Intervenção do Estado no Domínio Econômico
Temas Atuais
Understanding the Solution for Microsoft

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1. Introduction

In this paper, I will examine the issue of relief in the Microsoft case. I have tried to answer the following questions. If Microsoft is liable for monopolization on the operating system market and illegal tying in the browser market, what is the less drastic and intrusive relief that might remedy all the charges? Did the district court find a balanced remedy that will create competition without destroying Microsoft? And, finally, what would be a better approach?

I start analyzing the Findings of Facts, where the fact finder will tell us what happened and what are the explanations for each fact. Those facts will guide us in choosing the remedies to be adopted. They demonstrate that Microsoft was highly worried about protecting its monopoly in the Intel-compatible operating system market and to achieve this objective it was willing to do whatever it was necessary. In general lines, what one can infer from the facts as stated by the court, is that Microsoft wanted to protect Windows. At the Conclusions of Law I will analyze how Judge Jackson has formulated the legal standards that will guide his analysis of the facts and how he has judged those facts under the “anti-
trust law lenses”. Once I have reviewed the facts and the law of Microsoft, I will study the solution adopted by the court. I am particularly interested in what problems each provision has been drafted to cure. How the court has approached such problems and what rationale is behind each solution. After studying the court’s solution, I will propose a different approach, i.e., the compulsory license of communication code, as a more efficient solution. I will discuss what are the problems related to the operating system market, how they interact and the best way to neutralize them. Finally, I will make a quick analysis of why I do not agree with the proposed divestiture remedy and why disclosure, if adopted on the terms I will explain, would probably work more efficiently.

2. The Case

2.1. Findings of Fact

2.1.1. Market Definition

In every antitrust Sherman Act §2 case the threshold issue is to determine market power possession, or not, by the challenged firm. Market power can be defined as the “power to exclude competition or to control prices.”

Later, the reasonableness of certain conducts will depend on the market power level. Traditionally, courts have adopted the market-definition-and-share approach to develop antitrust analyses. A firm can only possess market power in a determined market; therefore, to establish whether or not Microsoft detains monopoly power, first we have to ask ourselves what is the relevant market. In Microsoft, Judge Jackson concluded that “[c]urrently there are no products, nor are there likely to be any in the near future, that a significant percentage of consumers worldwide could substitute for Intel-compatible PC operating systems without incurring substantial costs. Furthermore, no firm that does not currently market Intel-compatible PC operating systems could start doing so in a way that would, within a reasonably short period of time, present a significant percentage of consumers with a viable alternative to existing Intel-compatible PC operating systems. It follows that, if one firm controlled the licensing of all Intel-compatible PC operating systems worldwide, it could set the price of a license substantially above that which
would be charged in a competitive market and leave the price there for a significant period of time without losing so many customers as to make the action unprofitable. Therefore, in determining the level of Microsoft’s market power, the relevant market is the licensing of all Intel-compatible PC operating systems worldwide.” 84 F.Supp.2d at 14, §18.

Microsoft has been charged of monopolizing the operating system\(^2\) (OS) market for Intel-compatible personal computers\(^3\) (PC). In determining which are Windows’ competitors in such market we need to include all alternatives sources for Microsoft’s OS and exclude potential suppliers:

1. whose products are too different (product dimension of the market); or too far away (geographic dimension of the market) and

2. who are not likely to shift promptly to offer defendants’ customers a suitable proximate (in both product and geographic terms) alternative.\(^4\)

We need to establish the limits of the rivals’ attraction and consumers’ repellence. For reasons I believe are obvious, geographical limits do not apply to our case. In general lines, all potential alternatives to Windows will face one or more of the following problems\(^5\) that will

\(^2\) Operating System means the software that controls the allocation and usage of hardware resources (such as memory, central processing unit time, disk space, and peripheral devices) of a computer, providing a platform by exposing APIs that applications use to call upon the operating system’s underlying software routines in order to perform functions. 97 F.Supp.2d at 73, §7(u).

\(^3\) Intel-Compatible Personal Computer means any computer configured so that its primary purpose is to be used by one person at a time, that uses a video display and keyboard (whether or not the video display and keyboard are actually included), and that contains an Intel x86, successor, or competitive microprocessor, and computers that are commercial substitutes for such computers. 97 F.Supp.2d at 74, §7(x).

\(^4\) Areeda at 150.

\(^5\) For a similar approach to the costs and the economics involving operating systems market and an analysis of economies of scale, application variety, processor compatibility, network effect and learning costs see: Michael P. Akemann, Microsoft’s Licensing Agreements: Theory and Evidence on the Sale of MS-DOS and Windows, 24 J. Corp. L. 553, 569 (1999).
be enough to create a barrier for competitors to erode Microsoft’s power to establish supracompetitive prices for its operating systems.

Learning cost. Operating systems are highly complex and deal with an infinity of features and settings. The majority of users are self-taught and it took them a lot of time to be able to effectively interact with their OS. Any migration for a different platform will be, at least, time consuming. All OS not part of the Windows family will necessarily carry that cost. Albeit I cannot say that this cost is enough to isolate Microsoft, consumers will be willing to pay a premium for not having to relearn how to operate their computer. In some cases, not only a lot of time investment will be necessary, but also a higher degree of computational sophistication will be required to successfully utilize the new OS. For certain systems like Linux, Unix, etc., the degree of sophistication is so high that only computer professionals are willing or able to learn it.

Hardware cost. To migrate from one OS to another, in many cases, the consumer will have to acquire a different computer. That is necessarily the case for all non-Intel compatible PC operating systems, primarily Mac OS. It is also required for all server oriented OS. Not only they require a more robust machine than normally available for the SoHo market, but also they accept a much-restricted set of accessories, what can imply new investment, as the old ones are not supported anymore. Since the OS cost accounts for only a very small percentage

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6 Here when I say computer I mean operating system, once the fundamental utility of an OS is to operate the computer.
7 Linux is not really the name of an operating system. In fact, Linux is the name of the “kernel” (the innermost part of the larger system) of free software. The larger system includes not only the kernel but also thousands of programs – operating system components and application programs – designed to work together and built collaboratively by tens of thousands of volunteers all over the world. See Eben Moglen, *Microsoft Can Gain by Freeing Software*, San Jose Mercury News, 12/26/99.
8 SoHo stands for Small Office and Home Office, it is normally used in opposition of the Corporate computer market. The SoHo market is differentiated from the corporate market by specific demands, primary use of the personal computer and capital investment level. Stable internal standardized networks dominate the corporate market while versatility and single computers characterize the SoHo market.
of the PC price, even a substantial increase in prices would not constitute incentive enough for consumers to migrate to another platform. The direct consequence is the increment of the demand inelasticity in the OS market. Moreover, the non-Intel compatible OS companies like Apple did not demonstrate any interest in porting their OS platforms to the Intel system and there is no notice that they intend to do so in a reasonable period of time.

Compatibility cost. The compatibility cost can be divided in two aspects: application, and hardware compatibility. The application compatibility is connected to the current availability of application for a determined OS. Nobody buys an OS for itself; it is only a platform over which the applications programs are run. In case of migration to another platform, all previous acquired applications are rendered useless and need to be reacquired in a version compatible with the new OS. In addition, not every application exists for all platforms. Since Windows is the dominant platform, the bulk of commercial applications are developed for it. The economical costs of porting a Win application to another platform is not compensated because of its invariably restricted base of users. Therefore, every consumer will have to take into consideration the costs associated with application incompatibility or the loss of application availability. We have the same problems of compatibility and availability with hardware. Migration of platform may require new hardware acquisition or imply restricted options. These costs increase the indifference to price increases. All these factors increase the inelasticity of OS market demand.

Price cost. Operating systems are very expensive to develop, but once they are created it is inexpensive to create another copy of it. In economic terms, OS have high fixed cost and negligible marginal costs. Since Microsoft has the broadest base of users it can spread the development cost between more users and, therefore, charge less for a Windows license than Apple is able to charge for a Mac OS license. Additionally, all server oriented OS are more expensive since they

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require a much more sophisticated software engineering. The only OS that can bit Windows in price, Linux, which is for free, is far too complex and unfriendly to present a threat in the short term. It is unlikely that any OS will achieve a base broad enough to allow fixed cost dispersion in the same proportion that Windows allows.

Translation cost. One might think that any OS could be ported to the Intel-compatible platform, but the costs associated with that are very high and no company has yet demonstrated any interest in doing so. Even if an OS were ported to be Intel-compatible, all the learning and compatibility costs would still be present making much less likely that a consumer would migrate to it.

Now that we have an idea of the costs associated with OS migration, a good way to start the analysis is to imagine Microsoft as a single monopolist in the OS market and then inquire what are the possible alternatives that a regular consumer would look for if the product was unreasonably priced (above competitive level).

Server operating systems. The problem with the server operating systems is that they are developed to run on more robust machines (much higher hardware costs), privilege stability at the expenses of compatibility (hardware and software compatibility), not all of them are developed with a friendly graphic user interface (GUI) necessary to market it in the SoHo market and are priced at a higher level. They are developed with the corporate market in mind and adopt a software

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10 PC systems, which include desktop and laptop models, can be distinguished from more powerful, more expensive computer systems known as “servers,” which are designed to provide data, services, and functionality through a digital network to multiple users.

11 GUI is a technology that was first developed by Xerox Corporation during the 1970s. It decided not to market the product but demonstrated it for representatives of Apple in 1979, which decided to develop it for its new powerful personal computer line. Microsoft started in the business of GUI with Intel-based architecture in 1985. Since then Apple and Microsoft have been fighting. For more details on the GUI wars and its importance see: Nicolas P. Terry, GUI Wars: The Windows Litigation and the Continuing Decline of “Look and Feel”, 47 Ark. L. Rev. 93, 98 (1994). Joseph Myers, Casenote, Apple v. Microsoft: Virtual Identity in the GUI Wars, 1 Rich. J.L. & Tech. 5, 10 (1995).
structure design different from the one adopted by a home-user OS. Therefore, “even a substantial increase in the price of an Intel-compatible PC operating system above the competitive level would result in only a trivial increase in the price of an Intel-compatible PC system. Very few consumers would purchase expensive servers in response to a trivial increase in the price of an Intel-compatible PC system. Furthermore, a consumer would not obtain a satisfactory substitute for an Intel-compatible PC operating system even if he purchased a server, since server operating systems lack the features--and support for the breadth of applications--that induce users to purchase Intel-compatible PC operating systems.” 84 F.Supp.2d at 14, ¶19. All of the foregoing is enough to exclude the server operating systems as reasonable substitutes for Windows.

Non-Intel compatible PC operating systems. These systems are associated with learning, compatibility, price, hardware and/or translation costs. By definition either the consumer will have to acquire a different computer system12 or the OS would have to be ported to the Intel platform. All these costs would more than justify the exclusion of the incompatible systems from the roll of Windows rivals, and even if MacOS were included Microsoft market share would be above 80% and increasing.

Information appliances. All the actual gadgets available are not satisfactory substitutes of personal computers and therefore cannot be included as Windows rivals. “No operating system designed for a handheld computer, a ‘smart’ wireless telephone, a television set-top box, or a game console is capable of performing as an adequate operating system for an Intel-compatible PC.” 84 F.Supp.2d at 15, ¶22. None of these or similar gadgets are capable of performing all the features that a PC is. One consumer who uses a PC only as an electronic agenda might opt to start using only a personal organizer, but no bona fide person would argue that a PC and a personal organizer are interchangeable, much less that the gadgets’ operating system threat the realm of computers OS. They are distinct products that attend to different demands. See United States v. Philadelphia National Bank, 374 U.S. 321 (1963)

12 Hardware and software.
(commercial banking is a distinct line of commerce); Broadcast Music, Inc. v. Columbia Broadcasting System, Inc., 441 U.S. 1 (1979) (blanket license is more than individual licenses together). Any argument that they will substitute PC entirely is highly speculative; therefore they should not be included in the market.

Network computers. The network computer is not a viable substitute for PC now. They rely heavily on the processing power and memory of servers and are susceptible to “latency, congestion, asynchrony, insecurity across a communications network, and contention for limited processing and memory resources at the remote server.” 84 F.Supp.2d at 17, ¶ 26. Problems definitely not associated with PC operating systems. They are also cumbered by the compatibility cost and the hardware cost, should the consumer have to change to it. All such limitations make it more likely that the network computer model is probably going to occupy a very specific niche of the market, such as airport terminals, but not threat the PC market. Any different conclusion is not supported by the present market configuration and is highly speculative. Therefore, they should not be included in the market.

For all these reasons, the context in which Microsoft power should be analyzed was correctly established and “the relevant market [should be] the licensing of all Intel-compatible PC operating systems worldwide.” 84 F.Supp.2d at 14, ¶18.

2.1.2. Market Power

Microsoft enjoys enough power in this market to maintain prices above long-run marginal cost, exclude competitors and by doing so monopolize it. Two elements indicate such monopoly power:

1. its market share for the Intel-compatible PC operating systems,

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13 A possible explanation of why network computers are not a viable alternative in the present, the relationship between computers, Microsoft, AT&T, the evolution of the Telecommunication market and the role played by antitrust values, see: Steve Bickerstaff, Shackles on the Giant: How the Federal Government Created Microsoft, Personal Computers, and the Internet, 78 Tex. L. Rev. 1, 3(1999).
2. high entry barriers and lack of commercial viable alternatives for Windows. 84 F.Supp.2d at 19, ¶34.

Microsoft has retained a substantial market share for the last decade in the Intel-compatible PC operating systems. Even if the only reasonable, though imperfect, substitute Apple’s MacOS were included, Microsoft’s domain would stand above eighty percent and be still increasing. 84 F.Supp.2d at 19, ¶35. Nonetheless, “bigness in is not unlawful per se”. We should look for market power, i.e., the ability to raise prices in the short run well above its costs without losing considerable portion of its customers or the existence of a kind of protection against competitors’ entry or expansion and the unlawful use of such power. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395, (1956). Microsoft’s huge market share by itself is not enough to sustain a claim of monopoly power, primarily where such position, at least prima facie, was legally attained through better products and marketing strategies. United States v. Aluminum Co. of America, 148 F.2d 416 (1945). Other elements need to be aggregated to market share in order that we can reach the conclusion that Microsoft abused from its monopolist position.

Before proceeding in the analysis, it is important to notice that in a Sherman Act §2 case, the monopolist does not need to have acquired the monopoly power unlawfully. Either the attempt to monopolize (unlawful acquisition or attempt to acquire monopoly power) or the abuses of the monopoly position are violations of the Act. In this case I am focusing on Microsoft’s unlawful maintenance of its condition of monopolist, not the means it used to obtain the monopoly position itself.

Back to the analysis, we know that Microsoft enjoys an expressive, persistent and growing market share in the relevant market. We will now explain how Microsoft’s domain over the PC operating system market is insulated from effective competition by the existence of high entry barriers and by customers’ lack of commercially viable alternatives.

As I said before, consumer’s “interest in a PC operating system derives primarily from the ability of that system to run applications. The
consumer wants an operating system that runs not only types of applications that he knows he will want to use, but also those types in which he might develop an interest later.” 84 F.Supp.2d at 19, ¶37. Therefore, the higher the number of applications available to a platform the higher the value associated with that platform. Just like with OS, the fixed costs in producing applications are very high, while the marginal costs are very low. This characteristic creates powerful incentives for software houses to develop programs to platforms that have the widest installed base in order to potentialize the number of costumers. Porting such application to another platform is expensive and time-consuming, therefore will only be done to the extent marginal added sales justify the cost of porting. Not all ISP will do it and even if they do, the price would probably be higher to compensate the restricted installed base of potential users. 84 F.Supp.2d at 19, ¶36. This creates the network effect.\textsuperscript{14} The higher the number of applications for the platform the higher the number of costumers adheres to that platform. And the higher the number of costumers, the higher the number of applications developed for that platform and the cheapest they are. It is a self-enforcing cycle that once in place can only be broken by an externality. Any operating system will have to offer a comparable amount of applications availability to be an effective competitor to Microsoft’s Windows. But in order to attract a reasonable amount of applications it will need a broader installed base. Since it cannot attract enough ISPs to develop applications for its platform, it cannot attract a reasonable amount of consumers. Since it cannot attract enough consumers for its platform, it does not attract a reasonable amount of ISPs. It is exactly the opposite of Microsoft’s virtue circle. While any ISP that decides to write an application to a non-Windows system will have to carry the burden of lack of scale, Microsoft only has to be relatively updated with new technologies, in order that so that the positive feed-back loop reinforces itself.

As an example on how harsh such barrier is to surpass, Judge Jackson used Microsoft’s most significant rivals in the operating system

\textsuperscript{14} To a critical analysis of the emphasis on the network effect at the expenses of Microsoft’s innovative role see Daniel J. Gifford, \textit{Microsoft Corporation, the Justice Department, and Antitrust Theory}, 25 Sw. U. L. Rev. 621, 648 (1996).
market as example, IBM and Apple. IBM’s OS/2 Warp never obtained significant market share or ISP application support and it now targets a market niche, primarily banks. Apple’s Mac OS has a restricted installed base and is not Intel-compatible. Other alternative operating systems exist, but they represent no effective competition. That is the case of BeOS, which occupies a market niche and is normally marketed to be installed together with Windows. Even the celebrated Linux is no present threat, since its use demands too high a degree of computational sophistication. The prevision that it will be, one day, as easy to use as Windows is too speculative. The proposition that there is no viable competitor for Windows in the near future was supported by those facts and by OEM opinions. “OEMs believe that the likelihood of a viable alternative to Windows emerging any time in the next few years is too low to constrain Microsoft from raising prices or imposing other burdens on customers and users.” 84 F.Supp.2d at 24, ¶55.

Another evidence of Microsoft’s power is its pricing policy. In determining its price the company does not take into consideration the price charged by any other Intel-compatible PC operating systems. Why should they if other OSs do not threaten Windows? On the other hand, when a new Windows version is released, Microsoft’s standard pattern was to increase the price of the old version to equalize with the new and, invariably more expensive, one. Microsoft was not afraid that such policy would be enough to make it lose consumers enough render the action unprofitable. Moreover, it has a broad range discretion to set its prices. 84 F.Supp.2d at 25, ¶63. Such price conduct is enough to raise the question about Microsoft’s invulnerability in the relevant market.

Once I assume those facts, one will have to understand the theory that, as long as the application barrier persists, there will be no real menace to Microsoft monopoly of Intel-compatible PC operating system market. That is the fundamental idea underlying the case and the remedies adopted thereunder. Any argument about how the world is changing and the PC market will be substituted for network computers or by cell phones or Palm Pilots or any other array of gadgets is dismissed simply because monopolization is not allowed even in a decaying market. So even if the PC market was dying, Microsoft conduct would not be shielded from antitrust scrutiny. At this point, we
have a company in a monopolistic market protected by high entry barriers, primarily the application barrier. Those elements should enhance our antitrust sensibility as I analyze the way Microsoft conducts its business and how it protects Windows from potential competitors or technologies that would or could weaken the entry barriers in the Intel-compatible PC operating system market.

2.1.3. Anticompetitive Conducts

We will now show some potential threats to the application barriers and Microsoft’s immediate response to each one of them, some of which were legal and some illegal, but in the overall showing that Microsoft adopted anticompetitive means to protect itself against any potential threat. Any threat that directly or indirectly weakens the application barrier is dangerous to Microsoft monopoly. There are two main threats: cloning and middleware.

Windows Cloning. One hypothetical way to circumvent the application barrier would be to implement Windows APIs\textsuperscript{15} in a different operating system so that any Windows compatible application would run on the “clone”\textsuperscript{16} as well. That is a very important feature and I will discuss it in more depth later, when I will talk about the disclosure remedy, but for now, as IBM regretfully discovered, “[t]ranslating this theory into practice is virtually impossible.” 84 F.Supp.2d at 24, ¶52. I would like the reader to keep that idea in mind, as it will play a decisive role in the remedy proposal I will defend later. Remember that IBM found impossible to keep pace with Windows’s API through unfriendly but legitimate research method (reverse engineering). Now ask yourself

\textsuperscript{15} API stands for Application Programming Interfaces and means the interfaces, service provider interfaces, and protocols that enable a hardware device or an application, middleware, or server operating system to obtain services from (or provide services in response to request from) platform software in a personal computer and to use, benefit from, and rely on the resources, facilities, and capabilities of such platform software. In short, it is the “language” or commands that any device (hardware or software) needs to know to interact effectively with the operating system.

\textsuperscript{16} I would rather use the word Windows-compatible OS instead of “clone”, but that is the term the courts have been using and for clarity I will keep it.
what is the conduct of a rational player in a market that knows her competitors will try to decode his software in search for the golden code? How would you protect yourself, assuming that such practice is common and legal?\textsuperscript{17} If it is you who design the system and the way it behaves?

The problem is that the reverse engineering process does not result in a perfect copy of the code. The language used to create the program is easily understandable for a programmer, and then it is converted into machine-only language and scrambled. To have access to this code, the competitor would have to decode this machine-only language back into human comprehensible language, which is a costly process and does not work very well.\textsuperscript{18} The bigger the program is, the higher the complexity and time consumption of the job. Compare finding an API in the middle of the reverse engineered code as finding a needle in the ocean. That is an adequate analogy. Fully aware of this fact what would a rational player adopt as simple countervailing measures? First, she would create thousands of APIs for each and every version of Windows and/or improvements. She would make them more complex and difficult to read. Even adopting decoy APIs to distract the opponent. Why not? If computing capacity doubles every 18 months, it would probably compensate any increase in size of the OS and lost in efficiency! Also, only the useful API would be disclosed for independent application developers who are not competitors and would sign nondisclosure agreements. As the IBM episode tells us, despite of Microsoft’s action or inaction, reverse engineering of such extensive and complex software is reasonably unviable. 84 F.Supp.2d at 24, ¶52.


Middleware. In the course of software development, a number of Windows-compatible technologies started to expose APIs themselves. Those applications became to be known as middleware, because they run on Windows OS but since they expose APIs, other applications can be developed to run on them. They act as an interface between operating system and the applications. “Microsoft was apprehensive that the APIs exposed by middleware technologies would attract so much developer interest, and would become so numerous and varied, that there would arise a substantial and growing number of full-featured applications that relied largely, or even wholly, on middleware APIs. The applications relying largely on middleware APIs would potentially be relatively easy to port from one operating system to another. The applications relying exclusively on middleware APIs would run, as written, on any operating system hosting the requisite middleware.” 84 F.Supp.2d at 28, ¶68. As the popularity of middleware increased, primarily among web browsers, the number of exposed APIs increased and the number of OS that could be reached through only one middleware increased. The increase in the number of middlewares available and middleware-relying applications would increase the number of users of such applications, widening the base of users. The consequent positive feedback was enough to increase ISD developing for middleware. Judge Jackson found that “Microsoft was concerned with middleware as a category of software; each type of middleware contributed to the threat posed by the entire category.” Id. 28.

As evidence of Microsoft’s willingness to eliminate any actual or potential threat to the application barrier, the judge focused, as an example, in Microsoft’s conduct toward two particularly powerful middlewares: Netscape Internet Browser and Sun’s Java technology. It is important to notice that the rationale developed in the Findings of Fact is that Microsoft owned monopoly power in the Intel-compatible PC operating system market and that this market was protected by high entry barriers, primarily the application barrier. Since reverse engineering was not a plausible threat to such barrier, middleware-oriented software development was the major threat to such barrier and, therefore, to Microsoft monopoly. Microsoft’s anticompetitive actions focused, primarily, on eliminating such threats.
The Netscape Browser. The Internet became a major reason for people to enter the technology era. Many consumers who previously had no reason or not enough incentives to acquire computer systems did so in order to be connected to the worldwide network. Internet browsers, obviously, are an essential part of such trend. Netscape Navigator was the first widespread browser to enter the market and enjoyed high consumers’ acceptance. Since it runs on Windows, it was seen as a complement to the OS. It also exposes some APIs, though in limited number, and enjoyed a privileged position for network-oriented software development. Add to this the fact that Netscape Navigator was ported for more than fifteen different OS and anyone can easily realize the threat that it represented to Microsoft hegemony in the OS markets! The more it gained popularity, the more applications were Internet-oriented, the higher Navigator’s leverage to emerge as the standard platform. By the fall of 1994, Microsoft was aware of these facts. 84 F.Supp.2d at 28, ¶71. In the words of Bill Gates, Microsoft’s CEO, “Netscape was ‘pursuing a multi-platform strategy where they move the key API into the client to commoditize the underlying operating system.’” By the late spring of 1995, the executives responsible for setting Microsoft’s corporate strategy were deeply concerned that Netscape was moving its business in a direction that could diminish the application barrier to entry.” 84 F.Supp.2d at 29, ¶72.

By the time Navigator was widely accepted in the market and became the dominant browser, Microsoft decided that it was time to react. The first response was to try to persuade Netscape not to adopt a cross-platform strategy including Windows. 84 F.Supp.2d at 30, ¶79. Since Netscape rejected the “advice” not to develop its software for the dominant platform, Microsoft asked for the browser to rely only on Windows 95 APIs when running on it. Id. ¶80. In this campaign to halt

19 Commoditize the operating system means turning it into something irrelevant, as the major APIs would be available within the browser that would run on any operating system. A more anti-Microsoft reading of this statement in the context it was made lead us to the conclusion that without the application barrier any operating systems, primarily Windows, would not be able to endure a dominant position for long periods of time. In sum, without the application barrier, its competitors can easily beat Windows!
Netscape cross-platform development, Microsoft tried to use its control over Windows APIs, essential information for any ISV\textsuperscript{20} with plans to develop for Windows platform, to coerce Netscape to abandon any development that could make Navigator a competitor. 84 F.Supp.2d at 31. Netscape would only receive the technical information when they decided not to compete with Microsoft. The company as the monopolist owner of Windows technical information was using its market power to coerce an ISV to prevent any potential competition. Even though OS and Web browser were clearly distinct products at that time. Since Netscape denied the special relationship proposed by Microsoft, primarily because they would probably be out of business if they had accepted it, Microsoft withheld the information for three months, when it was too late enough to make Netscape lose the better part of the holiday selling season. 84 F.Supp.2d at 31, ¶91. Some other information necessary for making business with some ISPs have never been licensed. Id. ¶92.

When it was clear that Netscape would not give up the Windows-compatible browser market, Microsoft started a strategy to fight back. First, it invested massive quantities of money to develop Internet Explorer. Second, Microsoft started giving IE for free and in some cases paid for other companies to distribute and promote it. 84 F.Supp.2d at 31, ¶136. Why would a rational economic agent freely give something that is highly valued? Why would you spend more than $100 million per year developing something to freely distribute it? Microsoft’s position was that Navigator acceptance had to be blocked immediately and the best way to do it was to give IE for free. Even though IE development department contemplated charging OEM\textsuperscript{21} for IE, the protection of the application barrier was more valuable to Microsoft than IE’s corresponding revenue stream. Id. ¶137. Microsoft never charged for IE, a costly and profitable product. It was always a matter of maintenance of control over the desktop market. One evidence of this policy is Microsoft’s vice president Brad Chase statement to “the company’s assembled sales and marketing executives in April 1996 that they should ‘worry

\textsuperscript{20}ISV stands for independent software vendor.

\textsuperscript{21}OEM stands for original equipment manufacturer.
about your browser share [ ] as much as BillG’ even though Internet Explorer was ‘a no revenue product,’ because ‘we will loose [sic] the Internet platform battle if we do not have a significant user installed base.’ He told them that ‘if you let your customers deploy Netscape Navigator, you will loose [sic] leadership on the desktop.’” 84 F.Supp.2d at 46, ¶142.

Microsoft also excluded Netscape from important distribution channels. First it refused to license Windows without IE and imposed restrictions on OEM’s and end-users’ ability to remove its browser from its operating system. It first imposed contractual and later technical restrictions to removal. 84 F.Supp.2d at 49, ¶155. Judge Jackson found no technical reason to explain Microsoft’s refusal to license Windows 95 without IE, versions 1.0 to 4.0, primarily because they were always shipped as distinct products. Id. ¶175. Only with Windows 98 Microsoft completely bundled IE with the operating system, but still, the judge found there were no technical or market justification not to make it available separately. Id. ¶177. Though it cannot be said bluntly that there were no market or technical justifications for bundling, if you analyze this conduct under Microsoft’s overall anticompetitive conduct and the initial resistance from OEM and other ISV, it has to be admitted that it was a clear abuse of its monopoly power aimed to the protection of such power. Microsoft tried and succeeded in excluding Navigator from the most important channels of distribution, the OEM and IAP. Id. ¶¶ 149 and 242. To accomplish its objective, Microsoft coerced many OEM, ISVs and IAP to embrace Internet Explorer; one of the clearest examples was the Apple episode. “Microsoft threatened to cancel the product unless Apple compromised on a number of outstanding issues between the companies. One of these issues was the extent to which Apple distributed and promoted Internet Explorer, as opposed to Navigator, with the Mac OS.” 84 F.Supp.2d at 95, ¶345. “Gates and Maffei made clear that the threat of canceling Mac Office was too valuable a source of leverage to give up before Microsoft had extracted acceptable concessions from Apple. Maffei wrote to Waldman, ‘Ben--great mail, but [we] need a way to push these guys and this is the only one that seems to make them move.’” Id. ¶347. As Microsoft’s managers say, Mac Office was the only reason that forced Apple to adopt Internet
Explorer as standard browser. The same method was used regularly to make others adopt IE at the expense of Navigator.

Technological information is one of Microsoft’s most powerful weapons. Once almost every ISV needs to develop to Windows and they need to keep pace with new releases, Microsoft has been able to coerce the High-tech industry to concede to its wishes. Even the pace of innovation and development has being highly dependent on Microsoft willingness to release information. That is the clearest evidence of presence and misuse of market power. Not only has Microsoft exercised such power with Netscape and Apple, but it has also used it with every other player that crossed its way. Some of the episodes involving companies other than those two are enough to show not only Microsoft’s actual power, but also the free use, and abuse, of such power.

Intel. Intel Company is engaged mostly in designing and manufacturing microprocessors, but it also develops software. By 1995, Intel was developing a software (Native Signal Processing – NSP) that would allow 80x86 processors to carry out tasks usually performed by a separate chip, enhancing video and graphic performance. It was eager to foster NSP implementation and did not believe “that the set of APIs and device driver interfaces (‘DDIs’) in Windows had kept pace with the growing ability of Intel’s microprocessors to deliver audio/visual content.” 84 F.Supp.2d at 34, ¶96. Therefore, Intel designed NSP software to expose its own set of API and DDIs. Microsoft was alarmed, primarily because NSP software was being developed for more than one platform and would potentially reduce the cost of porting application for other platforms, since they would still be using the microprocessor APIs. It was also worried about the decrease in the incentives to buy the nearly complete Windows 95 because NSP was being developed for Windows 3.11. Id., ¶¶97-98. Microsoft pressured Intel to abandon its plans, because “its only ‘winning path’ would be to convince Microsoft to support the effort in its platform software. At any rate, ‘[s]ometimes Intel would have to accept the outcome that the time isn’t right for [Microsoft].’ [Bill Gates said] he had tried to convince [Intel] ‘to basically not ship NSP’ and more generally to reduce the number of people working on software at Intel.” Id. ¶100. Intel would not be allowed to offer platform-level software, even if it meant that it would
not be able to innovate as fast as Intel wanted. Microsoft also pressured the majors OEM to not install NSP software on their PCs until the API were not exposed anymore. In July 1995, Intel gave up promoting NSP. By the end of 1998, Windows still did not incorporate key features offered by Intel to consumer since 1995. Id. ¶101. In another episode, Microsoft threatened not to support Intel next microprocessor generation if they did not stop funding development and distribution of free platform-level software. Intel again had to obey. Id. ¶102.

Apple. Well-known for its graphic excellence, Apple developed QuickTime, a cross-platform multimedia middleware. It was available to Windows and Apple; the two only commercial SoHo operating systems and long term rivals. This middleware competed directly with Microsoft multimedia APIs, called DirectX. In early 1997, Microsoft tried to dissuade Apple from continuing to produce QuickTime for Windows 95. In exchange Microsoft would refrain from entering authoring business and would help Apple developing and selling it, otherwise they would enter in the authoring market to make sure Microsoft’s APIs would be the standard. “Microsoft executives warned, Microsoft would invest whatever resources were necessary to ensure that developers used its tools; its investment would not be constrained by the fact that authoring software generated only modest revenue.” 84 F.Supp.2d at 37, ¶106. Apple, just like Netscape, refused to accept Microsoft’s market division, primarily because if it were accepted, Apple’s future in marketing authoring tools for Windows 95 would be completely dependent on Microsoft’s ongoing cooperation, since DirectX technology was under Microsoft’s control. Again, we see Microsoft corporate policy of threatening any potential competitor abusing its monopoly power to insulating its OS from competition by market division arrangements.

RealNetworks. One of the promising technologies in the Internet is video and audio streaming. Just like Apple’s QuickTime, RealNetworks’ RealAudio competed directly with DirectX for developers’ attention. This middleware also exposed APIs related with audio and video. Microsoft first reaction was to try to acquire the competitor. Two weeks after the frustrated acquisition, Microsoft acquired VXtreme, a streaming media company. Fearing Microsoft, RealNetworks proposed a strategic relationship between the two companies; they would aban-
don the streaming business in exchange for profitable value-added software. In the discussions that followed, Microsoft and RealNetworks reached a distribution agreement for RealAudio with Internet Explorer while they would develop streaming standards together. Though this episode is not as clear-cut as the others, according to Judge Jackson, it reinforces Microsoft’s willingness to invest large amounts of cash to halt any development that potentially could threaten the application barrier. 84 F.Supp.2d at 38.

IBM. International Business Machines is a sui generis Microsoft competitor. It is both a hardware and software company. As an OEM, IBM sells Intel-compatible computer systems. As an ISV, IBM used to sell Windows and its own operating system, OS/2. It also markets SmartSuite, a direct competitor to Microsoft’s second biggest product, Microsoft Office. “Whereas Microsoft tried to convince Netscape to move its business in a direction that would not facilitate the emergence of products that would compete with Windows, Microsoft tried to convince IBM to move its business away from products that themselves competed directly with Windows and Office.” When IBM refused to obey, Microsoft punished it with higher prices (price discrimination), delayed licensing of Windows 95, and withheld technical and marketing support. 84 F.Supp.2d at 39, ¶116. Microsoft proposed to pay IBM not to advertise OS/2; it would reduce $8 in each per-copy royalty. Also, IBM would have to adopt Windows for its employees and ensure Windows pre-installation in at least a fifty percent of the shipped computers. In sum, Microsoft proposed IBM to forgive its competing OS in exchange of $40 to $48 million per year. That is the value of Microsoft proposed royalty reduction. Id. ¶118. IBM responded with an aggressive marketing campaign for its operating system OS/2 and SmartSuite. Microsoft started a campaign to make IBM life harder. Not only did it make more difficult for IBM to communicate with Microsoft executives, but also decided not to license Windows 95 for IBM computers, three days after IBM announced the intention to pre-install SmartSuite in its PCs. Id. ¶122. The reason alleged for such conduct was that it wanted to resolve an ongoing audit issue of past royalties. The problem is that not only had Microsoft refused to license Windows 95, essential for the hardware enterprise, but it also refused to furnish the “golden master” code to IBM, i.e., essential technical information for
the development of applications, already available to competing OEM. IBM with no other alternative offered Microsoft a $10 million bond to indemnify Microsoft for any discrepancy found in the audit and conceded a provision to condition Windows 95 license with penalties and interest for any future discrepancy. Microsoft was not satisfied. It required a lump-sum payment that would settle all outstanding audits. The amount would be reduced if IBM made a concession. Not bundling SmartSuite with IBM PCs from six to twelve months was suggested as a possibility. IBM again refused. Microsoft asked for $25 million and again offered the discount if IBM adopted a new policy to promote Microsoft’s software. Id. 124. The impasse was not solved until fifteen minutes before the official release of Windows 95 and a settlement of $31 million for Microsoft. IBM suffered substantial revenue losses with the delay in shipping PCs with Windows. Microsoft also continued to treat IBM less favorably than any other OEM and made it clear in a business letter that would continue to do so until IBM refraining from promoting competing products. Id. ¶126.

Microsoft used more anticompetitive methods to force IBM to forgo its competing products. It expressly avoided mentioning IBM’s name to the public and, more importantly, denied IBM PC Company access to the so-called “enabling-programs”, which conduct raised questions of IBM PCs’ performance running Windows. This caused the company a loss of $180 million in revenue. Microsoft justified its conduct with the fear that IBM would use the programs to leverage its own products. Meanwhile, IBM was communicated that it would be accepted in the enabling program when the company reestablished its relationship with Bill Gates, viz., when it stopped competing. 84 F.Supp.2d at 42, ¶128. The pressure to abandon any competing product was enforced every time IBM needed to have access to something related to Windows.

The Java Threat. Sun’s Java technology was intended to diminish the costs of porting an application from one platform to another. Though its libraries did not expose enough APIs to support full-feature or very advanced applications, it significantly lowered porting costs, principally if Sun’s software engineering techniques were adopted. Java success was coordinated to broad availability of Java Virtual Machine (JVM) and the maintenance of Sun’s standards. Fully aware, Microsoft
abused its license to use Java technology to distort it and make it completely proprietary, viz., only efficient at Windows. It also pressured Intel not to support Sun’s technology, refused to fully implement Java libraries, ship a compatible set or make it available any in other form. 84 F.Supp.2d at 106, ¶390. Those abusive tactics not only are anticompetitive, but also violate contractual duties assumed by Microsoft as a condition to use Sun’s technologies. Microsoft also intentionally mislead unaware users of its “polluted” Java tools to develop a software that would not be viably portable to other platform, when it knew that the main motive of using such technology was portability. Id. ¶ 394. All these practices were declared illegal and an injunction was granted to prevent Microsoft from perpetuating such practices. Microsoft was clearly motivated to make the technology fail, therefore, they distorted it, ¶390, impaired its distribution, ¶391, prevented support to it, ¶396, hid its information, ¶392 and mislead developers to use the “polluted” version, ¶394. For all that, no reasonable business justification was presented. This pattern is compatible with Microsoft’s historical of abusing its Windows leverage to assure that any potential competitor would fail. The application barrier and therefore the OS monopoly were to be defended by any means at any cost.

2.2. Conclusions of Law

Five months after its Findings of Facts, Judge Jackson held in its Conclusions of Law that:

1. Microsoft maintained its monopoly power in OS market by anticompetitive means;

2. Microsoft attempted to monopolize web browser market;

3. Microsoft’s bundling of its OS and web browser constituted an illegal tying arrangement; but

4. Microsoft’s agreements with Internet service providers (ISPs), Internet content providers (ICPs), independent software developers, and PC manufacturers to distribute and promote its web browser to exclusion of competing browser did not constitute unlawful exclusive dealing arrangements. Conclusions of Law, 87 F.Supp.2d 30, 35.
2.2.1. Maintenance of Monopoly Power in the OS Market

The basic test to determine if a company unlawfully maintains monopoly power in a specific market was established in Grinnell. “The offense of monopoly power under § 2 of the Sherman Act has two elements:

1. the possession of monopoly power in the relevant market; and

2. the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident.” United States v. Grinnell Corp., 384 U.S. 563, 570-71, 86 S.Ct. 1698, 16 L.Ed.2d 778 (1966).

Relevant Market. The usual standard to determine the relevant market is Du Pont reasonable interchangeability test. The relevant market “is composed of products that have reasonable interchangeability for the purposes for which they are produced – price, use and qualities considered.” (Emphasis added) United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395 (1956). And monopoly power would be “the power to control prices or exclude competition” in such defined market. Id. 391.

What should be put together with Windows to determine the relevant market? As I said before, to determine which are Windows’ competitors, one needs to include all alternatives sources for Microsoft’s OS and exclude potential suppliers:

1. whose products are too different (product dimension of the market) or too far away (geographic dimension of the market); and

2. who are not likely to shift promptly to offer defendants’ customers a suitable proximate (in both product and geographic terms) alternative.22

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We need to establish the limits of the rivals’ attraction and consumers’ repellence.

For reasons that I believe to be obvious, geographical limits do not apply to this case. With the current facilities in distribution worldwide, including the Internet, the globe can easily be deemed as the relevant geographical market. So what are the potential products that could substitute Windows, taking into consideration the “price, use and qualities”?

Microsoft alleges that the market should “encompass all platforms for developing and running applications.” Microsoft, brief for defendant-appellant, district court for the District of Columbia, p. 87. In appellants’ view, everything that exposes API, no matter where located or for what purpose, should be included in the relevant market, because they can potentially compete with Microsoft. For Microsoft, the relevant market should include as competing products Apple’s Mac OS, Unix, Navigator, Java, all information appliance, even websites. And include as potential competitors developers of any specific OS, including mainframes, Linux, Palm OS and videogames. Id. p. 88.

The first issue with this argument is that it completely excludes the application barrier, the principal factor protecting Microsoft’s monopoly. In the present scenario, no one will be able to beat Windows in application availability while the positive feedback loop continue to work and interoperability is not brought to the market. Without interoperability any new OS would be hopeless in attracting consumers’ attention, since “[t]he value of the operating system is in its capability to run application software.” 84 F. Supp. 2d at 17 (FF 29). A new entrant with much less application has just no chance to divert consumers from Windows. To include everything that exposes APIs in the relevant

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23 Interoperability is the capacity of products of one vendor to communicate or interface with the products of competing suppliers of complementary products. Interoperability is a core function of most information technology products. Network products like modems and cellular phones are heavily dependent on interoperability standards. See Richard G. Parker, Standard Setting in a Network Economy, 617 PLI/Pat 297, 301 (2000).
market is to suggest that means of transport (car, motorcycles, bikes, airplanes, etc) is a single market.

Apple’s Mac OS. Microsoft forgets to mention the simple fact that Mac OS is not available for any Intel-compatible PC and Apple has no plan to port it. If one would be willing to change Windows for Mac OS, he would have to buy a new computer. When you want to change your car’s tires, do you consider changing your car because they are too expensive? Microsoft recognizes that its biggest clients are OEMs who sell Windows together with its PCs. Consumers have no clue about OS price proportion in a given computer system. Even if they knew, as Judge Jackson said, “[t]he price of an Intel-compatible PC operating system accounts for only a very small percentage of the price of an Intel-compatible PC system.” 84 F.Supp.2d at 15, ¶19. Once the computer system is bought, consumers are locked-in Intel-compatible PC operating systems. See, Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451 (1992) (“[A] seller profitably could maintain supracompetitive prices in the aftermarket if the switching costs were high relative to the increase in services prices, and the number of locked-in costumers were high relative to the number of new purchasers.” (Emphasis added.) Even if Mac OS were included, Windows would still detain well above 80% of the market. 84 F.Supp.2d at 19, ¶35.

Middleware. There is no middleware, Navigator, Java or any other, which is capable or designed to run without an OS. They all are structured as a layer over the running OS that necessarily must be there. Microsoft does not say the truth when it says that the district court found middleware “the most competitive serious threats to Windows.” Microsoft brief, p. 85. In no moment the district court took Navigator or Java as direct competitors of Windows. They were always characterized as exposing APIs that would compete with Windows APIs for developers’ attention, weakening Windows application barrier if successful. In Bill Gates’ words, Netscape was “pursuing a multi-platform strategy where they [would] move the key API into the client to commoditize the underlying operating system.” 84 F.Supp.2d at 72, ¶29. Microsoft’s concern, as expressed, was not that Netscape would ever develop an OS, just that the middleware would destroy the application barrier and
therefore make the underlying OS easily changeable, a “commodity”. Though still necessary.

Other “potential” competitors and competing products are not reasonably interchangeable for Windows or easily ported to be. The costs involved are high and there are still concerns related to the learning, hardware, compatibility, and translation problems associated with such task. Add to that the application barrier and the high probability of Microsoft immediate and aggressive reaction, and one will have to agree that the relevant market was reasonably defined as “the licensing of all Intel-compatible PC operating systems worldwide.” 84 F.Supp.2d at 14, ¶18. See PNB, BMI, Grinnel.

Monopoly Power. Microsoft possesses a dominant, persistent, and increasing share of the Intel-compatible PC operating system market. Microsoft’s share of the worldwide market for Intel-compatible PC operating systems currently exceeds ninety-five percent. “The existence of such power can be inferred from predominant share of the market.” Grinnell, p. 573. Though such market share is a powerful indicative, it is not enough, without more, to characterize monopoly power, because “the lower the barriers to entry, and the shorter the lags of new entry, the less power existing firms have. When supply is highly elastic, existing market share does not signify power.” Ball Memorial Hospital, Inc. v. Mutual Hospital Insurance, Inc., 784 F.2d 1325, 1335 (7th Cir.1986). Regrettably, high barriers, primarily the application barrier, protect the OS market from new entrants. The “proof of dominant market share and the existence of a substantial barrier to effective entry create the presumption that Microsoft enjoys monopoly power.” 87 F.Supp.2d 30, 36. See, United States v. AT & T Co., 524 F.Supp. 1336, 1347-48 (D.D.C. 1981) (“a persuasive showing … that defendants have monopoly power … through various barriers to entry, … in combination with the evidence of market shares, suffice[s] at least to meet the government’s initial burden, and the burden is then appropriately placed upon defendants to rebut the existence and significance of barriers to entry.”) Microsoft presented the district court with putative restraints only as a rebuttal to the inference of monopoly power. The court found it insufficient to reverse the prima facie presumption of power. The persistent and increasing market share, the entry barriers, coupled with other indicia
(Microsoft power to coerce other players in the high technology to follow its determinations\textsuperscript{24}) were enough to correctly find that Microsoft enjoys monopoly power. 87 F.Supp.2d 30, 37.

The district court does not mention in its conclusion of law, but Microsoft also enjoys a broad range within which it is able to determine its prices and detain a high profit margin, primarily in the software market where marginal costs are very low. Microsoft’s policy to increase Windows 95 price when it released Windows 98 also tend to the presumption of monopoly power, since this kind of behavior, increase the power of outdated products can only be understood under the rational pattern of a monopolist.

Microsoft argues that it does not hold monopoly power for three reasons:

1. it does not behave like a monopolist;
2. market share is not determinative of monopoly power; and
3. there are no significant barriers to entry.

Microsoft brief, p. 89-97. Microsoft’s investment policy does not say much about its monopoly power. It has never been part of antitrust theory that monopolists are necessarily passive. As Microsoft shows us, they can be really active and aggressive to maintain its power, no matter what. Antitrust theory is concerned with the undue use of economic power altering the flow of competition, not the extent to which each firm innovates or not. As appellant’s expert put it: “Microsoft must continue to improve Windows by, among other things, adding new features to it and price the operating system attractively to give its existing users an incentive to obtain a new version of Windows.” Microsoft brief, p. 91. In other words, the main reason for Microsoft innovation is the fact that software is a non-depreciable good and therefore it is necessary an additional incentive to make consumers who already own an OS to buy another one. In this sense, the price consumers pay is not for the whole OS, but for the new features created. This is the real

\textsuperscript{24} See Intel, IBM Apple, RealAudio and Netscape episodes. Put the correspondent ¶¶.
restrain in the prices, not competition. The market share argument is really weak as the district court used many indicia to establish the existence of monopoly power. The same can be said about the application barrier. “Even if Microsoft’s rebuttal had attenuated the presumption created by the *prima facie* showing of monopoly power, corroborative evidence of monopoly power abounds in the record: Neither Microsoft nor its OEM customers believe that the latter have-or will have anytime soon—even a single, commercially viable alternative to licensing Windows for pre-installation on their PCs.” 87 F.Supp.2d 30, 37. See, 84 F.Supp.2d at 24, ¶53-54.

Maintenance of monopoly power. Once I found the Microsoft enjoys monopoly power in the Intel-compatible OS market, I satisfied the first prong of *Grinnell* test and now it is necessary to find the use of anticompetitive methods to achieve or maintain such power. See *United States v. Grinnell*, 384 U.S. 563, 570-71, (1966); *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451, 488, (1992) (Scalia, J., dissenting); *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1353 (Fed.Cir.1999). The district court formulated the anticompetitive conduct question as “whether the defendant’s conduct is ‘exclusionary’—that is, whether it has restricted significantly, or threatens to restrict significantly, the ability of other firms to compete in the relevant market on the merits of what they offer customers.” If anticompetitive practices are found by evidence, then the burden shifts to defendants to support such practices with sound business reasons, in other words, “procompetitive business motivations that explain the full extent of its exclusionary conduct.” 87 F.Supp.2d 30, 38 (emphasis added). I have some doubts about Judge Jackson’s construction of the business purpose defense as supported by quoted precedents. *Aspen Skiing* Court focused on “any normal business purpose” or “valid business reasons” and against self-interested conduct, *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985), while *Eastman Kodak* focused on the “validity and sufficiency of each claimed justification” and then went on to analyze the extent to which the conducts corresponded to legitimate concerns. The problem here seems to be the coexistence of valid business purposes and anticompetitive motivations, not the inexistence of legitimate reasons. I am not really sure if Judge Jackson’s
“full extent explanation” is constructed to request an explanation for every possible anticompetitive effect, what would make the business purpose defense impossible, or if it is a kind of sliding scale approach in which the pro-and anti-competitive effects of a conduct would have to be balanced before labeling it exclusionary.

Also, Judge Jackson hinted that he would give some weight to Microsoft’s anticompetitive intent in excluding competitors by quoting the Supreme Court decision in United States v. United States Gypsum Co., 438 U.S. 422 (1978). 87 F.Supp.2d 30, 37, note 1. I have to admit that I am still troubled by the use of intent in the monopolization cases. If specific intent is not necessary, see, Aspen Skiing, note 18; Alcoa, and Lorain Journal Co. v. United States, 342 U.S. 143 (1951), then there must be an objective test to determine what is an exclusionary conduct and intent should not be an element of it. If “no monopolist monopolizes unconscious of what he is doing”, intention is always to be implied after such test is satisfied. What would be the role of Microsoft exclusionary intent if they also had some economic interest beyond exclusion of competitors? Should mere intent be enough? I believe I need not answer these questions here, because I have evidence of inefficient change in pattern without legitimate business reasons. See Aspen Skiing, Eastman Kodak. That would be enough to characterize Microsoft actions as exclusionary conduct. Neumann v. Reinforced Earth Co., 786 F.2d 424, 427 (D.C.Cir.1986).

Microsoft was charged of many exclusionary conducts to combat the middleware threat. Specifically, against the “Browser Threat” it foreclosed the OEM channel of distribution, first through contract provisions and then through tying Internet Explorer to Windows. 87 F.Supp.2d 30, 39. In doing so, Microsoft availed itself of legitimate and illegitimate means to persuade OEM to promote IE at the expenses of Navigator, including coercion. 84 F.Supp.2d 9, ¶¶230-38. Judge Jackson also found that Microsoft intentionally engineered Windows unnecessarily dependent on IE, increasing Navigator’s costs. 87 F.Supp.2d 30, 39. These findings are quite correct when related to Windows 95 and

IE 1.0 to 4.0, because they were clearly different products, but it is problematic when referring to Windows 98, since it was engineered to absorb IE and set up some unique features. The anticompetitive effect of those measures was clear and the anticompetitive intent was reinforced by Microsoft recognition that its browser was not the best and would only gain market share if bundled with Windows. Id. 40. Again the focus was on the anticompetitive intention that put those actions in practice, Id. 41, since other distribution channels were still available. Business justifications presented were almost ignored.

Microsoft also tried to foreclose the IAP channel. In order to convince IAP to change from a successful product, Navigator, to IE, then clearly not the best product, Microsoft was willing to forfeit a profitable business (browser market) and actually paid IAPs to instigate the current users of Navigator to start using IE. 84 F.Supp.2d 9, ¶¶259-60. Without the benefit of excluding a potential threat to the application barrier, such conduct is irrational since Microsoft never charged nor charged for IE nor does it charger for it now. It is even clearer if we take into account that those IAPs were in direct competition with Microsoft’s own OLS. 87 F.Supp.2d 30, 42. Microsoft also abusively penalized IAPs that did not kept Netscape usage bellow certain percentage, independently of the services it claimed protection from free raiders. Id. 42. In the crusade to eliminate the potential threats to the application barrier, Microsoft was willing to forfeit another profitable business, the Mac Office, unless Apple stopped promoting Navigator. Id. 43. This episode definitely raises a red flag on misuse of power. See, Federal Trade Commission v. Superior Court Trial Lawyers Ass., 493 U.S. 411 (1990); Paramount Famous Lasky Corp. v. United States, 282 U.S. 30 (1930).

Another threat to the application barrier, the Java technology, was also illegally attacked. Violating contractual duties, Microsoft created versions of Java technology that would be incompatible with Sun’s standard, coerced Intel to abandon any support to the cross-platform project and impelled information-dependent ISVs to only distribute Microsoft version of the polluted Java. Id. 43-44. Again these actions qualify the present case as a clear abuse of market power and monopo-
lization. They cannot be described as competitive actions based on the merits, or beneficial to consumers. Id. 44.

Considering all these actions as a whole the district court found that “Microsoft mounted a deliberate assault upon entrepreneurial efforts that, left to rise or fall on their own merits, could well have enabled the introduction of competition into the market for Intel-compatible PC operating systems.” Id. 44. This anticompetitive conduct coupled with Microsoft special qualification of monopolist is enough to characterize a violation of the Section 2 of the Sherman Act.

2.2.2. Attempt to Monopolize the Browser Market

The test for attempted monopolization is expressed in *Spectrum Sports* and requires that “a plaintiff must prove (1) that the defendant has engaged in predatory or anticompetitive conduct with (2) a specific intent to monopolize, and (3) a dangerous probability of achieving monopoly power.” *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 456, (1993).

The district court found that Microsoft’s June 1995 proposal for Netscape to abandon the browser technology market for Windows coupled with the subsequent efforts to overwhelm Navigator usage share with a proliferation of IE inextricably attached to Windows was enough to satisfy the first prong of the test. Such assumptions should be further analyzed. First, the meeting between Microsoft and Netscape and its content is based on testimonies of Netscape Officers and some notes taken during the meetings. 84 F.Supp.2d 9, ¶¶ 79-89. Microsoft fiercely denies anything related to that. Second, although tying language is avoided, the pillar for following anticompetitive behavior charge is the fact that IE was made “inextricably attached” to Windows, viz., tied. This is certainly true for Windows 95 and IE versions 1.0 to 4.0, but raises some doubts about Windows 98. In any way, I would take Microsoft previous conduct as satisfactory for the first prong. From Microsoft

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conduct and e-mails, specific intent can easily be attributed, even though they never expressly stated it. The use of predatory tactics is enough to prove intent. *Conclusions of Law at 45; Spectrum Sports at 459.* The second prong is satisfied. The last prong, dangerous probability can be fulfilled in two ways. On one hand, if I want to use meeting, it is reasonable to affirm that had Netscape accepted the market division, Microsoft would predictably endure unchallenged domain over browser technology for Windows. On the other hand, since Microsoft detains monopoly over the Intel-compatible PC operating system market, it is probable that this power could be leveraged with dangerous probability of success. 87 F.Supp.2d at 46.

2.2.3. Unlawful Ting Arrangements

This charge is the most problematic in the whole opinion because of the previous antitrust litigation, *United States v. Microsoft Corp.*, 147 F.3d 935 (D.C.Cir.1998) (“Microsoft II”) which is itself related to an earlier decision of the same Circuit, *United States v. Microsoft Corp.*, 56 F.3d 1448 (D.C.Cir.1995) (“Microsoft I”). In *Microsoft II* some parameters were established to guide the interpretation of the consent decree27 negotiated at *Microsoft I*. In doing so, the district court adopted a rule that would eliminate any effective judicial review of software integrating, as long as the defendant could argue “a plausible claim that it brings advantages.” 147 F.3d at 950. It completely ignored any anticompetitive intent or effect.

Supported by Supreme Court precedents *Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2, (1984), and *Eastman Kodak*, the district court considered any opinion beyond the interpretation of the consent decree that could or should be applied in the present case as *obiter dicta* and disregarded it as erroneous. 87 F.Supp.2d at 47. According to those precedents, it then constructed the illegal tying test as “where

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1. two separate “products” are involved;
2. the defendant affords its customers no choice but to take the tied product in order to obtain the tying product;
3. the arrangement affects a substantial volume of interstate commerce; and
4. the defendant has “market power” in the tying product market.” 87 F.Supp.2d at 47.

Judge Jackson completely ignored the discussion in both cases about the standard to be applied, a stricter per se rule or rule of reason, and quite changed things a little bit, but not enough to misapply the test. It is certainly not adequate in complex cases like this to apply any rule other than rule of reason. Jefferson Parish stands for the proposition that in cases of patented or copyright protected products or expressive market share, market power should be assumed and a per se rule applied. Microsoft could easily be included in both categories, but the court decided to rely on a full rule of reason analysis and Microsoft asserted monopoly power. I have to agree with Judge Jackson that per se rule in this area does not make much sense.

After deciding the judicial review standard, the district court found that consumers perceive operating systems and browsers as separate products for which there is a distinct demand, 84 F.Supp.2d 9, ¶¶ 149-54. Notwithstanding the fact that as software, both can be intermingled in infinite forms. 87 F.Supp.2d at 49. It is important to notice that the court did not recognize any unique efficiency resulting from such integration, because the most appropriate test would not be the functional relation between integrated products, but the existence of demand for two products. Id. 50. It also observed competitors and found that they offered separated products and Microsoft was the only one to refuse to license its OS separately. 84 F.Supp.2d 9, ¶ 153.

The rest of the analyses that Microsoft monopoly power was enough to coerce consumers to necessarily acquire both products and that this tying affected a substantial amount of interstate commerce it relatively correct, if the first prong of the test was sufficiently satisfied.
87 F.Supp.2d at 49-51. The problem with Judge Jackson’s approach is that it is not clear whether after full integration in Windows 98 I still have different products. Microsoft still argues that integrated design resulted in a superior product and therefore does not violate Section 2. Microsoft brief, p. 101. There is a tension here that neither party recognizes, it is possible that IE/Windows integration represented some gains in efficiencies (unique features) but it is also pretty clear that such integration was pursued, together with the rest of Microsoft crusade, with anticompetitive objectives to exclude Navigator from the market. The court blindly states that they are different products and Microsoft states that as long as they can show any efficiency, it does not matter intention or anticompetitive effect, they are immune from antitrust scrutiny. In a case like that, Justice Wald dissenting approach seems more adequate as it brings balance between efficiencies and antitrust values. For him commingling alone should not be enough to characterize true integration, the courts should consider if the resulting product confers benefits on the consumer that justify a product’s bridging of two formerly separate markets. 147 F.3d 935 (Wald concurring in part and dissenting in part). Resulting synergies should be balanced against exclusionary impact of such measures. Of course this approach is clearly incompatible with the Tenth Circuit decision in Telex, the famous IBM case.\textsuperscript{28} Telex Corp. v. IBM, 510 F.2d 894 (10th Cir.1975), cert. dism’d, 423 U.S. 802. This tension between antitrust and intellectual property values need to be solved but the Supreme Court refused to analyzed it before and nothing assure us that if this case reach it certiorari will be granted.

Independently of the approach, if I look at the distinct consumer demand, the way the two products were marketed (i.e. Microsoft posted IE as an independent product in its website until the case started, it was shipped separately, etc), the few efficiencies associated with the integration, the huge impact on Navigator and any future

\textsuperscript{28} For a discussion about the similarities between the Telex case and Microsoft see: Jay Dratler, Jr., \textit{Microsoft as an Antitrust Target: IBM in Software?}, 25 Sw. U. L. Rev. 671 (1996) (also supporting conduct relief for the case at 742).
entrants in the browser technology for the Windows market, the historic of Microsoft fierce combat to any middleware threat (primarily Navigator), using legal and illegal tactics coupled with Navigator exclusion not based on the merits, it is at least troublesome for me not to condemn Microsoft for attempt to monopolize. The U.S. will have to adopt a clear policy regarding antitrust and IP that will shape future decisions in either way. Total immunization to the high-tech industry is very dangerous as society’s wealth moves to IP-based forms and pressures rises. For the sake of consumers, I hope a balance can be reached.

2.2.4. Exclusive Dealing

The violation of Section One of the Sherman Act was the only claim the district court dismissed. Supported by Tampa Electrics and U.S. Healthcare precedents, among others, Judge Jackson recognized a variety of elements to conduct the analysis, including:

1. the degree of exclusivity and the relevant line of commerce implicated by the agreements’ terms;
2. whether the percentage of the market foreclosed by the contracts is substantial enough to import that rivals will be largely excluded from competition;
3. the agreements’ actual anticompetitive effect in the relevant line of commerce;
4. the existence of any legitimate, procompetitive business justifications offered by the defendant;
5. the length and irrevocability of the agreements; and
6. the availability of any less restrictive means for achieving the same benefits.” 87 F.Supp.2d at 52. See U.S. Healthcare

29 Prof. Moglen answers Microsoft claim that it is being punished for successfully exploiting its own ideas by remembering that it fails to point the factual finding that the property in question had been used illegally to injure others. See Eben Moglen, Microsoft: Breaking Up is Good to Do, The Nation, 06/26/00.
Since all the exclusive dealing contracts that Microsoft entered with Compaq, AOL, and several other OLSs, the top ICPs, the leading ISVs, and Apple were unable to absolutely foreclose outlets for a substantial percentage of distribution, no liability was found under Section One. 87 F.Supp.2d at 52-3. The simple fact that those were the most effective distributorships was not enough to characterize a violation since Navigator had alternative outlets like the Internet, retail channels and mailing. Id. 53.

Summarizing, Microsoft was found:

1. to have maintained monopoly power in OS market by anti-competitive means;
2. to attempt to monopolize the web browser market;
3. to illegally bundle its OS and web browser; but
4. Microsoft’s agreements with Internet service providers (ISPs), Internet content providers (ICPs), independent software developers, and PC manufacturers to distribute and promote its web browser to exclusion of competing browser did not constitute unlawful exclusive dealing arrangements. 87 F.Supp.2d at 35.

3. The Solution Adopted

3.1. The hypothesis

The district court conferred great deference to the remedies proposed by plaintiffs. First because it was the collective work of senior antitrust law enforcement officials of the United States Department of Justice and the Attorneys General of 19 states, in conjunction with multiple consultants. Final Order, 97 F.Supp.2d 59, 63. (D.C. 2000). Microsoft proposed decree was also considered inadequate because it did not satisfy any of the three principles that would guide the designed
remedies: to terminate the unlawful conduct, to prevent its repetition in the future, and to revive competition in the relevant markets. In my analysis of the proposed decree, I will try to address all three guiding principles and try to establish the adequacy of each measure.

As stated in its Conclusions of Law, the district court found that “Microsoft early on recognized middleware as the Trojan horse that, once having, in effect, infiltrated the application barrier, could enable rival operating systems to enter the market for Intel-compatible PC operating systems unimpeded. Simply put, middleware threatened to demolish Microsoft’s coveted monopoly power. Alerted to the threat, Microsoft strove over a period of approximately four years to prevent middleware technologies from fostering the development of enough full-featured, cross-platform applications to erode the application barrier. In pursuit of this goal, Microsoft sought to convince developers to concentrate on Windows-specific APIs and ignore interfaces exposed by the two incarnations of middleware that posed the greatest threat, namely, Netscape’s Navigator Web browser and Sun’s implementation of the Java technology. Microsoft’s campaign succeeded in preventing – for several years, and perhaps permanently – Navigator and Java from fulfilling their potential to open the market for Intel-compatible PC operating systems to competition on the merits. Because Microsoft achieved this result through exclusionary acts that lacked procompetitive justification, the court [deemed] Microsoft’s conduct the maintenance of monopoly power by anticompetitive means.” 87 F.Supp.2d at 39.

This is the hypothesis that will guide the court when designing the remedies. It will try to eliminate any anticompetitive conduct pursued by Microsoft in its crusade against threats to the application barrier or potentially pursuable by one of the resulting companies. It tries to reinstate competition in both Intel-compatible PC operating system and browser technology for Windows markets, eliminating the anticompetitive conducts and preventing reoccurrence in the future. In general lines, the government opted, and the court followed such option, for the creation of two distinct enterprises according to the line of business, one specialized in operating systems, Operation Systems Business (hereinafter Opsco) and one specialized in applications, Applications Business\(^{31}\) (hereinafter Apsco). This division obeys Microsoft’s internal division of development groups. In short, the idea underlying this solution is that unbundling Opsco’s interests from Apsco’s will solve the anticompetitive incentives to exclude others and solve the problem. Opsco would have an incentive to open as much information possible so that there are more applications as possible for its OS, while Apsco would port its applications to more platforms, so it reaches every market possible, including OS that would compete with Opsco’s OS, e.g. Sun Risk-platform.

### 3.2. Structural Remedy – Divestiture

According to Section 1(c) of the decree, within 12 months of the expiration of the stay pending appeal, Microsoft Corporation should be divided into two different entities, Opsco and Apsco. Each of them should be assigned the correspondent tangible and intangible assets necessary for the future independent life, including the development groups. In assigning the Intellectual Property (IP) between those new entities, all common technology (IP that is use both in a product developed, distributed or sold by Opsco and Apsco) will be transmitted to Apsco, while Opsco will receive perpetual and royalty free license of such technology, who will be able to license it for third-parties, develop and distribute modified or derivate versions of such IP. The court wanted

\(^{31}\) Application Business means all business carried on by Microsoft Corporation on the effective date of the Final Judgment. 97 F.Supp.2d at 71, §7(c).
the new entities to start working as distinctive enterprise, but a lot of
technology was shared among the operating systems group (primarily
Windows-family) and the innumerable Applications developed by Mi-
crosoft, therefore, it would not be feasible to perfectly attribute all
technology development between groups as they overlap and it would
unreasonably impair current products. This provision equally distribute
between both groups all the technology shared until April 27, 2000.
From this date on, all technology developed will have to be exclusively
assigned to one or the other business.

Nonetheless, not all shared technology would be freely li-
censed for Opsco. All technology related to the Internet Explorer browser
would be licensed for Opsco on the same terms except that it will not be
able develop, license and distribute modified or derivative versions. It
means that the operating systems could still use the current technology,
but Opsco could not develop it or license it for third parties except in the
original form. 97 F.Supp.2d at 65. The main point of that restriction is
to allow Opsco to develop operating systems with HTML reading
capabilities, without bundling IE. Also, Opsco cannot grant rights to the
derivative work licensed under those terms to Apsco.

It is important to notice that although Opsco cannot develop
derivatives versions of the browser, nothing was said about creating a
new browser from the scratch or by buying technology from another
company. If Opsco maintain its monopoly power in the Intel-compatible
PC operating system market, it could probably develop and bundle
another browser or as Microsoft like to say, browser functionalities, in
the next OS. What bars Opsco from licensing Navigator technology
from AOL/Netscape to bundle it in its OS? That would certainly be a
chance for Netscape to reconquer lost market share. On one hand it is a
good opportunity to revive competition on the Windows browser mar-
ket. Opsco could develop new browser technology or license Naviga-
tor’s technology and offer it. Apsco would be fighting to keep the
hegemony of IE. On the other hand, nothing bars Opsco to bundle
Navigator or new browser technology to its OS and refuse to license
them separately. If Opsco monopoly is not effectively destroyed or its
monopoly power impaired, an attempt to monopolize the browser mar-
ket and illegal tying of OS/browser is likely to reoccur. This measure
Ivo Teixeira Gico Junior

Certainly terminates the unlawful conduct and bears the potential to revive the competition in the browser market, but it fails to prevent reoccurrence in the future. I say bears the potential to revive the market because IE was developed as a non-revenue product, cross subsidized by the profits from the OS monopoly. Without this scheme and leverage from Windows bundle, other browsers will have the opportunity to compete in the merits and a profitable business model can be developed. Innovation could flourish and competition reinstalled, but what prevents Opsco from reinstating a cross subsidized model again? Maybe the assumption is that once you have IE, Navigator and the new technology competing for the market, even if Opsco bundle it, competition on the merits would prevail. Remember that bundling was not enough for Microsoft, it was necessary to close distributorship channels, pay ICP, ISV, etc, to make IE the dominant product. If those methods are not available, maybe competition will keep Opsco on the line. But what would happen if Opsco licensed Navigator technology? It is a mature technology, it has enough goodwill in the market and AOL/Netscape would be most willing to leverage it with Opsco operating systems. Without prohibition of this kind of conduct, maybe the divestiture will show not to be enough.

Another good argument for divestiture is that since Apsco would have no interest in the Opsco market, it would develop its applications for the broadest range of operating systems possible, mining the application barrier that protects Windows and increasing the chance of reestablishment of competition in the OS market. One could imagine Microsoft Office for OS2, Linux, Solaris, etc. Of course development depends on the economic availability of porting software for those platforms. If they do not have enough installed base than no application will be ported or would be at a higher price. In any way, coercion from Apsco against companies that produce operating system is less likely to happen because it does not have the operating system monopoly leverage (power enough to coerce) or interest to protect. It is unlikely that episodes like Apple coercion would happen again. 84 F.Supp.2d at 95, ¶345.

With revenues restricted to the operating system market, Opsco would have double incentives to maintain its large library of
applications. One can reasonably argue that without Apsco and unable to discriminate between customers, Opsco would reveal as much information as possible for ISVs so they keep interested and willing to develop software for Opsco OS. This line of argument ignores the fact that even though Opsco would be deprived from control over Apsco, Windows is still the most popular operating system in the market and there is no other substitute for it in the near future. Opsco’s bargaining power is almost untouched by divestiture because Apsco is highly dependent on Opsco technical information as any other ISV. They all will still need Opsco cooperation to develop applications for the broadest installed base possible. Divestiture, without more, will not prevent Opsco from coercing Intel to stop producing APIs and Device Drivers Interfaces for its chipset, 84 F.Supp.2d at 34, ¶96; threatening Apple to stop developing audio and video technology for Windows, 84 F.Supp.2d at 37, ¶106; threatening RealNetworks, 84 F.Supp.2d at 38; or even IBM, 84 F.Supp.2d at 39, ¶116. The separation between Opsco and Apsco certainly diminish Microsoft power to coerce other operating system developers like Apple or IBM and almost eliminate the bundling problem with the Internet browser, but it hardly reach the abuse of monopoly power in the OS market. Opsco will still have the incentives and power to defend the application barrier to protect its products. Apsco will increase availability of applications for other OS, but it will still be highly dependent on Opsco and will not diminish its power enough.

It is possible that once divided, each firm would expand to the other area of specialization. Opsco would start developing applications and Apsco operating systems. Again, Apsco will face all the problems that previous Windows-challengers faced in the past, vast amount of applications available, positive loop network effects, huge amounts of investment, etc. It is unlikely that Apsco will do better than IBM OS/2 or Apple Mac OS and it is unlikely that they will try. Still, Apsco could start supporting one of the most feared potential Windows competitors, Linux-based OS. If products like Microsoft Office are made available to Linux-based operating systems, it creates amazing incentives to consumers to migrate for a Linux platform, because it is for free. That would certainly mine Opsco power to threat or coerce ISV or OEM, because the higher the problems it creates, the higher the incentives for
independent enterprises to support alternatives for the monopoly. IBM, Intel and Sun have demonstrated more than once interest in doing so. Opsco alternative would be to compete on the merits and competition would be likely to be reestablished.

In order to potentialize competition between both companies, the decree explicitly forbids any kind of common interest between Apsco and Opsco, their respective directors, officers or Covered Shareholders. Also, no Covered Shareholder, director, officer or employee of one firm can be an officer, director or employee of the other firm. Complete independence is the objective, therefore they cannot merge or establish any joint venture with one another; enter into any Agreement that will prevent overlapping (and competitive) or competitive conduct or products; share technical information that is not simultaneously made readily available to ISVs, IHVs, and OEMs (no information favoritism); or licensing, selling or otherwise providing to the other firm any product or service on more favorable terms (no commercial favoritism) than those available to any similarly situated third party. Except for Middleware Products, licensing technologies to each other is permitted if it was not previously offered as a product and is consistent with the decree. Evidently this provision is designed to prevent any cross licensing that would permit Opsco to bundle again any application not developed by

Covered Shareholder means a shareholder of Microsoft on the date of entry of the Final Judgment who is a present or former employee, officer or director of Microsoft and who owns directly or beneficially more than 5 percent of the voting stock of the firm. Agreement means any agreement, arrangement, alliance, understanding or joint venture, whether written or oral. IHV means an independent hardware vendor that develops hardware to be included in or used with a Personal Computer. Middleware Product means Internet browsers, e-mail client software, multimedia viewing software, instant messaging software, and voice recognition software, or software distributed by Microsoft that is, or has in the applicable preceding year been, distributed separately from an Operating System Product in the retail channel or through Internet access providers, Internet content providers, ISVs or OEMs, and provides functionality similar to that provided by Middleware offered by a competitor to Microsoft.
itself into its operating system. The court seems worried about future bundling or tying agreements. Again, nothing was said about Opsco developing or acquiring from third parties other technologies and realizing the same conducts such provision intends to prevent. What would happen if Opsco now license Navigator technology and decide to bundle it with Windows? The decree does not seem to offer an answer to that and it is not fully clear if it could or should prevent such conduct. Anything in this aspect might be too intrusive and would resemble the court dictating Opsco how to develop its software.

Another important aspect is the equitable distribution of human capital, Microsoft most valuable asset. The decree deals with equity ownership and equips management organization, but it did not touch a sensible point about the top officers’ placement. It is arguable that the company that concentrated the founders and the top officers would have a huge advantage over the other one. It is not clear which one would be preferred Opsco or Apsco, but the positions can be fulfilled with capable professionals in the market. Any tentative to equally distribute those entrepreneurs between the new companies would be unnatural and unsuccessful. Another aspect is the exchange of programmers between equips. It is common for a developer to move back and forth between OS and Applications groups. Maybe a careful and planned division by specialization would be advisable.

Summarizing, as a general objective, in designing the divestiture, Plaintiffs and the court had in mind the reestablishment of competition on the Intel-compatible PC operating system market and on the Windows browser technology market, as well as eliminating and preventing future anticompetitive conducts maintained by Microsoft and possibly repeatable by Opsco.36 The easiest way to reestablish competi-

36 The present case does not deal with any charge against Microsoft and its practices in the application business. The only episode the slightly touch this aspect was the coercion of Apple to stop promoting Navigator in its platform or Microsoft would stop developing its Office for Mac OS, even though it was a profitable business. 84 F.Supp.2d 9 at 37, ¶106. With the separation between Apsco and Opsco, Opsco will have no such power and Apsco will have no incentive to stop developing profitable software. Furthermore, Apsco is not a monopolist in any market.
tion in the browser market was to ordain separation between operating system (Opsco) and browser software (Apsco). If Opsco has no interest in the development of browser business, then it would be indifferent about which one IE or Navigator would be used and Windows would probably be designed to fully accept both or any new comer. Opsco can even develop new product to compete with both, but then nothing would prevent it from bundling it again with the OS. Since the divestiture was structured to create two distinct complementary companies that would not necessarily compete with each other, but who potentially have the incentives to compete, it is not clear how competition will be reestablished in the operating system market. It is true that Apsco/Opsco separation will mine some of the application barrier that insulates Windows from competition, but not entirely and probably insufficiently to revive competition. The temporary provisions might alleviate such drawback of the chosen plan. In addition, some anticompetitive conducts will be eliminated by the obliteration of some incentives created by intermingled interests present at Microsoft (Apsco/Opsco), but many will only be addressed by the additional limitations set in section 3.

3.3. Conduct Remedies – Provisional Measures

Recognizing that divestiture is not enough, the court assigned special restrictions and duties to Microsoft and Opsco, after it is created. The provisions in Section 3 are valid until three years after implementation of the Plan of Divestiture or the expiration of the Final Judgment, whatever happens first.

OEM Relations. Microsoft is forbidden of taking any adverse actions against any OEM for supporting competitive products. It does not matter if the motivation for doing so is directly or indirectly, in whole or in part, on any action by the OEM. §3(a)(i). This provision purpose is to prohibit conducts like Microsoft threat against Intel development of APIs or DDIs for its chipset (84 F.Supp.2d at 34, ¶96), Intel’s

37 For the purposes of the remedies only, Microsoft means Microsoft Corporation, Opsco, Apsco, their successors and assigns, their subsidiaries, affiliates directors, officers, managers, agents, and employees, and all other person who shall have received actual notice of the Final Judgment, 97 F.Supp.2d at 72, ¶7(p).
support to Sun’s Java technology (84 F.Supp.2d at 106, ¶390), IBM promoting its own operating system, OS/2, or Office Suit (84 F.Supp.2d at 39 ¶¶116-118), or even Apple adoption of Navigator technology (84 F.Supp.2d at 37 ¶106). This will curtail Microsoft power to undermine competing software development by coercing potential competitors or competitors’ supporters to drop such competition to the benefit of Microsoft’s products. Exactly as with OEMs, Microsoft is also forbidden from taking any action affecting any ISV or IHV, totally or partially, based on the promotion of Microsoft or competitor’s products. §3(d)(i) and (ii).

Microsoft power to discriminate against consumers is also limited by the decree. §3(a)(ii). The license terms for Windows Operating System Products have to have public and uniform terms and no discriminatory market allowance or discount is permitted. The two exceptions are different language versions and volume discounts based on actual volume shipped. §3(a)(i)(1) and (2). This provision eliminates Microsoft to leverage its power by establishing better terms for non-competing OEM and disturbing the competition in the PC market. Microsoft tried to use this tactic many times to convince IBM to stop competing in the OS and Office Application market if it wanted to maintain its PC market (84 F.Supp.2d at 39 ¶¶116-118). Compaq who did not develop software, IBM direct competitor, would always have a beneficiary contract at the expenses of IBM.

Together with the prohibition to discriminate among OEMs and to take any adverse action against competing OEMs, Microsoft was also obliged to provide equal access to facilities and information, be it commercial or technical. In short, these restrictions try to eliminate any market power Microsoft enjoys in the operating system market regarding OEM. While they are valid, Microsoft has no power at all. Even in the case of termination of a license, a written notice has to be sent and an opportunity to cure granted.

Broad flexibility in configuring Windows is also granted to all licensed OEMs. They can alter the boot sequence, startup folder, Internet connection wizard, desktop, preferences, favorites, start page, first screen, or other aspects. Including icon disposition, user interface and remove Microsoft’s Middleware Product. §3(a)(iii). Microsoft had used
in the past its control over those features to offer its own other products or to negotiate the real state represented by the icon disposition. Notwithstanding the past abuse, with the divestiture, the prohibition of the discrimination or other adverse actions, this clause seems a little bit too far reaching. It is not only protecting the OEMs, but it is also transferring highly valuable rights to OEMs at the expenses of Microsoft. Here a question should be carefully meditated upon and answered, who should benefit from the Windows GUI? It is not clear for me why Microsoft should open hand of this valuable asset without corresponding benefit. Or why should OEMs be benefited with such measure without need. The measures against discrimination and favoritism are adequate to protect OEMs from capricious licensing and discriminatory pricing, but a blunt removal of Microsoft property by allowing any icon or GUI configuration seems to me unnecessary and overreaching. Less unequal tools could be used to allow certain modifications that would allow the exposition of competing products or undue restriction, but full control without corresponding consideration to Microsoft is inadequate. One obvious consequence of this wealth transfer is the necessary increase in Windows price to recoup the lost revenue from such real state. Maybe the payment of a flat fee or an equal distribution of icons could solve this. Not all Microsoft restrictions over Windows GUI and icon disposition are fully explain by business motives, but not all are really anticompetitive, some have “legitimate business justification.” Baker v. Simmons Co., 307 F.2d 458 (1st Circ.1962). The provision should be reviewed.

Disclosure of APIs, Communications Interfaces and Technical Information. This provision is better understood when you keep mind

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38 Prof. Moglen argues that the way personal computer works in the era of the Internet is an essentially political question. The power to control the environment of the PC, in which more and more consumers spend increasing portions of their lives, conveys the power to shape, at a level so ubiquitous as to be barely noticeable to the average user, the nature of the public discourse. See Eben Moglen, Microsoft: Judgment Day, The Nation, 04/24/00. As the argument goes the question of taking non-economic considerations into account in antitrust enforcement is presented to us again. Under this non-economic analysis, eliminating Microsoft power over the desktop environment makes a lot of sense.
that it is enforceable before the Plan of Divestiture is implemented and against Opsco for three years thereafter. It establish that Microsoft should disclose to ISVs, IHVs, and OEMs in a timely manner, through the same media, all APIs and Technical Information made available to its own internal personnel that is employed to make any application, Middleware or other devices (like handholds or servers) to interoperate with Microsoft Platform Software. This provision is one of the most powerful of all provisions in the decree and obviously one of the most debatable. It can be interpreted to have two distinct objectives: a tentative to prevent favoritism between Apsco and Opsco while still Microsoft or almost full disclosure source code that will help create Windows clones.

The question that has to be done is why is it necessary a disclosure provision if I will have divestiture and favoritism is forbidden. This provision cannot legitimately be defended as preventing insi-

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39 Timely Manner: disclosure of APIs, Technical Information and Communications Interfaces in a timely manner means, at a minimum, publication on a website accessible by ISVs, IHVs, and OEMs at the earliest of the time that such APIs, Technical Information, or Communications Interfaces are (1) disclosed to Microsoft’s applications developers, (2) used by Microsoft’s own Platform Software developers in software released by Microsoft in alpha, beta, release candidate, final or other form, (3) disclosed to any third party, or (4) within 90 days of a final release of a Windows Operating System Product, no less than 5 days after a material change is made between the most recent beta or release candidate version and the final release. 97 F.Supp.2d at 73, §7(ee).

40 Middleware means software that operates, directly or through other software, between an Operating System and another type of software (such as an application, a server Operating System, or a database management system) by offering services via APIs or Communications Interfaces to such other software, and could, if ported to or interoperable with multiple Operating Systems, enable software products written for that Middleware to be run on multiple Operating System Products. Examples of Middleware within the meaning of this Final Judgment include Internet browsers, e-mail client software, multimedia viewing software, Office, and the Java Virtual Machine. Examples of software that are not Middleware within the meaning of this Final Judgment are disk compression and memory management. 97 F.Supp.2d at 72, §7(q).

41 Platform Software means an Operating System or Middleware or a combination of an Operating System and Middleware. 97 F.Supp.2d at 73, §7(aa).
nder information use by Microsoft applications programmers at detri-
ment of competing applications, simply because this question was never
present in this case and hold no relationship with any of the objectives
related in the beginning. If the Plan of Divestiture is enough to reestab-
lish competition in the browser market and the measures prohibiting
adverse and favoritism conducts are enough to stop the anticompetitive
conducts and prevent their reoccurrence in the future, than this provi-
sion can only reasonably be related either to a specific kind of anticom-
petitive conduct or to reestablish competition in the operating system
market. If the intention of this provision is to guarantee uniform access
of information for ISVs, IHVs, and OEMs, than it could narrowly say,
“no technical communication information shall be made available to
ISVs, IHVs, OEMs or any other software developers if it is not made
available in a timely manner for all the others in the same media.”
Nonetheless, that is not what the provision says, therefore it cannot be
aimed to prevent favoritism or discriminatory conducts. The intention of
§3(b) has to be to expose all the information necessary for competitors
to develop an OS compatible with Windows, a clone. The disclosure is
not restricted to the information developers’ request or to information
related to development of a determined application. It includes all the
information Microsoft applications or Middleware Product use to com-
municate with Microsoft Platform Software, even if there is no current
competitor or plan to develop a competing product for such application.
It also includes Microsoft software installed in other devices than
Personal Computers, like servers and handhelds. All this broad reach
can only mean one thing, all information that Microsoft owns or use
related to any Microsoft Platform Software, not only the information
developed to Intel-compatible PC operating systems, viz., not directly
used between machine and OS, but between OS and everything else,
including other machines, is to be made available. This provision is the
farthest you can go to disclose Windows information without actually

42 Personal Computer means any computer configured so that its primary purpose
is to be used by one person at a time, that uses a video display and keyboard (whether
or not the video display and keyboard are actually included), and that contains an Intel
x86, successor, or competitive microprocessor, and computers that are commercial
substitutes for such computers. 97 F.Supp.2d at 73, §7(x).
opening the source code. Even though, a lot of valuable information will also be made available beyond the communication mechanisms, like structures of software engineering and much of Microsoft self-developed techniques will be turned public.

The principal effect, as I can learn from IBM experience in the Findings of Fact (84 F.Supp.2d at 24, ¶52) is that cloning not only will be possible, but highly facilitated. Remember that IBM found unfeasible to keep pace with Windows’s API through unfriendly but legitimate research method (reverse engineering). I suggested before that, aware of reverse engineering attempts, Microsoft as a rational player would probably defend itself. The most obvious techniques would be the incessant creation of new APIs in large numbers and even the inclusion of false APIs to mislead eventual unauthorized readers. If disclosure were obligatory, Microsoft would completely lose any incentive, not to develop Windows, but to create APIs only to frustrate competitors or to include decoy APIs. This would probably lead to more efficient code and definitely to many Windows clones. Competition at the Intel-compatible PC operating system market would be revived.

One problematic point with the disclosure provision is that it demanded a secured facility where OEMs, ISVs, and IHVs could study, interrogate and interact with relevant and necessary portions of the source code and related documentation of Microsoft Platform Software. This access would be restricted to the sole purpose of enabling their products to interoperate effectively with Microsoft Platform Software and to facilitate compliance, and monitoring of compliance. A security facility for source code study is also troublesome if full disclosure was not to be adopted. This part of §3(b)(iii) gives weight for the interpretation that the whole disclosure section purpose was to enable “products to interoperate effectively with Microsoft Platform Software.” If that is so, then the provision is clearly overreaching and should be narrowed constructed. Another problem is why do you need such disclosure, even after divestiture, if Opsco will have no incentive not to disclose information to OEMs, ISVs, and IHVs? An equal treatment provision would do, unless, as I said before, the real purpose of the provision was to facilitate the creation of Windows clones. Because of this contradictions, this provision should also be altered to make explicit what it
intents to accomplish. The impression that such construction shows is either a subtle form to disclose Windows source code or a badly drafted clause. Since this is the collective work of many very capable professionals, it is clear that it represent a trap to Microsoft, maybe it was designed as a bargain tool. If divestiture is reversed, disclosure should be affirmed. It is not clear for me the intention of such clause.

Knowing Interference with performance. Another measure to assure that neither Microsoft nor Opsco would prevent middleware competition by altering the operating system is §3(c), which forbids conscious interference with performance of any non-Microsoft Middleware when interoperating with any Windows Operating System Product. If for any reason a measure that will impair such interoperability must be taken, Microsoft must send a warning in writing with the intention to change, the reasons of the change and any ways known to avoid or reduce such interference. It is important to remember that this provision only applies to Middleware suppliers, because the idea is that Microsoft or Opsco would have incentives to interfere with any Middleware that threatens to diminish the application barrier. Therefore, they deserve special protection. Since the other applications suppliers are no threat to Microsoft, it will have an incentive to announce such changes without any special duty to do so. Microsoft also cannot offer or grant any consideration for a Third-party, or the competitor itself, to forfeit or restrict any development, production, distribution, promotion or use of any competing non-Microsoft Platform Software. Nor can it contractually tie the license of a Windows Operating System Product to promotion or distribution of another product. Microsoft is unable to use monetary power to persuade other agents in the High-tech industry not to compete. For now on, it will have to do it only on the merits of its products.

As previously said, the exclusion of browser technology from Opsco assets would be inadequate to prevent it from bundling other parties’ technologies, like Navigator, to substitute the IE. To address this problem the court designed §3(g) that limits Microsoft and Opsco, after divestiture, from binding any Middleware Product to Operating System Products after six months of the effective day of the Final Judgment. Microsoft would only be able to bind it if at the same time it offered an
identical version of the operating system in which all means of End-
User Access\textsuperscript{43} to that Middleware Product is readily removable by
OEMS or end users. In case an OEM removes such Middleware from a
computer on which Windows is pre-installed, the royalty fee should be
deducted proportionally from the regular price with the Middleware.
The proportion is established by the ratio between the number of byte
of binary code of the separately distributed Middleware and the version
of Windows. This provision is quite surreal because it establishes a
direct connection between number of bytes and cost/price of develop-
ment. It is certainly not a correct measure, but there is no other way to
establish an easy individual price of the Middleware without Micro-
soft’s cooperation. This simple proxy cost is the way the court found to
prevent the OEM to pay for a product independently of its purchase.
Without this discount provision, Microsoft would always receive for the
Middleware, even when not shipped. It is a quite unusual measure, but
necessary. If Microsoft does not agree with the cost measure, it has the
burden to present a reasonable alternative. Under these terms, it would
be economically disinteresting for Microsoft to bundle any Middleware,
including Navigator, to its operating system, because it would be easily
removable and it would not be paid when removed. Without completely
forbidding Microsoft from biding products at all, and therefore impai-
ring innovation, that is probably the only alternative. It is either this or
the uncertainty of second-guessing analysis from a judge, like J. Wald
proposal. 147 F.3d 935. (Wald J. dissenting).

Finally, whenever Microsoft release a major version of a Win-
dows Operating System Product, the previous release will have to be
kept available for licensing on the same terms and conditions for three
years to any OEM that desires it. To prevent Microsoft previous tactic
to equalize the price of the old and the new version, after the new
release, the old version should be licensed for no more than average
royalty paid by the OEM prior to the release.

\textsuperscript{43} End-User Access means the invocation of Middleware directly or indirectly by
an end user of a Personal Computer or the ability of such an end user to invoke
Middleware. End-User Access includes invocation of Middleware by end users that is
compelled by the design of the Operating System Product. 97 F.Supp.2d at 72, \$7(j).
Abridging, to reestablish competition in the browser market, the court decided to break up Microsoft, following its line of business (operating systems and applications), into two different companies, Apsco and Opsco. The divestiture would also mine some of the incentives to keep the application barrier, as Apsco would have the interest in broadening its base of clients. It also ordered that all anticompetitive conduct should cease and prohibited any future discrimination or Microsoft’s use of resources to damage competition. Finally, in a very polemic provision, Microsoft was ordered to make public all its APIs and technical information, what is not exactly opening up the source code of Windows, but it is more than enough to make possible the development of clones. If I analyze the Final Judgment as a whole, this provision makes sense as the only way to reestablish competition to the operating system market. The real problem is that it was badly drafted, probably on purpose, not to resemble such solution. If my interpretation of §3(b) is incorrect and what was planned is only a non-discriminatory provision, than it is definitely wrongly drafted because it is too blunt a tool to accomplish such simple objective. Notwithstanding, if that is the only purpose of the clause, then the decree fails to revive competition in the operating system market, a highly improbable fault.

4. An Alternative Relief – Disclosure

Here I will try to analyze how to reestablish competition in the relevant markets, not only the Intel-compatible PC operating system market, but also the browser technology market for Windows by disclosure remedies solely. Next, I will analyze whether adopting solutions, divestiture and disclosure, better address the problem than a single approach.

In the Findings of Facts, the court did not focus much on the browser market; however in the Final Judgment most of the remedies are aimed at reviving the browser competition and eliminating anticompetitive conducts. The OS market, which received so much attention in the Findings of Facts, was a little bit neglected at the Final Judgment and the only provision that potentially attacks it is, at minimum, confusing. As indicated before, Section 3(b)(iii) gives weight for the interpre-
tation that the whole disclosure section purpose was to enable “products to interoperate effectively with Microsoft Platform Software.” One can reasonably say that it is aimed at forbidding favoritism between Opsco and Apsco while still commingled at Microsoft and the disclosure of information is to prevent the undue use of internal information as consideration. The objective would be to permit any application or middleware to freely interact with Windows. Whereas others can say that it demands full disclosure of any Windows-communication information. The objective would be to facilitate the creation of clones, so that Windows-compatible applications can freely interact with the germaine operating system. It is important to notice that the court did not use the word applications that have been used in contrast with the expression operating system. It used the word products. With that in mind, I will try to analyze an alternative proposal.

4.1. The Underlying Hypothesis

The central issue in the case is Microsoft complete domain of the OS system market. Microsoft was charged of unlawful maintenance of monopoly in the Intel-compatible PC operating system market, of attempting to monopolize the web browser market and of illegally tying Windows and IE. Conclusions of Law, 87 F.Supp.2d at 35. The objective of any antitrust remedy is to stop and prevent the unlawful conduct and to reestablish competition in the relevant market. Hence, the solution for the case need to reestablish competition in the browser and OS market as well as stop and prevent Microsoft’s anticompetitive conducts to achieve or maintain monopoly in those markets. If Microsoft monopoly power were neutralized, would the rest of the problems be solved by natural competition? How could Microsoft monopoly power be neutralized?

A full disclosure order coupled with minor anti-discriminatory clauses could solve this. A minimum intrusive order would require Microsoft to disclose important information for applications compatibility, just like in the broader interpretation of Final Judgment Section 3(b). The relevant and necessary portions of the source code and any related documentation of Microsoft Platform Software for the sole
purpose of enabling their products to interoperate effectively with Microsoft Platform Software could be made available to OEMs, ISVs, and IHVs. Without actually opening up the source code, all the material information necessary for competitors to create clones of Windows will be available on a timely manner. Once there is one or more clones available, the hardware, compatibility (application and hardware), price and translation costs for switching between products would be abruptly eliminated. The only cost to move from Windows to a competing OS would be the learning cost associated with it and its actual resale price. With new agents in the market, natural competition would keep Microsoft on the line. If there is actually a specific demand for an OS without a browser, then a competitor will offer it and Microsoft will have either to follow or lose market share. If an OEM need some technical development for its new chip, a competitor will be most pleased to satisfy its necessity if Microsoft does not do it in a timely manner. If anything is bundled in an inefficient way with Windows, the competitors will offer more efficient alternatives. In short, competition will lead to faster and efficient software development. Competition will also prevent abuses. In a competitive world, less Government interference is necessary and efficiency is better achieved.

The tension with this approach is the free rider problem. Microsoft argues that this provision will allow competitors to “clone” Windows OS without investing enough on software development. Microsoft would have no incentive to invest, as anyone would be able to copy its work. In fact, this statement is a fallacy because there would be no “cream-skimming” problem since API are supposed to be known by independent software programmers (ISP). How else would they develop applications? What we will achieve is the elimination of selective disclosure by Microsoft and its bargain power to retain information. Also, there will be no insider information of the Microsoft application development team. They have a competitive advantage in having full access to all Windows information. By exposing all the APIs to ISPs at the same time this problem is solved. Microsoft incentive to keep developing Windows comes from the necessity of a better OS, not from APIs secrecy and consequential competitive advantage for its application business. Since APIs are not source code, though they certainly
teach a lot about Microsoft’ software engineering techniques, Microsoft would have even more incentives to create a better OS as application availability would not differentiate any Windows-compatible OS.

4.2. Competition in the OS market

What does it mean to establish competition in the OS market? The only way to implement competition is to stimulate interoperability. In the Findings of Facts, the district court affirmed that currently “there are no products, nor are there likely to be any in the near future, that a significant percentage of consumers worldwide could substitute for Intel-compatible PC operating systems without incurring substantial costs. Furthermore, no firm that does not currently market Intel-compatible PC operating systems could start doing so in a way that would, within a reasonably short period of time, present a significant percentage of consumers with a viable alternative to existing Intel-compatible PC operating systems.” 84 F.Supp.2d at 14, ¶18. Hence, the issue here is either how to present consumers with a reasonable alternative to Windows, to eliminate the barriers that prevent firms currently not marketing Intel-compatible PC operating systems from doing so or both.

The currently available Intel-compatible PC operating systems are not reasonably interchangeable with Windows. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395, (1956). If a Microsoft user decides to change of OS, he will face learning, compatibility (applications and hardware) and price costs high enough to discourage most users from doing so. They are captive vulnerable consumers. Among these problems, the application incompatibility is probably the most serious one, because the value of an OS is intimately connected with the number of application actually and potentially available. Because of this direct link between OS and applications, a new entrant faces the chicken-egg problem. Without enough compatible applications available for it, consumers will not adopt the new OS. Without a large installed based of users of the OS, applications developers will not have an economic incentive to supply applications. Thus, to succeed in the face of a dominant OS, a rival OS has to find a way to break the link that causes this circular dilemma. The costs of overcoming this problem constitute barri-
ers facing a new operating system entrant or fringe competitor.\textsuperscript{44} If OS were compatible, that is, if applications wrote to one system could be run on another without having to make any changes to the programs, there would be no application barrier and the principal impediment to competition in the OS market would be solved. Once we have a known list of APIs that programmers can turn to, an API disclosure, a new operating system could be developed to be compatible with this standard. The new OS would start with a full range of applications from scratch.

The only way to create incentives for companies, currently not marketing Intel-compatible PC operating systems to start making it, is to guarantee that they would enjoy enough applications so that they could effectively compete with Windows. As Windows compatibility approaches the level of a de facto standard, rival OS face increasing pressure to achieve Windows compatibility. The growth of applications for Windows only disadvantage competitors to the extent that they are not compatible and will not be ported to run on them.\textsuperscript{45} If rival OS can be designed to be compatible with Windows, any new developed OS will start with a full range of applications for it, as much as it is available for Windows itself. In an industry like the OS market, which is vulnerable to manipulation that will represent future advantage of one competitor, it is necessary massive forces to reestablish competition.\textsuperscript{46} Again, the best answer is compatibility. Summarizing, if compatibility is achievable either by current Intel-compatible PC operating systems or potential developers, Microsoft would be deprived from its most power tool to insulate Windows from competition, the application barrier. The consumer would judge the merits of each product and competition would be reestablished.


\textsuperscript{45} See Daniel J. Gifford, \textit{Microsoft Corporation, the Justice Department, and Antitrust Theory}, 25 Sw. U. L. Rev. 621, 640 (1996).

4.3. How to Establish Compatibility?

The best way to achieve compatibility in an industry is by self-regulated standardization or market force excusing competing standards. Standard setting plays a critical role in network industries because of two factors: consumer expectations and interoperability. Most high-technology industries are also classified as network industries. The network effect coupled with:

1. constant and often dramatic innovation;
2. prevalence of interface standards;
3. voluntary adoption of the standard; and
4. frequent existence of proprietary knowledge pushes for standardization.

Compact discs, modems and cellular phones are examples of products that rely heavily on interoperability and therefore present high incentives for industry standardization.

Compatibility and Interoperability are technically not equivalents, but they will be used here as such. For the same approach see Mark A. Lemley, Antitrust and Internet Standardization Problem, 28 Conn. L. Rev. 1041, n. 21 (1996).


A good example of competitor exclusion (that is not necessarily connected with technical superiority) is what happened with Sony BetaMax system for home video cassette record industry and the now dominant and exclusive system VHS.


The operating system market can be characterized as a network industry; it is not necessarily an exclusionary natural monopoly in the sense that only one firm can survive. If competition was present since the beginning, it is reasonable to argument that either software developers would create an association to establish standards and promote interoperability or the market would exclude competing standards. What happened in the Intel-compatible PC operating systems market was a series of events, some by chance others actually planned, that leaded to Microsoft monopoly (competitors exclusion). If competition were reestablished, then it could tend toward a standard association. Unfortunately, the facts have shown that the present configuration of the market prevents effective competition with Windows and it will not change unless something new happen. The appearance of Middleware was an unforeseen event dangerous enough to worry Microsoft. It could slowly erode the application barrier and, if not compatibility, at least low translation cost could be achieved. Remember that Middleware success in lowering such costs could never be tested because Microsoft barred it.

Microsoft demonstrated clearly that it is willing to destroy any potential threat to its monopoly and since it already detains monopoly in the market, it has all the economic interest is in perpetuating the application barrier. There is no incentive for Microsoft to create common standards of compatibility because it would not profit from the creation of a bigger market that normally moves the creation of standard-setting association. Since there is already a standard set, the Win-

53 For a natural monopoly analysis of the operating system market see Daniel J. Gifford, Microsoft Corporation, the Justice Department, and Antitrust Theory, 25 Sw. U. L. Rev. 621, 638 (1996).
dows standard, then the most efficient solution would be to order the monopolist who abused from its monopoly power to disclosure key information to make possible the creation of compatible OS. Obligatory disclosure would solve the compatibility problem and eliminate the application entry barrier.

Once competitors have full access to Windows APIs and communication information, many clones will be available in the market and competition will be reestablished. With competitors producing Windows-based OS, we highly diminish bundling problems because alternatives will be offered if demand exists. We also incentive Microsoft not to create complexities in the system just to make cloning harder, since the API will be known anyway and if such efficiency measures are taken, competitors clones will be quicker and more stable, therefore better OS.

The question then becomes for how long is obligatory disclosure necessary to reestablish competition in Intel-compatible PC operating systems? If I assume that Microsoft needs at least three years to upgrade its previous OS, then at least the double of time would be a reasonable period for a competitor to create a clone.

One can say that after the disclosure provision ends, Microsoft would create a different OS that would be incompatible with all the previous versions and, therefore, their clones. This will not happen because once I have stable and recognized clones in the market, after six years, competition will be reestablished from mark zero. We would have a bunch of competing OS with vast application availability and Microsoft would hardly be able to create a completely different system. Why would a user adopt Microsoft new OS that is incompatible with all the applications that you already acquired? Or why would you now turn to an incompatible system if you can stick with the clones that can maintain interoperability? Even between its own versions Microsoft always recognized that compatibility was necessary, otherwise users would not upgrade for the next version. An obligatory interoperability rule will be established in the market. Possibly, a standard setting association will be created to discuss or distribute APIs and communication information between software developers, because Microsoft, this time, will have incentives to exchange information. Windows will certainly have more
acceptance among users if it is compatible with any application specially developed for a clone’s APIs.

4.4. Who are the Potential Competitors?

Knowing who Microsoft potential competitors are, we know better how to shape the information disclosure provision. The current available OSs are obviously the first ones that should appear in our list. IBM’s OS/2, Apple’s Mac OS, Sun’s Solaris, Be OS are clear candidates to be transformed into a Windows-compatible version. IBM already showed interest in developing a Windows-compatible operating system. 84 F.Supp.2d at 24, ¶52. One of the most important competitors is Linux,57 as Microsoft recognizes. Microsoft, brief for defendant-appellant, district court for the District of Columbia, p. 88. Any potential software developer should be allowed to have access to the information as the increase in number of available clones will increase competition and prevent the emergence of future monopolies. In addition, antitrust law has long before recognized that fragmentation is a value to be protected. The more fragmented the market the best.58 Northern Pac. Ry. Co. v. United States, 356 U.S. 1, 4-5 (1958) (competition will best lead to efficiency and the preservation of democratic political and social institutions); Brown Shoe Co. v. United States, 370 U.S. 294, 344 (1962) (Congress intended to promote competition through the protection of viable, small, locally owned businesses); United States v. Aluminum Co. of America, 148 F.2d 416, 427 (2nd Cir. 1945) (Congress may have wanted an indirect social or moral effect to prefer a system of small producers).

The district court in its Final Judgment ordered free access to information for qualified representatives of OEMs, ISVs, and IHVs. The question is why not making the information publicly available?

58 For a discussion about antitrust values and what policy they do represent nowadays see Michael P. Kenny & William H. Jordam, United States v. Microsoft: Into the Antitrust Regulatory Vacuum Missteps the Department of Justice, 47 Emory L.J. 1351, 1361 (1998).
Why the list of APIs, Communications Interfaces and related technical information will be available only for OEMs, ISVs, and IHVs? What does it mean “qualified representatives”? To construct the provision as including all Microsoft competitors, the issue is whether the ISV definition includes independent software developers like the programmers that work on Linux development in their spare time. If read literally as stated by the court, ISV means any independent entity other than Microsoft that is engaged in the development and licensing of software products intended to interoperate with Microsoft Platform Software. 97 F.Supp.2d at 59, §7(n). Any Linux developer could and should be included in such category; the question remains what is the meaning of “interoperate with Microsoft Platform Software.”

4.5. Royalty or Royalty-free Disclosure?

The disclosure provision should be understood as an obligatory license on Microsoft intellectual property, primarily the APIs. The security facility where competitors could study and discuss the relevant code that the court ordered is nothing more than a provision for transfer know-how to actual and potential competitors. Compulsory licensing will restructure the industry just as a divestiture would, and in this case, probably much more efficiently. That is why I discuss later why divestiture is still necessary if full disclosure and compulsory licensing is ordered.

A decision to mandate licensing requires the court to confront a number of issues. First, it must decide which defendant’s intellectual property rights must be provided for other firms. All APIs and communication technical information would be enough to guarantee compatibility, thus, competition. Second, a method to convey know-how must be established because of the fast growing rate of OS complexity. The security facility proposed by the court is a good idea. It will not only permit know-how conveyance but also diminish the oversight burden.

for the court. The particulars interested in the information will do it. Moreover, the provision to make the information available for everyone in a timely manner at the same media furnished for the internal personnel will guarantee equal treatment between insider and outsider programmers. In the OS market where time is of the essence, appropriate conveyance of information and know-how is of utmost importance.60

Third, the adequacy of royalty payment or not should be considered. Abuse of dominance monopolization remedies often have required licensing with payment of a royalty,61 but royalty-free obligatory licenses are also possible.62 If I take into consideration the considerable mount of money necessary to develop an OS, all expenses in marketing, etc., royalty-free licensing would work better to reinstate competition as quick as possible. If I want all to compete, then no royalty can be charged otherwise the free software movement and Linux will be completely excluded from competition. In Xerox a royalty free compulsory license was adopted and the market for plain paper copy machines flourished.63 Consumers will be better served by the possibility to turn to an open source OS, though it is possible that a company developing free software, like Red Hat, would actually pay for the access. Anyway, it would be a problem to establish the reasonable fee for having access to Windows APIs. One possible solution would be a royalty fee based in the code commercial exploitation. If you sell it, you have to pay royalties, otherwise no. That would ensure both approaches to software development, the proprietary and the open source.

63 Although commentators are sharply divided on whether the order in Xerox improved or hindered performance in the copier market. See Kovacic, at 1305 and note 84.
Once more it is important to stress that the solution adopted by the court is completely silent on royalty issues and this will certainly cause confusion and litigation in the future. The licensing and royalty payment issues should be clearly expressed.

4.6. Tensions Between Structures of Software Development

The licensing of Microsoft intellectual property will certainly permit competitors to develop compatible OS and profit from it. It might be troublesome the idea that some, OS developers, will ripe benefits from the work of others, Microsoft. If no royalty is paid that will happen and Microsoft will not be able to take advantage of the improvements made based on its previous technology, competitors will be able to copy Microsoft technology, use and even improve it. However, will Microsoft be able to use such improvement? Should it be able to use it?

Presume that we want all the players on the same level, which includes Microsoft. Hence, Microsoft should have access to competitors’ technology too, at least to whatever advancement based on its own technology, otherwise everybody will live at the expenses of Windows at the lowest until when disclosure is not obligatory anymore. A natural solution for that would be the creation of a standard setting association that would take care of disseminating new APIs between members, including Microsoft. Nonetheless, such association will hardly be created as it would be necessary a common interest among members to share information. Since in the OS market developers have incentives to expand its productions at the cost of competitors, once the game is restarted (Microsoft discloses its APIs) the most likely reaction of players would be to establish its own monopoly. Monopolization of the OS market must be prevented. A good solution to prevent undue exploitation of Microsoft property and the creation of new monopolies would be to establish public licenses of the information Microsoft discloses. Instead of distributing limitless for everyone, Microsoft would forcedly license its APIs under a public license, such as the Lesser General Public License (“LGPL”).

4.7. Public License as a Solution

The licenses for most software are designed to take away the freedom to share and change it. By contrast, the GNU Less General
Public License\textsuperscript{64} is intended to guarantee such freedom to share and change free software – to make sure the software is free for all its users, without hindered developers from integrating such software within their own. This Less General Public License applies to many of the Free Software Foundation’s software and to any other program whose authors commit to using it.

When we speak of free software, we are referring to freedom, not price. That is the key proposition. The Less General Public Licenses are designed to make sure that any software developer will have the freedom to distribute copies of free software, or Microsoft intellectual property (and charge for this service desirable), that all software developers receive source code or can get it if they want it, that programmers can change the software or use pieces of it in new free programs; and that programmers know they can do these things.

To protect creator’s rights, it is necessary to make restrictions that forbid anyone to deny developers these rights or to ask developers to surrender the rights. These restrictions translate to certain responsibilities for distributors if they distribute copies of the intellectual property, or if they modify it.

For example, if Apple creates Doors based on Windows APIs and distribute copies of such a program, whether gratis or for a fee, Apple must give the recipients all the rights that Apple has. Apple must make sure that they, too, receive or can get the source code of the part of the software developed on Microsoft’s APIs. And Apple must show them these terms so they know their rights. In a circular provision, Microsoft will be ordered to expose its APIs and any software developer that makes use of such intellectual property will have to make it available for every user, including Microsoft. This way, monopolization of APIs in prevented by the use of the LGPL and obligatory dissemination of information. Once the cycle is started with Microsoft disclosure it cannot be interrupted without breaking the license.

\footnote{\textsuperscript{64} See Free Software Foundation website at \url{http://www.fsf.org/copyleft/lgpl.html}. On time, GNU stands for GNU is not Unix.}
Microsoft right over the APIs and third-parties monopolization can be prevented by

1. copyright the intellectual property; and

2. disclose such property only under the terms similar to the LGPL that will give anyone legal permission to copy, distribute and/or modify the software.

Also, for each author’s protection and Microsoft, it important to make certain that everyone understands that there is no warranty for this software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors’ reputations. Finally, software patents threaten any free program constantly. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, LGPL have made it clear that any patent must be licensed for everyone’s free use or not licensed at all. Under such license, competition on the OS system market will thrive and no one will be able to individually or moto proprio destroy compatibility and monopolize the market again.

5. **Divestiture and Disclosure – A Better Approach?**

Once established that Microsoft is liable under the Sherman Act we need to develop remedies capable of

1. stopping and preventing future violations; and

2. reviving competition in the OS and browser market.

In general lines we can have three potential remedies for the case: divestiture, disclosure or both.

The district court decided for a line of business divestiture that clearly attacks the illegal tying and the attempt to monopolize the browser market problems. It is a clear, effective and quick solution. It also has the advantage of weakening the application barrier problem, as Apsco will have incentives to broaden its costumer basis. The real problem with the official solution is the reestablishment of competition
in the OS market. It seems that except for the conduct relieves, the only provision that is aimed at reviving competition in the OS market is Section 3(b). We discussed the many issues that this section raises and the fact that it is either overreaching or badly drafted. If its only objective is to make possible that all application are Windows compatible, then it is clearly overreaching because it demands much more information disclosure than is necessary and do not reestablish competition in the OS market. If its objective is to reestablish competition in the OS market by permitting the creation of clones, then it is inadequate as it does not make this objective clear and do not address any of the many IP problems related with cloning (royalties, derivative works, etc).

In any case, pure and simple divestiture is insufficient to reestablish competition in the OS market, unless Opsco is also broken up into competing companies. The disadvantage of this solution is that it dilutes Opsco human capital and maintains other competitors out of the competition. In my opinion, it would also lead to monopoly again as one of the BabySofts emerge as the dominant standard.

We proposed a full disclosure order coupled with minor anti-discriminatory clauses as a solution. A minimum intrusive order would require Microsoft to disclose important information for applications compatibility, just like in the broader interpretation of Final Judgment Section 3(b). The relevant and necessary portions of the source code and any related documentation of Microsoft Platform Software for the sole purpose of enabling their products to interoperate effectively with Microsoft Platform Software could be made available to OEMs, ISVs, IHVs and the public. Without actually opening up the source code, all the material information necessary for competitors to create clones of Windows would be made available on a timely manner. Once there is one or more clones available, the hardware, compatibility (application and hardware), price and translation costs for switching between products would be abruptly eliminated. The only cost to move from Windows to a competing OS would be the learning cost associated with it and the clone actual resale price. With new agents in the market, natural competition would keep Microsoft on the line. If there is actually a specific demand for an OS without a browser, then a competitor will
offer it and Microsoft will have either to follow or lose market share. The tying problem and the monopolization of the browser market would be solved by competition. If an OEM needs some technical development for its new chip, a competitor will be most pleased to satisfy its necessity if Microsoft does not do it in a timely manner. If anything is bundled in an inefficient way with Windows, the competitors will offer more efficient alternatives. In short, competition will lead to faster and efficient software development. Competition will also prevent abuses. In a competitive open world, less Government interference is necessary and efficiency is better achieved. Moreover, if the information were made available under a public license, such as the LGPL, then it would be self-enforcing and would create a public standard for OS preventing future monopolies and putting all competitors, including Microsoft, on equal grounds.

The problem with an exclusive disclosure solution is that it has no immediate effect on competition and is dependent on the action of other agents in the OS market. If nobody develops a compatible OS, the monopoly would survive untouched. Also, it demands a lot of court control, as Microsoft will always have the incentives to cheat and prevent information to be made available to competitors. A reward for those who find undisclosed APIS and heavy fines to Microsoft could help, but maybe the security facility proposed by the district court is a better and more realistic solution. The disclosure solution also has the problem of the extent of time it has to be in place before Microsoft can reestablish its monopoly. We have suggested six years as Microsoft normally takes three years to develop a new version of its OS. It is a slow long-term solution, but with the self-enforcing provision of a public license, such as the LGPL it might be more definitive than divestiture creating BabySofts. Prof. Moglen\textsuperscript{65} believes that once you order full and public disclosure of Windows APIs and the open source community is able to make Linux-based OS compatible with Windows, Microsoft bundling problems will become irrelevant because the first would be much superior. An improved Section 3(b) would be enough. I have no such unshakable faith on the open source community and I also

worry about the time lag before such competition arrives, the secondary illegal conducts engaged by Microsoft and the tension between proprietary and open source software. Many issues would arise from such disclosure that would need carefully thought solutions.

A solution that adopts both approaches is extremely powerful as it combines the strength and eliminates the weakness of both. If the district court divestiture plan is maintained and Section 3(b) is revised to resemble a disclosure provision as we defend then all the problems present in the case would be almost immediately solved. The real issue is would the Appeal Court affirm such broach remedy? It is certainly the best solution but with the many uncertainties that surround the case, it is unlikely it would be adopted. The line of business divestiture remedy has the benefit of immediately eliminating the tying problem, but this is the least important aspect of the case. If everything else can be solved with disclosure, would adopt divestiture just because of illegal tying? Divestiture has been the classic solution for Section 2 violations, would you adopt it to remedy a Section 1 Tying Arrangement? The only way divestiture can bring competition to the OS market is by creating Microsoft mirror-image companies. The divestiture adopted by the district court touches the monopolization claim only laterally by decreasing incentives to maintain the application barrier. It is too blunt a tool to such minuscule effect. A horizontal divestiture creating Baby-Softs would have the benefit of striking at the heart of the OS monopoly. Three companies are created immediately and three competitors are instantaneously created. The question is whether Microsoft human capital would support the division into three equally capable equips. Even if the human capital issue is solved by hiring extra programmers “with the same” capabilities, what would happen then? All other competitors would still be excluded from competition. The standardization problem would still be present. Why would you risk having a new monopoly in ten years if you can force open standards now? The argument that innovation will not suffer with disclosure says that innovation will be brought by competition and every competitor will innovate. How much innovation would you expect from three identical companies with divided forces? If the divestiture remedy is wrong, the companies will fail and in the best hypothesis one will survive as the new monopoly.
The disclosure remedy seems to be the less intrusive and the safest solution. First it includes any competitor in the market again, actual and potential. Second, it forces the establishment of an open standard that has the tendency of preventing the emergence of new monopolies. Third, it eliminates any anticompetitive incentive Microsoft might have to pollute OS with complex and decoy APIs. Fourth, Microsoft human capital is left untouched. Fifth, no evaluation issue is present, as nothing will be sold. Sixth, if there is a specific demand for future middleware or any other program unbundled from the OS, the market is more likely to provide than BabySofts. Seventh, if disclosure is the wrong remedy, it can simply be suspended and Microsoft will still be left intact (or almost unhurt). If a less burdensome solution is available why punish Microsoft with divestiture? A court is not the best person to decide how software is developed, let a market be and it will decide how OS should or should not be developed. Tie Microsoft’s hands to control the market, put the competitors on the same level and see what happens. It seems to be the more reasonable solution.

It is important to remember that the court ordered obligatory disclosure, while I propose a costless compulsory license. Competitors need to have the right to use, alter, resell, or independently redistribute the code; otherwise competition will still be seriously impaired. Microsoft forfeits any intellectual property rights it might have over its APIs and make them public. The best way to do it, disclosing and protecting Microsoft is by licensing such information under a public license, such as the LGPL. If competitors want to use Microsoft’s information they would have to make it available for Microsoft and the public. Interoperability between all OS would be achievable, as no one will ever detain monopoly power over APIs. That is the most powerful and less dangerous solution and should be the one adopted. I see no need for divestiture if full disclosure (compulsory license) is ordered. The immediate competition that we would have from BabySofts creation is by far outweighed by a definitive solution. In three years IBM would be able to launch a compatible OS. Apple could do the same. Also Be and the Linux community. Anyone, anywhere could develop its OS. Under the light of this possibility, I fail to see enough reasons to adopt the much more controversial divestiture provision.
6. Postscript

After this work was executed many relevant events happened in the Microsoft case. Although the United States District Court for the District of Columbia disqualified Judge Jackson for misconduct and appearance of partiality, vacating in toto his Final Judgment embodying the remedial order; it left untouched his Findings of Facts and Conclusions of Law. 253 F.3d 34, at 118. This makes me comfortable enough to affirm that the antitrust analysis developed here was not affected by the Court of Appeal’s decision, since it is mostly based on the sustained documents and may provide some important insights when assessing the settlement reached.

I will try to refrain from making any comments on the adequacy of the Court of Appeal ruling or on the settlement accepted by the new appointed judge, Kollar-Kotelly. Both would require a distinct paper on their own, what I do not have the time, space and stamina to do right now. The future of Microsoft and the OS market shall be a better judge.

Notwithstanding, a brief historic description of the events that followed seems useful for a reader that would like to dig deeper into the case and make his own conclusions. That is accomplished below.

On June 7, 2000, after receiving and reading through the final judgment proposed by both sides, Judge Jackson issued his Final Judgment, ordering Microsoft breaking up. One year later, in June 28, 2001, the District Court vacated his judgment.

The Court’s per curiam opinion vacated the trial court’s final judgment on remedy and remanded to a different trial judge, sternly rebuking Judge Jackson for ex parte contacts during and after the trial. The Court affirmed in part and reversed in part the judgment of monopoly maintenance in the OS market, reversed on attempted monopolization of the browser market, and remanded on unlawful tying of the browser to the operating system. 253 F.3d 34.

On July 13, 2001, the Justice Department and 18 states agreed not to appeal the D.C. Circuit’s ruling, as they moved for rapid appoint-
ment of a district judge to impose a remedy. At the same time, New Mexico settled with Microsoft and dropped out of the suit.

Microsoft, on the other hand, was highly unsatisfied with a Federal Court decision reaffirming that it has abused from its monopoly position and appealed to the U.S. Supreme Court to vacate the whole judgment.

While pending this appeal, District Judge Colleen Kollar-Kotelly was appointed on mandate to hear the Microsoft case and determine the proper remedy for Microsoft’s abuse of monopoly power.

On September 6, the Department of Justice’s Antitrust Division advised Microsoft that it would not seek a break-up of the company in remand proceedings before the District Court. It also informed that it did not intend to pursue further proceedings on the tying count of the original complaint. The Department said it was taking these steps in an effort to obtain prompt, effective and certain relief for consumers. The real reasons for the Government to drop charges already confirmed twice remain unclear, as nothing was received for such concessions.

On October 9, the Supreme Court denied Microsoft’s request for a grant of certiorari, rejecting the company’s argument that Judge Jackson’s extrajudicial conduct had tainted the entire trial. The high court declined without any comment or dissent to review the June 28 ruling by the Court of Appeals.

With that, Judge Jackson’s conclusions that Microsoft abused its monopoly power in the OS market and tried to illegally maintain it were no longer subject to judicial review. Microsoft was irrefutably condemned. The only issue on the table was now the remedies to be adopted or agreed upon.

Three days later, at the parties’ recommendation, Judge Kollar-Kotelly named Boston University School of Law Professor Eric D. Green to mediate among Microsoft, the Justice Department, and the plaintiff states. The last mediation attempt, under Seventh Circuit Judge Richard Posner, ended in failure after four months.
On November 2, the Justice Department and Microsoft filed a proposed final judgment. The settlement proposed a five-year consent decree forcing Microsoft to disclose middleware programming interfaces (APIs), permit computer manufacturers to substitute non-Microsoft middleware products, and license software to OEMs on uniform, non-exclusive terms. The states have not endorsed the proposal and prepared to continue to pursue the suit under the Tunney Act.

Most news articles covering the proposed settlement named it as Microsoft’s biggest victory. After years of expensive and time-consuming trial, being condemned of antitrust laws violation, having its condemnation confirmed by the District Court and having the Supreme Court rejecting to grant certiorari, it was certainly a bliss to see that the Federal Government agreed to a settlement that clearly fell shortly from imposing any substantial remedy to the company’s conducts.

The Justice Department and nine states settled with Microsoft on November 6. A month later, the nine states and District of Columbia had filed their own proposed final judgment with harsher sanctions against Microsoft. The states, California, Connecticut, Florida, Iowa, Kansas, Massachusetts, Minnesota, Utah, West Virginia and the District of Columbia, would require the company to offer a stripped-down version of Windows at a lower cost.

On February 27, 2002, the Government and Microsoft filed a revised proposed settlement, after many public comments on the earlier draft. From March 18 to June 19, 2002, the dissenting states and Microsoft presented witnesses and argument in the remedies proceedings.

On November 1, 2002, Judge Kollar-Kotelly issued Opinions in the Microsoft cases, approving with minor modifications the proposed settlement between Microsoft and the Federal Government and nine states, and issuing roughly the same judgment to the remaining nine states.66

66 A very good summary of the case history and final conclusions can be found at the address http://cyber.law.harvard.edu/msdoj/2002/summary.pdf (visited on November 30, 2004).
The adequacy of those opinions is highly subject to debate and a feeling of failure was left in the air. Those who are more concerned with governmental interference probably found that, at last, common sense and rationality prevailed, as the case should never even have been tried. We all hope that in the end, some good was achieved, though that remains to be seen.

**Table of Authorities**


Eben Moglen, *Microsoft: Breaking Up is Good to Do*, The Nation, 06/26/00.


