferences and the resulting false condemnations ‘are especially costly, because they chill the very conduct the antitrust laws are designed to protect.’” Even apart from false positives, the detailed supervision that a sharing obligation requires may be “‘beyond the practical ability of a judicial tribunal to control.’”

*Id.* at 731 (citations omitted); see also John E. Lopatka & William H. Page, *Bargaining and Monopolization: In Search of the “Boundary of Section 2 Liability” between Aspen and Trinko*, 73 ANTITRUST L.J. 115 (2005).

248. See Microsoft Communication Protocol Program (MCP), <http://www.microsoft.com/about/legal/intellectualproperty/protocols/mcpp.msp> (last visited Oct. 16, 2007).

249. The Microsoft Developer's Network, or MSDN. See generally Microsoft Developer Network, <http://msdn.microsoft.com> (last visited Oct. 16, 2007).

250. “Digital rights management” is a technology providing encryption services to ensure that non-licensees do not gain access to the technical documentation.

251. The TC required Microsoft to provide the documentation in Adobe's PDF format, not Microsoft's own proprietary format.

The MCPP license specifies the terms under which developers may have access to the technical documentation. The final judgments allow Microsoft to license the protocols “on reasonable and non-discriminatory terms,”<sup>252</sup> which include limitations designed to protect Microsoft’s interest in the security and value of its intellectual property. Pursuant to the order, Microsoft may charge reasonable royalties;<sup>253</sup> limit the scope of the license to what is necessary to satisfy the final judgment;<sup>254</sup> prevent licensees from assigning or sublicensing the licenses;<sup>255</sup> withhold information necessary to protect security features;<sup>256</sup> and require licensees to have a valid business purpose.<sup>257</sup> The court must determine the reasonableness and nondiscriminatory character of the terms of the agreement, including the price. Like the technical documentation, the license has been a major focus of the remedy, and has continued to evolve throughout the development period in response to feedback and criticism by the plaintiffs and the licensees.

For clarity, we have divided the MCPP development period into four stages: the *initial responses* began with the issuance of the proposed final judgment in November 2001;<sup>258</sup> *recruitment* began with the issuance of the first Joint Status Report in April 2003;<sup>259</sup> *commercialization* began around the time of the European Commission’s final decision;<sup>260</sup> and *re-set* began in the spring of 2006.

### A. Initial Responses

The proposed final judgment, entered in November 2001, required Microsoft to make the Section III.E disclosures within nine months. At this early stage, however, Section III.E was not viewed as the most challenging of the final judgment’s requirements.<sup>261</sup> To meet the deadline, ten

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252. *Consent Decree*, *supra* note 1, § III.E.

253. *Id.* § III.I.

254. *Id.*

255. *Id.*

256. *Id.* § III.J.

257. *Consent Decree*, *supra* note 1, § III.J.

258. Stipulation and Revised Proposed Final Judgment, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. submitted Nov. 6, 2001), available at <http://www.usdoj.gov/atr/cases/f9400/9495.pdf>.

259. *JSR April 2003*, *supra* note 227.

260. *See supra* Part III.D.

261. In the July 3, 2003 status report, Section III.E is but one of many remedies in the government’s report to satisfy the other “forward-looking” portions of the Proposed Final Judgment. For example, in that report, Microsoft announced publication (in the MSDN) of “approximately” 290 new Windows API’s intended to satisfy Section III.D. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 22, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Jul. 17, 2003) [hereinafter *JSR July 2003*], available at <http://www.usdoj.gov/atr/cases/f201100/201135.pdf>. Later reports focus almost exclusively on Section III.E.

of Microsoft's technical writers created over 5000 pages of documentation, which Microsoft gave to the Technical Committee on August 6, 2002, along with the first version of the MCPP license.<sup>262</sup> In the months that followed, the government conducted a "careful and thorough" review of the MCPP license terms, interviewed Microsoft personnel and "various parties likely to be interested in the licenses," and reviewed outstanding complaints about Microsoft's compliance with the requirements of Section III.E.<sup>263</sup> In the July 2003 status report, the government expressed concerns about the reasonableness of the terms of the MCPP license, but not about the content of the disclosures.<sup>264</sup>

### B. Recruitment

By July 2003, almost one year after the initial release of the documentation, only four companies had agreed to become MCPP licensees.<sup>265</sup> This low count troubled Judge Kollar-Kotelly, who stressed she wanted to see more positive market effect.<sup>266</sup> Although Microsoft questioned the use of the number of licensees as the appropriate success standard,<sup>267</sup> it joined the government in an effort to attract new licensees. To ensure that the MCPP terms were "reasonable and non-discriminatory,"<sup>268</sup> the government asked Microsoft to make nine significant changes to the MCPP license and to change its royalty structure.<sup>269</sup> Microsoft also undertook a substantial marketing effort to promote the license. By January 2004, Microsoft had promoted the licenses on-line, at trade shows, in direct sales activities, and in full-page advertisements

262. *Id.*

263. Microsoft Consent Decree Compliance Advisory—April 21, 2003, <http://www.usdoj.gov/atr/cases/f200900/200957.pdf>. The complaints referred to are not enumerated or identified in the public documents.

264. *JSR July 2003*, *supra* note 261, at 8–9.

265. *Id.* at 22–23.

266. "Plaintiffs informed the Court . . . that Plaintiffs hoped to see progress in terms of additional licensees. The Court agreed, noting that it 'was very, very concerned' about how Section III.E. had been working and wanted to observe the impact of Microsoft's revised license in the marketplace." Interim Joint Status Report on Microsoft's Compliance with the Final Judgments at 3–4 (citing Transcript of Jul. 24, 2003 status meeting), *United States v. Microsoft Corp.*, Civ. No. 98-1232 (CKK) (D.D.C. filed Oct. 17, 2003) [hereinafter *IJSR October 2003*], available at <http://www.usdoj.gov/atr/cases/f201300/201386.pdf>.

267. *Id.* at 15 ("The fact that a larger number of third parties have not licensed Microsoft's communications protocols . . . does not evidence either non-compliance by Microsoft or a failure of the final judgments to achieve their purpose.").

268. *JSR July 2003*, *supra* note 261, at 9 ("Plaintiffs are most concerned with Microsoft's implementation of the requirement of Section III.E that it license certain Communications Protocols on reasonable and non-discriminatory ("RAND") terms.").

269. *Id.* at 8. Among the changes were: Microsoft agreed to remove a non-disclosure agreement that potential licensees had been required to sign, and to reduce the cost of royalties due to Microsoft for license of the Communications Protocols.

in major newspapers.<sup>270</sup> It also announced plans to simplify its licenses and to make many of the protocols available on a royalty-free basis.<sup>271</sup> By April 2004, the number of licensees had increased to fourteen, including “general server licenses” for Sun Microsystems and SCO Group.<sup>272</sup>

During this period, the DOJ surveyed technology companies that had turned down license offers. Some responded that one of the license terms was objectionable—the royalty was too high, or they needed source code as well as the specification, or there were too many legal restrictions on using the protocols. Others responded that they did not need the protocols for their development programs. Still others responded that they lacked staff with the technical expertise sufficient to implement the protocols or to understand the legal requirements of the license.<sup>273</sup> The January 2004 report cited a complaint “regarding the *sufficiency and completeness* of the technical documentation that Microsoft provides to MCPP licensees.”<sup>274</sup> The government apparently concluded from its investigation that the license and the technical documentation were not accessible enough to be commercially successful.<sup>275</sup>

### C. Commercialization

The third major period began in early 2004 and lasted over two years. The slow rate of adoption by licensees continued to create pressure for Microsoft to expand the benefits of the MCPP license. Microsoft made many of the standard or published protocols available online under a “royalty-free” license, relaxed the terms of the license and extended its

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270. Microsoft’s “evangelization” of the protocol licenses involved “full-page advertisements in both the *Wall Street Journal* and the *San Jose Mercury News*,” “banner advertisements on nineteen leading technology-focused Internet Web sites, including a number of Web sites targeting developers for non-Microsoft platforms such as Java and Linux;” “direct mail and newsletters to the software developer community;” individual contacts; and “outreach meetings with potential licensees at trade shows.” In addition, “Microsoft contacted each of more than 100 entities that had previously been approached about the original MCPP to describe the benefits of the revised MCPP and communicate its willingness to negotiate flexible terms.” *IJSR October 2003*, *supra* note 266, at 10–11.

271. Joint Status Report on Microsoft’s Compliance with the Final Judgments, at 15, *United States v. Microsoft Corp.*, Civ. No. 98-1232 (CKK) (D.D.C. filed Jan. 16, 2004) [hereinafter *JSR January 2004*], available at <http://www.usdoj.gov/atr/cases/f202100/202129.pdf>.

272. Joint Status Report on Microsoft’s Compliance with the Final Judgments, at 4, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Apr. 14, 2004) [hereinafter *JSR April 2004*], available at <http://www.usdoj.gov/atr/cases/f203200/203264.pdf>. By this time, in an effort to increase the licensee adoption rate, Microsoft had set royalty rates based on the functional tasks of products using the license. In the January 2004 Status Report, the breakdown of eleven licenses was: one general server, six media streaming, two file server, two terminal services, one certificate services. *JSR January 2004*, *supra* note 271, at 5. The “general server” license is the original MCPP license allowing use of all MCPP protocols.

273. *JSR January 2004*, *supra* note 271, at 7 (report on survey of rejecting companies).

274. *Id.* at 8–10.

275. *JSR April 2004*, *supra* note 272, at 4.



duration, and provided each licensee with a full-time dedicated account manager.<sup>276</sup> In November 2005, Microsoft added a 500-hour “premier” technical support and consulting package for each licensee.<sup>277</sup> The retail value of this package by itself exceeded what Microsoft first asked for a license deposit.<sup>278</sup> Most significant, Microsoft made its source code available. Under the final judgments, only the Technical Committee was authorized to examine the Windows source code<sup>279</sup> and consult Microsoft engineers. Nevertheless, Microsoft modified the license in February 2006 to allow licensees access to Windows source code and committed to provide individualized training in how to use it.<sup>280</sup>

In July 2004, the Technical Committee reported the creation of a forty-page written “standard” against which it would measure the documentation’s technical adequacy.<sup>281</sup> To meet the standard, it was no longer sufficient for Microsoft to disclose documentation and make it available

276. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 4–5, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Jul. 9, 2004) [hereinafter *JSR July 2004*], available at <http://www.usdoj.gov/atr/cases/f204500/204560.pdf>.

277. Supplemental Joint Status Report on Microsoft’s Compliance with the Final Judgments at 10, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Nov. 18, 2005) [hereinafter *SJSR November 2005*], available at <http://www.usdoj.gov/atr/cases/f213100/213109.pdf>.

278. Premier technical support packages available to consumers from Microsoft include a dedicated account representative, access to “real” engineers, and 24/7 support. Very conservatively, at \$125/hour, a 500-hour package of consulting alone would be worth \$62,500. See Microsoft Premier Support, [http://www.microsoft.com/services/microsoftservices/srv\\_prem.msp](http://www.microsoft.com/services/microsoftservices/srv_prem.msp) (last visited Oct. 16, 2007). Contrast this value with the \$50,000 originally required for a licensee to enter the MCPPE project as a deposit against future royalties.

279. Microsoft was ordered to make the source code available to the Technical Committee from the outset. See *supra* Part III.C.3.

280. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 4, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Feb. 8, 2006) (“Plaintiffs’ initial assessment is that the source code will, in combination with the technical documentation and technical support provided by Microsoft, assist MCPPE licensees in implementing the MCPPE protocols by answering questions that licensees may have based on review of the relevant technical documentation.”) [hereinafter *JSR February 2006*], available at <http://www.usdoj.gov/atr/cases/f214500/214518.pdf>. This substantial concession by Microsoft occurred two weeks after the government released a public “Response” in which it demanded that Microsoft “dramatically increase the resources devoted to responding to technical documentation issues in order to get its performance under the [guidelines for acceptable response] back on track.” Plaintiffs’ Response to Microsoft’s Supplemental Status Report on Microsoft’s Compliance with the Final Judgments at 2–3, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Jan. 23, 2006) [hereinafter *Plaintiffs’ Response January 2006*], available at <http://www.usdoj.gov/atr/cases/f214200/214204.pdf>.

281. *JSR July 2004*, *supra* note 276, at 11 (“Microsoft has created a detailed set of specifications for these enhancements and has devoted a substantial team of employees to implementing them in the technical documentation.”); see also Joint Status Report on Microsoft’s Compliance with the Final Judgments at 4, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Oct. 8, 2004) (“[A] 40-page specification for technical document improvements . . . was created in consultation with the Technical Committee.”) [hereinafter *JSR October 2004*], available at <http://www.usdoj.gov/atr/cases/f205700/205751.pdf>.

on reasonable and non-discriminatory terms. Microsoft was now required to show licensees how to use the protocols. Perhaps the most surprising requirement of the new standards was the formation of substantial ancillary software development projects by both Microsoft and the Technical Committee. The Technical Committee hired software and network engineers who began to field test the protocols by creating small, stand-alone programs called “prototype implementations,”<sup>282</sup> each intended to prove out a particular protocol as described in the documentation. The theory of this undertaking was that if the documentation were adequate, then the Technical Committee’s engineers should have no difficulty writing implementations. Under this program, the TC reported problems they encountered in implementing the protocols, and asked Microsoft to resolve them within seven, seventeen, or thirty-two days, depending upon the importance of the issue.<sup>283</sup> Although the Technical Committee expressed growing dissatisfaction with the documentation, it regularly expressed satisfaction with Microsoft’s cooperation.<sup>284</sup>

To measure Microsoft’s progress, the TC tallied the number of technical “bug reports” in its implementation program and the number Microsoft had managed to resolve. The reporting during this period is replete with charts comparing these numbers. In February 2006, the Technical Committee reported that it had submitted “over 1,000 issues to Microsoft,”<sup>285</sup> but Microsoft had resolved only 300. Notice that “bug,” in this context, is not a defect in the protocols themselves, which presumably work for Microsoft’s software, but an ambiguity or error in the explanations of how to implement the protocols in new software.<sup>286</sup>

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282. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 3–4, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Jan. 25, 2005) (“[T]he TC . . . will oversee a one-year project to create prototype implementations of each [protocol] covered by the MCPP. . . . The goal of this project is not to create reference implementations or commercial-quality software. The resulting prototype implementations have no independent value.”) [hereinafter *JSR January 2005*], available at <http://www.usdoj.gov/atr/cases/f207200/207283.pdf>.

283. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 4, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Oct. 19, 2005) [hereinafter *JSR October 2005*], available at <http://www.usdoj.gov/atr/cases/f212100/212195.pdf>.

284. *JSR July 2004*, *supra* note 276, at 5 (“Plaintiffs are satisfied that Microsoft has implemented the commitments made during the last Status Conference.”).

285. *JSR February 2006*, *supra* note 280, at 8.

286. In the reports, the Technical Committee refers to bug reports as CARs, or “corrective assistance requests,” and later as “TDI’s.” For example, a report might be as simple as a spelling or grammatical error, or there might be a technical inaccuracy. Apparently, each time that the Technical Committee’s engineers discovered what they believed to be any variance between what the published MCPP documentation should describe and what appeared on the network, a bug report was filed. Also, whenever the engineers had difficulty completing a task (e.g. finding some necessary information), it appears a bug report was also filed. Microsoft’s answers in the status reports suggest that it considered some proportion of these bug reports to be based on a lack of engineering skill in interpreting the documentation rather than explicit

Microsoft initially gave the count of applicable protocols as around one hundred,<sup>287</sup> and later discovered around thirty more.<sup>288</sup> It might appear surprising that such a small number of protocols would require so much documentation and so many person-hours of testing. The complexity stems from the definition of the appropriate documentation and the means used for testing it. The Technical Committee has required documentation and related services that approximate a step-by-step tutorial—far beyond a minimal technical disclosure. This interpretation seems to stem from the government’s interpretation that Section III.E requires disclosure “sufficient. . . to allow licensees fully to utilize all the functionality of each Communications Protocol.”<sup>289</sup> Moreover, the TC has tested the documentation by actually using it—an approach that can generate a large number of issues, including the proper sequencing of multiple protocols “on the wire,” interactions between protocols, error codes which may arise and troubleshooting of problems. It is unclear whether the “bugs” generated in this process were a true measure of the quality of the MCPP. Microsoft suggested in late 2005 that it was “unaware of any existing or potential licensee that has been unable to use any Communications Protocol because of flaws in the documentation.”<sup>290</sup>

Microsoft, for its part, agreed to develop a set of “protocol parsers” for use by the Technical Committee (and presumably, by licensees) for troubleshooting its prototype implementations. A “parser” translates a block of text or code like a protocol into a human-readable format. A protocol might be analogized, in this context, to the numbers a taxpayer enters on a complex tax return. If the numbers were distributed on an otherwise blank sheet, a computer could interpret them, but they would make no sense to a human being. If, however, one were to place a transparency of the printed form over the sheet so that the numbers corresponded to the appropriate boxes, a human could understand the return. A parser, like the transparency, is a kind of form that reveals the human-readable format of each communications protocol. Because each

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errors. Because the early corrections focused largely on improving the accessibility and usability of the documentation, it seems Microsoft initially believed that the Technical Committee’s reviewers needed only better access to the documentation rather than any substantive changes. *JSR October 2004*, *supra* note 281, at 10–11 (reporting delivery of the documentation in a new format featuring improved search and navigation and more diagrams, in addition to new technical content).

287. *JSR July 2003*, *supra* note 261, at 22.

288. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 11, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed Mar. 6, 2007) [hereinafter *JSR March 2007*], available at <http://www.usdoj.gov/atr/cases/f221700/221759.pdf>.

289. Competitive Impact Statement at 36, *United States v. Microsoft Corp.*, No. 98-1232 (filed Nov. 15, 2001), available at <http://www.usdoj.gov/atr/cases/f9500/9549.pdf>. The final judgments require Microsoft to make the protocols available “for use” in interoperation.

290. *JSR October 2004*, *supra* note 281, at 14–15.

protocol is different, a different parser must be written for each one. The basic idea is to provide a quick way for an engineer to “see” what is inside the protocol by identifying and labeling the individual parts of the data inside the protocol. For these reasons, parsers are useful for debugging and troubleshooting complex network protocols.<sup>291</sup>

Microsoft’s parser development was initially conceived as an extension of its NetMON product to include the additional MCPP Protocols. NetMON, short for “network monitor,” is an existing Microsoft tool, available for free to developers. It parses network traffic and shows some network protocols. NetMON is a low-end member of a category of network “packet sniffers” or “monitors,” including free, open-source, and commercial variants.<sup>292</sup> It attaches to a network, captures a stream of network traffic by saving the protocols to a disk as they come across the wire. Then it allows the user to select individually identified protocols and view them through a parser.

In January 2005, Microsoft was supposed to release a parser for each protocol as each parser was completed. The Technical Committee’s engineers would use each newly released parser to help write a prototype implementation that would prove the sufficiency of the documentation for that protocol.<sup>293</sup> The Technical Committee recognized at the time that the project was of a “substantial scope,” and was thought to require “approximately” another full year to complete.<sup>294</sup> This approach contemplated an iterative process in which Microsoft and the Technical Committee would refine the documentation in a series of progressive approximations until the TC determined that it was suitable for use by a licensee.<sup>295</sup> The parser templates developed by Microsoft for use by the Technical Committee would be available for use by licensees as well.

At some point between January and June 2005, Microsoft and the Technical Committee decided to expand the scope of the parser development project beyond just creating additional parsers for the MCPP

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291. For more information about computer parsers, see Parsing, Wikipedia.com, <http://en.wikipedia.org/wiki/Parsing> (last visited Oct. 16, 2007). See also “Network Monitor Parser,” Microsoft MSDN, <http://msdn2.microsoft.com/en-us/library/ms709219.aspx> (last visited Oct. 16, 2007).

292. Compare NetMON with Wireshark, a popular open-source network sniffer. See Wireshark Home Page, <http://www.wireshark.org> (last visited Oct. 16, 2007).

293. *JSR January 2005*, *supra* note 282, at 5 (“The two projects will therefore proceed on parallel tracks. Plaintiffs and Microsoft believe that the two projects, combined, provide a realistic mechanism to ensure the overall completeness and accuracy of the documentation.”).

294. *Id.*

295. *Id.* (“Accordingly, the documentation available to licensees will improve in quality and accuracy throughout the course of the project work.”).

protocols.<sup>296</sup> “Troika” was the code name for the expanded (and, it turned out, overly ambitious) requirements for the NetMON project. Troika embraced three formidable objectives: the addition of the MCPP parsers; real-time identification and parsing of protocols against “actual client-server network traffic,” as opposed to working from captured data in files; and an interface with the MCPP to provide instant and automatic verification of each disclosed protocol against the documentation.<sup>297</sup> This tool would have helped the Technical Committee prove that the documentation was accurate as compared to “real” protocols. By late 2005, however, it became obvious that the January projection of a year to complete the project had been too optimistic,<sup>298</sup> and that, in a “best case” scenario, Troika would be completed in October 2006.<sup>299</sup> However, the plaintiffs had “little confidence that . . . this project [would] result in substantial improvements to the technical documentation in a timely manner.”<sup>300</sup> Despite an enormous effort featuring scores of programmers, the Troika project’s scope and its relationship to the TC’s prototype implementation work were scaled back and the time limits extended.<sup>301</sup> By August 2006 Microsoft announced that NetMON was “complete,” apparently without the Troika features.<sup>302</sup>

These efforts led to substantial increases in staffing for both Microsoft and the Technical Committee. The status reports during this period included regular exhortations by the government for Microsoft to add more resources to the project and reports by both parties on the numbers of staff acquired. By May 2006, Microsoft reported having “more than 210 Microsoft employees and contingent staff . . . involved in work on

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296. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 3, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. filed June 1, 2005) [hereinafter *JSR June 2005*], available at <http://www.usdoj.gov/atr/cases/f209300/209307.pdf>.

297. *JSR October 2005*, *supra* note 283, at 6–7.

298. *SJSR November 2005*, *supra* note 277, at 3 (observing that “the project proved much more technically complex than Microsoft had anticipated and required much more time to complete than Microsoft had estimated at the outset” because of “technical challenges,” including “developing this complex and unique set of parsers for dual purposes, the volume of the test data (tens of terabytes), and dependencies between the parser development project and the validation tool”).

299. *JSR October 2005*, *supra* note 283, at 7.

300. *Id.*

301. *SJSR November 2005*, *supra* note 277, at 4–8.

302. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 16, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Aug. 30, 2006) [hereinafter *JSR August 2006*], available at <http://www.usdoj.gov/atr/cases/f218000/218096.pdf>. Even though the Troika objectives were ultimately discarded, the NetMON 3.0 version offers many feature improvements over the prior 2.1 version, although it is not clear how the new features have much in relation to the Section III.E requirements.

the technical documentation.<sup>303</sup> This constituted a twenty-fold increase over the number of staff Microsoft reported having used in 2002 to complete the first MCPP documentation.<sup>304</sup> For its part, the Technical Committee's staff increased ten-fold from four at the outset of the project<sup>305</sup> to forty by August 2006.<sup>306</sup> For both organizations, the employees added were predominantly experienced senior engineers, senior technical writers, and management staff.

In October 2005, the plaintiffs reported they were "pleased with both the progress made by the TC and Microsoft's cooperation in the project"<sup>307</sup> and predicted completion by August 2006.<sup>308</sup> Just three months later, however, the government publicly criticized Microsoft's commitment in a unique "Plaintiff's Response."<sup>309</sup> In February 2006, Microsoft offered licensees the Windows source code license, perhaps in an attempt to ameliorate deteriorating conditions.<sup>310</sup> By May 2006, however, the Joint Status Report concluded that the project was at a "watershed," and the entire project must, again, be reconceived.<sup>311</sup>

#### D. *Reset*

The fourth and current period began in May 2006. Sometime between October 2005 and May 2006 the Technical Committee's staff reached an impasse in producing prototype implementations. The TC found that a high percentage of Microsoft's responses to the issues the TC reported were insufficient. Whatever the source of the crisis, Microsoft appointed Robert Muglia, a senior vice president and one-time vice-president in charge of server products, as the manager in charge of the Microsoft side of the project.<sup>312</sup> Muglia decided that the "process of trying to fix issues identified by the TC one at a time" had failed and proposed instead that "Microsoft will rewrite substantial portions of the documentation, taking advantage of what it has learned during the last several years, including all of the specific reports from the TC."<sup>313</sup> The

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303. Joint Status Report on Microsoft's Compliance with the Final Judgments at 21, United States v. Microsoft Corp., No. 98-1232 (CKK) (D.D.C. May 12, 2006) [hereinafter *JSR May 2006*], available at <http://www.usdoj.gov/atr/cases/f216100/216127.pdf>.

304. *JSR July 2003*, *supra* note 261, at 22.

305. *JSR July 2004*, *supra* note 276, at 9 (reporting an increase of staff from 4 to 6).

306. *JSR August 2006*, *supra* note 302, at 10.

307. *JSR October 2005*, *supra* note 283, at 3.

308. *Id.* at 5 (estimating completion by July 2006, revised from the original date of February 2006).

309. *Plaintiffs' Response January 2006*, *supra* note 280, at 2-4.

310. *JSR February 2006*, *supra* note 280, at 3-4.

311. *JSR May 2006*, *supra* note 303, at 3.

312. *Id.* at 6.

313. *Id.*

plaintiffs viewed Muglia's contributions as so important that they successfully proposed that Judge Kollar-Kotelly modify the judgment to require his retention by name.<sup>314</sup>

In August 2006, the plaintiffs announced that the parties had agreed to develop a new "overarching specification" for the technical documentation.<sup>315</sup> The new specification replaced the January 2005 "comprehensive plan to ensure the completeness and accuracy of the technical documentation,"<sup>316</sup> which in turn had replaced the 2004 "standard" for the documentation.<sup>317</sup> The new specification reflects the leadership of Muglia on the Microsoft side, combined with a new formal collaboration between the Technical Committee and the European Commission's Monitoring Trustee.<sup>318</sup> The new specification is to involve a rewrite of the technical documentation, eventually replacing the bulk of the work performed to date, while incorporating everything Microsoft has learned while trying to meet the prior standards, as well as complementary requirements from the EU documentation standards.<sup>319</sup> The parties recognized the specification as a substantial new project<sup>320</sup> that required extension of the term of the final judgment for up to five more years<sup>321</sup> and another increase in staffing.<sup>322</sup>

314. Modified Final Judgment § IV.E, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Sept. 7, 2006), available at <http://www.usdoj.gov/atr/cases/f218300/218339.pdf>.

315. *JSR August 2006*, *supra* note 302, at 13.

316. *JSR January 2005*, *supra* note 282, at 3.

317. *JSR July 2004*, *supra* note 276, at 11.

318. *JSR August 2006*, *supra* note 302, at 3, 5 ("The TC and Microsoft [used] as a starting point the specification agreed upon between Microsoft and the European Commission's Monitoring Trustee [to create the new specification]. . . . The TC and the Monitoring Trustee plan to hold regular calls to discuss developments. Plaintiffs believe that such regular contact between the technical experts on both sides of the Atlantic will prove useful to both programs, promote convergence, and allow for the sharing of knowledge and expertise.")

319. *JSR May 2006*, *supra* note 303, at 6-7.

320. However, there does not appear to be complete agreement as to how much time and investment will be required. See *JSR August 2006*, *supra* note 302, at 4-9.

321. Modified Final Judgment § V.A, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Sept. 7, 2006), available at <http://www.usdoj.gov/atr/cases/f218300/218339.pdf>. The Modified final judgment provides for an extension until November 2009, but upon stipulation by the parties, at the government's sole discretion, this may be extended until November 2012.

322. By June 2007, about 350 Microsoft employees were working on the U.S. and European protocol programs, including 150 engineers. Joint Status Report on Microsoft's Compliance with the Final Judgments at 23, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Jun. 19, 2006) [hereinafter *JSR June 2007*] ("Significant attention and involvement in the technical documentation and the MCPPE extend through all levels of the Microsoft organization and draw upon the resources of numerous product engineering, business, technical, and legal groups, as well as company management."), available at [http://ag.ca.gov/cms\\_pdfs/press/2007-06-19\\_Final\\_JSJ.pdf](http://ag.ca.gov/cms_pdfs/press/2007-06-19_Final_JSJ.pdf).

The new specifications stem from a core set of three agreed-upon “templates,” which are based in turn upon three categories of protocols.<sup>323</sup> The required new documentation has been grouped into six “milestones,”<sup>324</sup> each with an assigned initial delivery, revision, and final delivery date.<sup>325</sup> In 2007, Microsoft reported the on-time delivery of draft versions of five of the milestones.<sup>326</sup> Microsoft also reported employing over 300 employees to create the MCPP documentation.<sup>327</sup> The Technical Committee, while not exactly blessing the new documentation, initially reported a favorable impression.<sup>328</sup>

In August 2006, Microsoft also announced the voluntary suspension of fees and royalty payments as a condition of licensing the MCPP protocols. Furthermore, existing licensees were given a prospective credit against royalties. Microsoft agreed to this suspension of fees until the government determines that the documentation pertaining to each type of licensee is “substantially complete.”<sup>329</sup> In 2007, Microsoft agreed that, if the plaintiffs determined that Microsoft was not making adequate progress in improving the documentation, the royalty holiday could be extended for three years beyond the time the plaintiffs determined that the documentation was substantially complete.<sup>330</sup>

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323. See *JSR August 2006*, *supra* note 302, at 3 (“The parties reached a provisional agreement on the content of three specification templates for different categories of documentation.”).

324. There were originally five milestones. In the March 2007 Joint Status Report, Microsoft reported the addition of a new “Longhorn” milestone covering approximately thirty “new” protocols. Microsoft explained that ten of the new protocols were newly developed for the Windows Longhorn Server product; ten should have been included in the original set; and ten are ancillary and are required to make the documentation of the original protocols under the new overarching specification more comprehensive. *JSR March 2007*, *supra* note 288, at 11–12.

325. Joint Status Report on Microsoft’s Compliance with the Final Judgments at 9, *United States v. Microsoft Corp.*, No. 98-1232 (CKK) (D.D.C. Aug. 30, 2006) [hereinafter *JSR November 2006*], available at <http://www.usdoj.gov/atr/cases/f219800/219800.pdf>.

326. *JSR March 2007*, *supra* note 288, at 10 (“The Initial Availability Milestone 3 documents were delivered to licensees on February 21, 2007. The feedback from the TC regarding the quality of this newly rewritten documentation has been positive.”). In June 2007, Microsoft reported continued progress in meeting the milestones. *JSR June 2007*, *supra* note 322, at 17–18.

327. *JSR March 2007*, *supra* note 288, at 18; *JSR June 2007*, *supra* note 322, at 23.

328. *JSR March 2007*, *supra* note 288, at 3 (finding “that the discipline and structure inherent in using the prescribed templates has succeeded in producing documentation that is easier to use than the prior version of the documentation”); *JSR June 2007*, *supra* note 322, at 3 (finding it “encouraging . . . that Microsoft has been able to keep up with the flow of new [TDIs] being filed by the TC,” and attributing this improvement to “(1) the overall improvement in the quality of the documents prepared pursuant to the reset project, compared to the old documents, which leads to TDIs that on average are less complex and easier to resolve; and (2) the improvement in Microsoft’s processes for handling these TDIs”).

329. *JSR August 2006*, *supra* note 302, at 12.

330. *JSR June 2007*, *supra* note 322, at 5–6.



The TC recognized that the rewrite under the new specification would moot any ongoing prototype implementations that were based on the pre-rewrite documentation.<sup>331</sup> Curiously, though, the TC expressed its intention to continue using its engineers to develop prototype implementations based on the old pre-rewrite documentation, at least until the replacement documentation for each protocol was received.<sup>332</sup> Similarly, it appears that the TC intends to develop the prototype implementations in spite of Microsoft's commitment to produce the test suites.

Possibly the most significant development in this period is Microsoft's undertaking to develop protocol "test suites," yet another new software development effort. A test suite is a software application specifically designed to prove out a subset of technical functionality. Each test suite is a stand-alone application corresponding to each protocol, designed to prove that the protocol functions as documented and, unlike the TC's prototype implementations, to serve as an exemplar for licensees. In November 2006, Microsoft reported working with the TC to develop a set of test suites to demonstrate protocol functionality.<sup>333</sup> To the extent that the TC's prototype implementation project was similarly designed to prove out the technical documentation by implementing software incorporating each protocol, the test suites would therefore seem to make the TC's prototype implementation project redundant.

In June 2007, Microsoft reported that it had delivered the first "preliminary cluster" of test suites at the end of March, and would deliver a second by the end of June.<sup>334</sup> Because development of the test suites is potentially a major shift of responsibility between the two parties, and certainly represents a substantial new benefit for licensees, it is curious that the TC's portion of the November 2006 report is silent as to this development, and the March 2007 and June 2007 reports only mention the test suites in passing.<sup>335</sup> The TC's lack of discussion of the test suites perhaps suggests an absence of complete agreement between the TC and

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331. *JSR August 2006*, *supra* note 302, at 5–6 ("The TC has continued its current prototype implementation activity on a provisional basis using the existing documentation . . . [and] once Microsoft delivers the new documentation for a particular protocol, the TC will suspend reporting issues on the previous version of the documentation for that protocol; at that point, the TC will use the new documentation . . .").

332. In June 2007, Microsoft reported that it still had over 400 TDIs outstanding in the old documentation. *JSR June 2007*, *supra* note 322, at 19.

333. *JSR November 2006*, *supra* note 325, at 11–12; *see also JSR March 2007*, *supra* note 288, at 17 ("Microsoft anticipates delivering clusters of test suites to the TC and to licensees on a quarterly basis.").

334. *JSR June 2007*, *supra* note 322, at 21–22.

335. *Id.* at 2–3 ("Microsoft has committed to rewriting the technical documentation pursuant to an agreed-upon specification, providing additional support to licensees in the form of "plugfests" and interoperability labs, developing a test suite to enable testing of the completeness and accuracy of the documentation, and supporting the TC's testing efforts.").

Microsoft concerning this development effort. Furthermore, since the TC expressed its intention to continue development of the prototype implementations despite the duplicative nature of the work, the TC may lack confidence that the test suites will be sufficient to prove the documentation.<sup>336</sup>

In the March 2007 report, the government was critical of Microsoft for failing to meet deadlines and for discovering previously unreported protocols.<sup>337</sup> Still, in spite of the general concerns that it expressed, the government reported a high proportion of bug reports as closed,<sup>338</sup> and that the quality of the documentation had “meaningfully” improved.<sup>339</sup> The government did, however, caution that “significant” additional work will be required to test and validate the rewritten documentation.<sup>340</sup> The June 2007 report gave a somewhat more favorable assessment, but again stressed the need for additional testing before reaching a firm conclusion.<sup>341</sup> Presumably, this also means that the TC’s large staff of engineers will be retained to complete the significant additional work. The June 2007 report also expressed continuing concern about Microsoft’s discovery of new protocols. The TC planned to scrutinize Microsoft’s “protocol audit” procedures with the assistance of two outside consulting firms.<sup>342</sup>

Microsoft reported in June 2007 that twenty-nine companies had agreed to license some or all of the MCPP technologies from Microsoft under the now-suspended royalty program.<sup>343</sup> Most of these licenses have been for limited tasks like media streaming or for the “Proxy/Firewall” task.<sup>344</sup> Only six are general-purpose licenses.<sup>345</sup> Another twelve had obtained the royalty-free license to open and published protocols.<sup>346</sup> Only thirteen licensees had shipped products using the MCPP. A survey of

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336. *JSR March 2007*, *supra* note 288, at 5 (noting that “the TC has begun using these rewritten documents in their prototype implementation work”).

337. *Id.* at 6 (“Plaintiffs are concerned that Microsoft has not been able to meet its original schedule and are particularly troubled that at this late hour in the program Microsoft is still discovering protocols that should have been included in the original documentation.”).

338. *Id.* at 5 (“The TC determined that the rewritten documentation resolved 15 of the 19 60-day TDIs filed against the old documentation.”).

339. *Id.* at 4 (“The TC’s initial review of the Milestone 2 documents suggests that their overall quality is meaningfully higher than that of the Milestone 1 documents.”).

340. *Id.* (“Significant additional testing . . . [and] eventual validation testing—is necessary to assess their completeness and accuracy.”).

341. *JSR June 2007*, *supra* note 322, at 3.

342. *Id.* at 4–5.

343. *Id.* at 16.

344. By June 2007, three more proxy/firewall licenses had been issued, in part because it was “least expensive (to the licensee) royalty-bearing task within the MCPP.” *JSR June 2007*, *supra* note 322, at 12–13.

345. *Id.* at 14–15. Of these, three were shipping products, two had not even accessed the documentation, and one had gone out of business. *Id.* at 15.

346. *Id.* at 16.

licensees indicated that many did not intend to use the license for product development.<sup>347</sup>

Microsoft has created an outreach program designed to teach licensees both how to use the MCPP and how to use the protocols in live products. This outreach took two forms: “plug-fests” and a permanent interoperability lab. A plug-fest is a scheduled event at which licensees can get hands-on assistance from Microsoft engineers with testing and debugging their use of the Protocols in the licensees’ hardware and software projects.<sup>348</sup> The first plug-fest was held December 12–14, 2006, and focused on streaming media protocols.<sup>349</sup> Only two licensees attended the plug-fest, but they received “access to laboratory testing facilities, in-depth technical discussions regarding the protocols, Network Monitor and protocol parsers, Windows client-based test cases, Windows Server reference implementations, and subject matter experts.”<sup>350</sup> The interoperability lab is a facility in which “licensees can test and debug their protocols and obtain on-site access to Microsoft engineering assistance. The lab [provides] a testing facility, training, best practices, troubleshooting and technical support for licensees implementing protocols from the MCPP documentation.”<sup>351</sup> Despite “a series of in-person visits to licensees”<sup>352</sup> to promote the lab and in spite of the fact that the services were free, only one company had used the lab as of June 2007.<sup>353</sup>

## V. WHAT WENT WRONG?

The protocol licensing program has had meager success in signing up licensees. As we will see, the most plausible explanation for this shortfall is that few developers want to pay royalties to use Microsoft’s proprietary protocols. Most would prefer to develop their own Windows

347. *Id.* at 13.

348. *JSR August 2006, supra* note 302, at 6 (“Microsoft agreed to sponsor “plug-fest” events at which several companies can test and debug their protocol implementations with the goal of improving interoperability amongst each other and with Microsoft.”).

349. Streaming media represents the largest portion of the licensees, with proxy/firewall a close second. *JSR June 2007, supra* note 322, at 16.

350. The Technical Committee also signed up, making total attendance three firms. *JSR November 2006, supra* note 325, at 13. Four licensees attended the file server plug-fest in April and May of 2007. *JSR June 2007, supra* note 322, at 22.

351. *JSR August 2006, supra* note 302, at 6.

352. *JSR March 2007, supra* note 288, at 17.

353. *JSR June 2007, supra* note 322, at 11–12. The California Group polled licensees about why they did not use the lab. Two indicated that they had self-certified their product. The others apparently gave no explanation. Nevertheless, the California Group concluded that the lab may help licensees “at that stage in product development when the MCPP-using product is ready for evaluation testing” and thus “ongoing access of the Interoperability Lab facility to licensees remains a potentially useful ancillary feature of the MCPP.” *Id.* at 12.

client, to develop their own protocols, or to use standard protocols without a license. Nevertheless, the plaintiffs have pressed on with demands for greater inducements and improved documentation, which the Technical Committee has measured, at great cost, against a series of specifications. In retrospect, we can see that the protocol licensing requirement was flawed at its conception. First, there was no showing that the program responded to any real market need. The conduct it most directly addressed was not found to be illegal, while the conduct it indirectly addressed, although illegal, was not proven to have had any anticompetitive effect. Second, it required the creation of a new, expensive, and technically complex program that the court was not well equipped to supervise.

#### *A. The Failure to Attract Licensees*

The stated goal of the protocol licensing requirement was to assure that middleware running on non-Microsoft servers would be able to compete with Microsoft's server-based middleware. Although servers and server-based applications had little or nothing to do with the liability holdings in the government's case, mandatory protocol licensing was thought necessary to preserve a viable "platform threat" in the increasingly network-oriented environment to replace the threat previously posed by the Netscape browser and Java. Thus, one key measure of the success of the protocol licensing requirement is the number of products that implement the licensed protocols in ways that might pose a platform threat to Microsoft's OS monopoly. A more modest goal, although not one supported by the liability holdings, would be substantially to enhance interoperability in heterogeneous networks. By either of these measures, the protocol licensing program has not succeeded.

When the program's failure to attract licensees started to become apparent early in the enforcement period, Judge Kollar-Kotelly reportedly "was very, very, concerned,"<sup>354</sup> and directed the parties to redouble their efforts to increase the numbers. In January 2004, the plaintiffs reported that eleven firms had signed licenses. Even this number, however, overstated the success of the program. All but one of the licensees at that time indicated that they intended to use only a limited category of protocols—file, terminal, or certificate services or media streaming. Only one of the licensees planned to use the protocols for "general server" tasks, the sort of wide-range license that might "interact with the Windows desktop in a variety of ways"—presumably the sort of use that might lead to the emergence of a new platform. The plaintiffs expressed

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354. *JSR October 2003, supra note 266, at 3.*

concern that “the development efforts of the current licensees are not likely to spur the emergence in the marketplace of broad competitors to the Windows desktop.”<sup>355</sup>

In response to this realization, the government surveyed firms that had not taken licenses in an effort to find out the reasons for their choices. The survey revealed that the firms had found that:

- (1) some particular aspect of the licensing program is not attractive (royalties too high, need source code rather than a specification, too many limitations on use of [communication protocols], etc.);
- (2) the Microsoft [communication protocols] are not necessary for the companies’ product development; or
- (3) the company for various reasons did not invest the business and legal expertise to evaluate the MCPP or the technology.<sup>356</sup>

Since that survey, enforcement and compliance efforts have addressed all of the possible reasons mentioned in categories (1) and (3). The royalties have been reduced and simplified. Indeed, until the plaintiffs determine that the technical documentation is substantially complete, Microsoft is currently providing a one hundred percent credit against reported royalties “owed prospectively.”<sup>357</sup> Microsoft has evangelized the product by advertising and showing potential licensees its capabilities. Licensees have been given access to extensive technical support, although few apparently take advantage of what is available. Only two licensees showed up for Microsoft’s first plug-fest, and none has taken advantage of the interoperability lab, although one proxy/firewall licensee has signed up to do so. Microsoft has also given licensees access to Windows source code.

Despite all these measures, of the thousands of firms developing applications for servers, only twenty-nine have taken royalty licenses for Microsoft’s protocols while twelve more have signed the royalty-free licenses for published and industry-standard protocols. Only fourteen products have been introduced using the protocols, and none apparently has platform potential. So far as we can tell, none of the fourteen products produced by these licensees has any platform potential, much less the potential to rival Windows as general-purpose platform. Only six licensees have taken the general server MCPP license. These results would be a catastrophe for a commercial product. They are no less telling for a governmentally supervised program.

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355. *JSR January 2004, supra* note 271, at 5.

356. *Id.* at 7.

357. *JSR May 2006, supra* note 303, at 12.

The continuing dearth of licensees and products, despite the enormous efforts to make the license and the documentation attractive, suggests software firms have not chosen the license mainly for the reason the government identified in category (2) of its survey: most software developers have no use for a license of Microsoft's communications protocols in any form and at any price. As Microsoft has noted:

developers can choose among a variety of efficient ways to achieve interoperability with Windows that do not require them to license Microsoft's protocol technology, including developing their own technology or using industry-standard protocols built in to Windows. Section III.E required Microsoft to provide developers with a new option—the opportunity to build upon the same protocol technology that Microsoft uses to achieve interoperability between its client and server operating systems—and Microsoft has done that.<sup>358</sup>

Alternative means of achieving interoperability—developing a Windows client or using standard protocols—are generally adequate, and have the advantage of not requiring the developer to pay royalties to Microsoft. A firm contemplating an application that might compete with Windows as a platform would be particularly loath to choose a development path that depended upon a license of Microsoft's technology.

### B. *Failures in Enforcement*

Given the evidence that there was little appetite for the protocol licenses, the plaintiffs' ever-increasing demands over the years for enhancements of the licensing program are questionable. One might have thought at the time the decree was entered that disclosure and licensing of communications protocols would have been a relatively straightforward matter. In its memorandum supporting the comparable provision in the proposed remedial order in 2000, the government wrote that "Microsoft already routinely documents and distributes technical information, so the provision will not place a significant burden upon it."<sup>359</sup> After the negotiation of the consent decree, the government recognized the novelty of the protocol licensing program, and that it would impose a burden, but still believed nine months was sufficient to develop disclosure programs.<sup>360</sup>

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358. *JSR January 2004, supra* note 271, at 15.

359. Plaintiff's Memorandum in Support of Proposed Final Judgment at 40–41, *United States v. Microsoft Corp.*, No. 98-1232 (D.D.C. April 28, 2000).

360. After negotiating the consent decree, the government was more realistic. It justified the nine-month delay in implementation of the protocol licensing requirement on the ground that it imposed a far greater burden than the API disclosures. Although it routinely licenses its

The magnitude of the burden, however, depended on how broadly the plaintiffs interpreted the disclosure obligation. Only around 120 protocols are supported natively in Windows. Microsoft had already implemented the relevant protocols for its own use. When Microsoft made its initial disclosure of the identified protocols in August 2002, it apparently thought it had substantially met the requirements of Section III.E. Certainly, once Microsoft had made available to licensees the Windows source code that included the relevant protocols, one would have thought that it had made the protocols available. The plaintiffs, however, presumably with the approval or insistence of Judge Kollar-Kotelly, have interpreted the licensing requirement to require Microsoft to create documentation and provide whatever other services that might help other firms implement the protocols.

Despite the early recognition that the licensing requirement was not achieving its stated goal, and despite the existence of a plausible explanation that the product was not responding to a market need, the plaintiffs have continued to press Microsoft to meet a shifting list of requirements to make the protocol program more attractive. Some of these requirements have been relatively easy, if expensive, to meet. Others, however, have required Microsoft to undertake substantial product development efforts. Under the Technical Committee's supervision, Microsoft has been required to create the Microsoft Communication Protocol Program, develop technical documentation of all identified protocols, respond to reported documentation problems, develop software to test the documentation, evangelize the protocols to software developers, create a support group for licensees, designate account managers, provide extensive technical support, hold plug-fests, and set up an interoperability lab. Most recently it has undertaken the development of test suites for each protocol, in effect duplicating the testing efforts of the TC.

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APIs, "Microsoft historically has licensed or disclosed relatively few of its Communications Protocols." Moreover:

unlike the APIs that must be disclosed if they are used by Microsoft Middleware, which is a relatively finite set of products, Communications Protocols must effectively be available for license by third parties if they are implemented natively in a Windows Operating System Product and they are used to interoperate or communicate with any Microsoft server operating system product, including cases where extra software code is added to the server operating system product. This opens up what is potentially a very broad universe of new disclosure and licensing obligations for Microsoft. Microsoft needs time to set up programs to meet these obligations.

This process has been costly. Microsoft has devoted the efforts of 350 employees plus the expertise of one of its most senior executives, Robert Muglia, to the process. This commitment of personnel entails costs not only of salary, but the opportunity costs of distracting employees and executives from more productive pursuits. Testing Microsoft's work product has required travel to India by both Microsoft employees and the staff of the Technical Committee. The TC has hired forty staff members and maintains offices in both Redmond and Silicon Valley. Both sides have devoted substantial legal resources to supervision of the judgments and compliance with them.

No end to this process is in sight. The entire judgment was scheduled to expire on November 12, 2007. In September 2006, however, the parties agreed to modify the judgment to extend the provisions applicable to the protocol licensing requirement until November 12, 2009, with the plaintiffs given the "unilateral" right to renew the extension to November 12, 2012. Thus, the decree has effectively been doubled in duration, despite Judge Kollar-Kotelly's recognition that lengthy decrees may be unduly regulatory, especially in a highly innovative environment.

The mushrooming expenses and delay are largely attributable to the Technical Committee's Kafkaesque, ever-shifting specifications for the technical documentation. In 2004, the Technical Committee created a forty-page written standard against which the documentation's technical adequacy may be measured.<sup>361</sup> In January 2005, it announced a "comprehensive plan to ensure the completeness and accuracy of the technical documentation."<sup>362</sup> Most recently, in August 2006, the TC announced a new effort to develop a "new overarching specification" for the technical documentation.<sup>363</sup> The specifications have held Microsoft to a host of short- and long-term deadlines and milestones. Along the way, the assessments of the project have fluctuated. The plaintiffs have gone from expressing satisfaction "with both the progress made by the TC and Microsoft's cooperation in the project"<sup>364</sup> in October 2005 to the conclusion in May 2006 that the project is at a "watershed" and must be completely reconceived again.<sup>365</sup>

The Technical Committee has measured the quality of the documentation by creating prototype implementations of each protocol, and reporting as "bugs" any difficulties it identifies in the process. The bugs are not problems with Microsoft's own implementations of the protocols, which presumably work fine. They are problems in the TC's efforts to

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361. *JSR July 2004*, *supra* note 276, at 11; *JSR October 2004*, *supra* note 281, at 10.

362. *JSR January 2005*, *supra* note 282, at 3.

363. *JSR August 2006*, *supra* note 302, at 13.

364. *JSR October 2005*, *supra* note 283, at 3.

365. *JSR May 2006*, *supra* note 303, at 3.



use the protocols in different implementations. It is difficult to determine what the reasons for these bugs are. They may stem from problems in the documentation. If so, however, the bugs reflect the intrinsic complexity of the task—the TC has only rarely questioned Microsoft’s cooperation and commitment of resources. On the other hand, the bugs may be a function of the TC’s own technical or institutional limitations. Although undoubtedly expert, the TC is not a development firm and has very different incentives. Much like a special prosecutor, it is charged with a single task regarding a single target firm, and has an unlimited budget. Its goal is not to meet a real market need and to turn a profit, but to set a standard of perfection and hold Microsoft to it at any cost. No commercial entity has any such goal.

Perhaps the clearest indication that the plaintiffs have lost their way is the “convergence” with enforcement of the EC’s work group server remedy. The new “overarching specification” adopted in August 2006 was based on “the specification agreed upon between Microsoft and the European Monitoring Trustee.”<sup>366</sup> The decision of the plaintiffs in the American case to adopt the specification from the EC case was the result of “productive discussions” between the TC and the Monitoring Trustee that would continue in the interest of “convergence.”<sup>367</sup> But it is inappropriate for standards of compliance under the U.S. judgment to converge with the remedy in a decision so clearly at odds with Sherman Act standards. The Sherman Act’s monopolization standards and those for abuse of dominance under Article 82 of the EC Treaty are very different, as U.S. enforcement officials have recognized.<sup>368</sup>

The link to the European case is revealing in another respect. In its 2004 order, the EC also determined that Microsoft had abused its dominant position by tying the Windows Media Player to Windows, and it required Microsoft to “offer a version of Windows for client PCs which does not include Windows Media Player.”<sup>369</sup> Microsoft shipped its “Windows XP N” in June 2005, which complied with that order, but no computer manufacturers would install it on new PCs, because they could detect no demand for a product with less functionality than a full-featured product at the same price. Like this aspect of the European case, the protocol licensing program forces Microsoft to create a product that few would want.

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366. *JSR August 2006*, *supra* note 302, at 3.

367. *Id.* at 5.

368. William J. Kolasky, Deputy Assistant Attorney Gen., Antitrust Div., U.S. Dept. of Justice, London, North Atlantic Competition Policy: Converging Toward What? 8 (May 17, 2002), available at <http://www.usdoj.gov/atr/public/speeches/224128.pdf> (criticizing the use of monopoly leveraging theory), at 8.

369. *EC Decision*, *supra* note 228, ¶ 1011.

### C. Failures in Conception

The protocol licensing plan has failed largely because its original concept was flawed, because it imposed costly relief without a showing of market need, and because it created a program that the court was not institutionally suited to supervise. The clearest market need for an anti-trust remedy is to remove illegal conduct. As we noted in the introduction, courts should normally deploy antitrust injunctions only to prevent illegal actions that cannot be adequately addressed through deterrent penalties. Microsoft has already settled numerous private lawsuits, with payouts running well into the billions. The courts in Microsoft recognized that any remedial order should be “tailored to fit the wrong creating the occasion for the remedy.”<sup>370</sup> Even in affirming the protocol licensing requirement, the court of appeals recognized “the difficulties inherent in crafting a forward-looking provision concerning a type of business conduct as to which there has not been a violation of the law.”<sup>371</sup> In attempting to block “untraveled roads”<sup>372</sup> that the defendant might conceivably take to monopolize, the court may unwittingly “prevent the defendant from forging new routes to serve consumers.”<sup>373</sup>

The protocol licensing provision violates these principles. It was only indirectly connected to any proven illegal action. The type of conduct that the decree is aimed at blocking—introducing incompatibilities between Microsoft’s products and those of its rivals—was actually held to be legal in the absence of deception or exclusionary conditions. The affected technologies—server-based middleware and communications protocols—were only obliquely mentioned in the findings of fact. Indeed, the idea for mandating disclosure of communications protocols was suggested by Microsoft’s rivals during the first settlement negotiations, after the record was closed. Because the focus of the case was on other products, there was a scant record on which to base a remedial order. Even during the remedial phase of the proceedings, there was only a limited factual inquiry into the need for such a provision. Judge Kollar-Kotelly heard testimony about various “bad acts” by Microsoft in the network context, but ruled the evidence irrelevant to the remedy because it was unconnected to Microsoft’s illegal actions. Yet the judgments impose a sweeping, prophylactic disclosure requirement that is not dependent on a showing of deception, exclusionary intent, or anticompetitive effect.

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370. *D.C. Circuit 2001*, 253 F.3d 34, 107.

371. *D.C. Circuit 2004 Remedy*, 373 F.3d 1199, 1223.

372. *Id.* (quoting *Int’l Salt Co. v. United States*, 332 U.S. 392, 400 (1947)).

373. *Id.* at 1224.

It may be that, in some circumstances, “forward-looking” or “fencing-in” relief is appropriate. In *Microsoft*, however, the court imposed these new obligations without any evidence that the disclosures the protocol licensing provision required were even wanted by a substantial number of firms.<sup>374</sup> Indeed, the available evidence tended to show that licensing of Microsoft’s proprietary protocols was unnecessary. Judge Kollar-Kotelly recognized that “[t]here are a variety of methods used to overcome differences between client and server capabilities”<sup>375</sup> of which native interoperation is only one. Developers may rely on standard protocols or may add their own software to Windows. Experience has now shown that these alternatives are, in most instances, not only adequate, but preferable. It was only much later, after Microsoft had made the initial disclosures, that the plaintiffs asked developers whether they even wanted licenses of this technology. In that survey, the government learned that many developers did not want the licenses regardless of the price or the quality of the documentation. Logic suggests that such a survey would have been appropriate before imposing such a costly obligation.

A court considering whether forward-looking relief would respond to a market need, should also consider the standard of proof. The courts in *Microsoft* also recognized that there should be “a proportionality between the severity of the remedy and the strength of the evidence of the causal connection,” and between the conduct and maintenance of market power.<sup>376</sup> The protocol licensing provision is also inconsistent with this principle. The illegal actions to which the disclosure requirement was most directly linked—Microsoft’s measures to disadvantage Netscape’s browser and Java—were only found to be anticompetitive “by inference,” because there was no proof either technology would have become a competing platform in the absence of Microsoft’s actions. Judge Kollar-Kotelly found that the nonsettling states produced no new evidence of causation in the evidentiary hearing during the remedial phase. This dearth of evidence of causation was a sufficient basis to reject any form of structural relief. It should also have foreclosed relief only remotely connected to any proven illegal conduct.

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374. Cf. Harry First, *Microsoft and the Evolution of the Intellectual Property Concept*, 2006 WIS. L. REV. 1369, 1392–93, (noting how one of the settling state attorneys general observes that, despite its recognition that regulatory decrees are problematic, the government “accepted this more regulatory decree as a political compromise, which was forged in the context of a somewhat narrow remand from the court of appeals and a change in policy views at the Department of Justice occasioned by the installation of a new administration. In context, the disclosure provisions looked like a possible way to advance competition.”).

375. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d 76, 122.

376. *D.D.C. 2002 Tunney Act*, 231 F. Supp. 2d 144, 164.

In effect, the remedy treated the protocols Microsoft supports natively in Windows as if they were an essential facility, subject to mandatory access. The Supreme Court has cast doubt on the validity of the essential facilities doctrine under the Sherman Act.<sup>377</sup> Even if it were applicable, however, it would require a showing that rivals “cannot compete effectively without it and that duplication or practical alternatives are not available.”<sup>378</sup> As we have seen, it was practical, if not preferable, to compete in the server market without the license of Microsoft’s protocols.

Apart from failing to respond to a proven need, the protocol licensing provision required an unduly regulatory process of implementation. The courts in Microsoft recognized that antitrust courts should, except in narrowly defined cases, avoid imposing regulatory injunctions that involve detailed governmental supervision of firms’ choices and terms of dealing. Judge Kollar-Kotelly, for example, rejected the nonsettling states’ expert’s suggestion that Microsoft’s disclosure obligation should be guided by the “parity principle,” historically used in the telecommunications context to measure access obligations.<sup>379</sup> She reasoned that the expert was unable to predict exactly what the effects of borrowing such a standard would be on Microsoft, its rivals, and consumers in a “pure antitrust context.” She endorsed the defense expert’s prediction that the parity principle would require “a massive regulatory regime” that might “place the judiciary in a role for which it is not well-suited.”<sup>380</sup> She endorsed the Supreme Court’s caution that the court should not impose a remedy that “involve[s] the judiciary in the administration of intricate and detailed rules” because the “judiciary is unsuited to affairs of business management.”<sup>381</sup> Yet the implementation of the protocol licensing requirement has not only involved the plaintiffs and court in business management and the development of new products. It has also involved direct supervision of price and quality in an extraordinarily fast-moving and technical field.

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377. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 411 (2004) (“We have never recognized such a doctrine . . . and we find no need either to recognize it or to repudiate it here.”). For an argument that the doctrine should be abandoned, see HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* 244–48 (2005).

378. Philip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 *ANTITRUST L.J.* 841, 852 (1989).

379. *D.D.C. States Remedy 2002*, 224 F. Supp. 2d 76, 231–33.

380. *Id.* at 232.

381. *United States v. Paramount Pictures*, 334 U.S. 131, 163 (1948); *see also* Areeda, *supra* note 378, at 853 (“No court should impose a duty to deal that it cannot explain or adequately and reasonably supervise.”).

The government and the court knew from the start that such a program was novel. Many protocols are industry standards and there was scant evidence that Microsoft did not support these widely adopted standard protocols without requiring a license. In some instances, Microsoft has added propriety extensions in order to distinguish the performance of its products—as indeed any firm can do—without licensing them. To require Microsoft to disclose and license those proprietary extensions went well beyond any existing licensing program. Microsoft, of course, licenses and documents APIs as part of its program of evangelizing the Windows platform. Not surprisingly, the provision of the final judgments requiring disclosure of APIs used by Microsoft middleware products has created few problems of enforcement. Protocol licensing is different. The government recognized that Microsoft's disclosure obligation would involve a novel program to license protocols for use with a wide range of products.<sup>382</sup> Such a requirement would force Microsoft not merely to disclose its own implementation of its protocols, but also to adapt that disclosure to be meaningful for others' implementations. It was predictable that this obligation would require resolution of issues that would be comprehensible only to members of the Technical Committee and Microsoft's engineers, well beyond the ability of a generalist judge to resolve.<sup>383</sup>

## VI. CONCLUSION

The final judgments require Microsoft to disclose and license proprietary protocols in an effort to preserve, in the increasingly important environment of network computing, the "middleware threat" to the Windows monopoly. Almost five years after Microsoft produced the first versions of the technical information and the license, after numerous revisions of both, and at the cost of thousands of hours of effort by experts on both sides of the litigation, the middleware threat remains a chimera. It is now clear that the program is not responsive to real remedial or market needs. The lessons for future cases are clear: courts should not undertake regulatory decrees that are not necessary either to interdict the repetition of illegal conduct or to meet a proven market need.

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382. *CIS Response*, *supra* note 92, ¶¶ 170–71.

383. *Cf. United States v. AT&T*, 552 F. Supp. 131, 167–68 (D.D.C. 1982) (rejecting proposals for a regulatory decree on the ground that it would be impractical to enforce).