

APPENDIX

Finding 2

An “operating system” is a software program that controls the allocation and use of computer resources (such as central processing unit time, main memory space, disk space, and channels). The operating system also supports the functions of software programs, called “applications,” that perform specific user-oriented tasks. The operating system supports the functions of applications by exposing interfaces, called “application programming interfaces,” or “APIs.” These are synapses at which the developer of an application can connect to invoke pre-fabricated blocks of code in the operating system. These blocks of code in turn perform crucial tasks, such as displaying text on the computer screen. Because it supports applications while interacting more closely with the PC system’s hardware, the operating system is said to serve as a “platform.”

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 4

An operating system designed to run on an Intel-compatible PC will not function on non-Intel-compatible PC, nor will an operating system designed for a non-Intel-compatible PC function on an Intel-compatible one. Similarly, an application that relies on APIs specific to one operating system will not, generally speaking, function on another operating system unless it is first adapted, or “ported,” to the APIs of the other operating system.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 6

In 1981, Microsoft released the first version of its Microsoft Disk Operating System, commonly known as “MS-DOS.” The system had a character-based user interface that required the user to type specific instructions at a command prompt in order to perform tasks such as launching applications and copying files. When the International Business Machines Corporation (“IBM”) selected MS-DOS for pre-installation on its first generation of PCs, Microsoft’s product became the predominant operating system sold for Intel-compatible PCs.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 7

In 1985, Microsoft began shipping a software package called Windows. The product included a graphical user interface, which enabled users to perform tasks by selecting icons and words on the screen

using a mouse. Although originally just a user-interface, or “shell,” sitting on top of MS-DOS, Windows took on more operating-system functionality over time.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 8

In 1995, Microsoft introduced a software package called Windows 95, which announced itself as the first operating system for Intel-compatible PCs that exhibited the same sort of integrated features as the Mac OS running PCs manufactured by Apple Computer, Inc. (“Apple”). Windows 95 enjoyed unprecedented popularity with consumers, and in June 1998, Microsoft released its successor, Windows 98.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 9

Microsoft is the leading supplier of operating systems for PCs. The company transacts business in all fifty of the United States and in most countries around the world.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 10

Microsoft licenses copies of its software programs directly to consumers. The largest part of its MS-DOS and Windows sales, however, consists of licensing the products to manufacturers of PCs (known as “original equipment manufacturers” or “OEMs”), such as the IBM PC Company and the Compaq Computer Corporation (“Compaq”). An OEM typically installs a copy of Windows onto one of its PCs before selling the package to a consumer under a single price.

Microsoft’s Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 18

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. 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.

Microsoft's Response

Microsoft does not challenge the application of collateral estoppel to this Finding.

Finding 30

Firms that do not currently produce Intel-compatible PC operating systems could do so. What is more, once a firm had written the necessary software code, it could produce millions of copies of its operating system at relatively low cost. The ability to meet a large demand is useless, however, if the demand for the product is small, and signs do not indicate large demand for a new Intel-compatible PC operating system. To the contrary, they indicate that the demand for a new Intel-compatible PC operating system would be severely constrained by an intractable "chicken-and-egg" problem: The overwhelming majority of consumers will only use a PC operating system for which there already exists a large and varied set of high-quality, full-featured applications, and for which it seems relatively certain that new types of applications and new versions of existing applications will continue to be marketed at pace with those written for other operating systems. Unfortunately for firms whose products do not fit that bill, the porting of applications from one operating system to another is a costly process. Consequently, software developers generally write applications first, and often exclusively, for the operating system that is already used by a dominant share of all PC users. Users do not want to invest in an operating system until it is clear that the system will support generations of applications that will meet their needs, and developers do not want to invest in writing or quickly porting applications for an operating system until it is clear that there will be a sizeable and stable market for it. What is more, consumers who already use one Intel-compatible PC operating system are even less likely than first-time buyers to choose a newcomer to the field, for switching to a new system would require these users to scrap the investment they have made in applications, training, and certain hardware.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 31

The chicken-and-egg problem notwithstanding, a firm might reasonably expect to make a profit by introducing an Intel-compatible PC operating system designed to support a type of application that satisfies the special interests of a particular subset of users. For example, Be, Inc. ("Be") markets an Intel-compatible PC operating system called BeOS that offers superior support for multimedia applications, and the operating system enjoys a certain amount of success with the segment of the consumer population that has a special interest in creating and playing multimedia content with a PC system. Still, while a niche operating system might turn a profit, the chicken-and-egg problem (hereinafter referred to as the "applications barrier to entry") would make it prohibitively expensive for a

new Intel-compatible operating system to attract enough developers and consumers to become a viable alternative to a dominant incumbent in less than a few years.

Microsoft's Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27.)

Finding 33

Microsoft enjoys so much power in the market for Intel-compatible PC operating systems that if it wished to exercise this power solely in terms of price, it could charge a price for Windows substantially above that which could be charged in a competitive market. Moreover, it could do so for a significant period of time without losing an unacceptable amount of business to competitors. In other words, Microsoft enjoys monopoly power in the relevant market.

Microsoft's Response

Microsoft does not challenge the application of collateral estoppel to this Finding.

Finding 34

Viewed together, three main facts indicate that Microsoft enjoys monopoly power. First, Microsoft's share of the market for Intel-compatible PC operating systems is extremely large and stable. Second, Microsoft's dominant market share is protected by a high barrier to entry. Third, and largely as a result of that barrier, Microsoft's customers lack a commercially viable alternative to Windows.

Microsoft's Response

Microsoft does not challenge the application of collateral estoppel to this Finding.

Finding 35

Microsoft possesses a dominant, persistent, and increasing share of the worldwide market for Intel-compatible PC operating systems. Every year for the last decade, Microsoft's share of the market for Intel-compatible PC operating systems has stood above ninety percent. For the last couple of years, the figure has been at least ninety-five percent, and analysts project that the share will climb even higher over the next few years. Even if Apple's Mac OS were included in the relevant market, Microsoft's share would still stand well above eighty percent.

Microsoft's Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 36

Microsoft's dominant market share is protected by the same barrier that helps define the market for Intel-compatible PC operating systems. As explained above, the applications barrier would prevent an aspiring entrant into the relevant market from drawing a significant number of customers away from a

dominant incumbent even if the incumbent priced its products substantially above competitive levels for a significant period of time. Because Microsoft's market share is so dominant, the barrier has a similar effect within the market: It prevents Intel-compatible PC operating systems other than Windows from attracting significant consumer demand, and it would continue to do so even if Microsoft held its prices substantially above the competitive level.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 37

Consumer 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. Also, the consumer knows that if he chooses an operating system with enough demand to support multiple applications in each product category, he will be less likely to find himself straitened later by having to use an application whose features disappoint him. Finally, the average user knows that, generally speaking, applications improve through successive versions. He thus wants an operating system for which successive generations of his favorite applications will be released – promptly at that. The fact that a vastly larger number of applications are written for Windows than for other PC operating systems attracts consumers to Windows, because it reassures them that their interests will be met as long as they use Microsoft's product.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 38

Software development is characterized by substantial economies of scale. The fixed costs of producing software, including applications, is very high. By contrast, marginal costs are very low. Moreover, the costs of developing software are "sunk" – once expended to develop software, resources so devoted cannot be used for another purpose. The result of economies of scale and sunk costs is that application developers seek to sell as many copies of their applications as possible. An application that is written for one PC operating system will operate on another PC operating system only if it is ported to that system, and porting applications is both time-consuming and expensive. Therefore, application developers tend to write first to the operating system with the most users – Windows. Developers might then port their applications to other operating systems, but only to the extent that the marginal added sales justify the cost of porting. In order to recover that cost, ISVs that do go to the effort of porting frequently set the price of ported applications considerably higher than that of the original versions written for Windows.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 39

Consumer demand for Windows enjoys positive network effects. A positive network effect is a phenomenon by which the attractiveness of a product increases with the number of people using it. The fact that there is a multitude of people using Windows makes the product more attractive to consumers. The large installed base attracts corporate customers who want to use an operating system that new employees are already likely to know how to use, and it attracts academic consumers who want to use software that will allow them to share files easily with colleagues at other institutions. The main reason that demand for Windows experiences positive network effects, however, is that the size of Windows' installed base impels ISVs to write applications first and foremost to Windows, thereby ensuring a large body of applications from which consumers can choose. The large body of applications thus reinforces demand for Windows, augmenting Microsoft's dominant position and thereby perpetuating ISV incentives to write applications principally for Windows. This self-reinforcing cycle is often referred to as a "positive feedback loop."

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 44

Microsoft continually releases "new and improved" versions of its PC operating system. Each time it does, Microsoft must convince ISVs to write applications that take advantage of new APIs so that existing Windows users will have incentive to buy an upgrade. Since ISVs are usually still earning substantial revenue from applications written for the last version of Windows, Microsoft must convince them to write for the new version. Even if ISVs are slow to take advantage of the new APIs though, no applications barrier stands in the way of consumers adopting the new system, for Microsoft ensures that successive versions of Windows retain the ability to run applications developed for earlier versions. In fact, since ISVs know that consumers do not feel locked into their old versions of Windows and that new versions have historically attracted substantial consumer demand, ISVs will generally write to new APIs as long as the interfaces enable attractive, innovative features. Microsoft supplements developers' incentives by extending various "seals of approval" – visible to consumers, investors, and industry analysts – to those ISVs that promptly develop new versions of their applications adapted to the newest version of Windows. In addition, Microsoft works closely with ISVs to help them adapt their applications to the newest version of the operating system – a process that is in any event far easier than porting an application from one vendor's PC operating system to another's. In sum, despite the substantial resources Microsoft expends inducing ISVs to develop applications for new versions of Windows, the company does not face any obstacles nearly as imposing as the barrier to entry that vendors and would-be vendors of other PC operating systems must overcome.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 52

Theoretically, the developer of a non-Microsoft, Intel-compatible PC operating system could circumvent the applications barrier to entry by cloning the APIs exposed by the 32-bit versions of

Windows (Windows 9x and Windows NT). Applications written for Windows would then also run on the rival system, and consumers could use the rival system confident in that knowledge. Translating this theory into practice is virtually impossible, however. First of all, cloning the thousands of APIs already exposed by Windows would be an enormously expensive undertaking. More daunting is the fact that Microsoft continually adds APIs to Windows through updates and new versions. By the time a rival finished cloning the APIs currently in existence, Windows would have exposed a multitude of new ones. Since the rival would never catch up, it would never be able to assure consumers that its operating system would run all of the applications written for Windows. IBM discovered this to its dismay in the mid-1990s when it failed, despite a massive investment, to clone a sufficiently large part of the 32-bit Windows APIs. In short, attempting to clone the 32-bit Windows APIs is such an expensive, uncertain undertaking that it fails to present a practical option for a would-be competitor to Windows.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 54

OEMs are the most important direct customers for operating systems for Intel-compatible PCs. Because competition among OEMs is intense, they pay particularly close attention to consumer demand. OEMs are thus not only important customers in their own right, they are also surrogates for consumers in identifying reasonably-available commercial alternatives to Windows. Without significant exception, OEMs pre-install Windows on the vast majority of PCs that they sell, and they uniformly are of a mind that there exists no commercially viable alternative to which they could switch in response to a substantial and sustained price increase or its equivalent by Microsoft. For example, in 1995, at a time when IBM still placed hope in OS/2's ability to rival Windows, the firm nevertheless calculated that its PC company would lose between seventy and ninety percent of its sales volume if it failed to load Windows 95 on its PCs.

Microsoft's Response

This Finding was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 55

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. The accuracy of this belief is highlighted by the fact that the other vendors of Intel-compatible PC operating systems do not view their own offerings as viable alternatives to Windows. Microsoft knows that OEMs have no choice but to load Windows, both because it has a good understanding of the market in which it operates and because OEMs have told Microsoft as much. Indicative of Microsoft's assessment of the situation is the fact that, in a 1996 presentation to the firm's executive committee, the Microsoft executive in charge of OEM licensing reported that piracy continued to be the main competition to the company's operating system products. Secure in this knowledge, Microsoft did not consider the prices of other compatible PC operating systems when it set the price of Windows 98.

Microsoft's Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 64

An aspect of Microsoft's pricing behavior that, while not tending to prove monopoly power, is consistent with it is the fact that the firm charges different OEMs different prices for Windows, depending on the degree to which the individual OEMs comply with Microsoft's wishes. Among the five largest OEMs, Gateway and IBM, which in various ways have resisted Microsoft's efforts to enlist them in its efforts to preserve the applications barrier to entry, pay higher prices than Compaq, Dell, and Hewlett-Packard, which have pursued less contentious relationships with Microsoft.

Microsoft's Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 66

Microsoft expends a significant portion of its monopoly power, which could otherwise be spent maximizing price, on imposing burdensome restrictions on its customers – and in inducing them to behave in ways – that augment and prolong that monopoly power. For example, Microsoft attaches to a Windows license conditions that restrict the ability of OEMs to promote software that Microsoft believes could weaken the applications barrier to entry. Microsoft also charges a lower price to OEMs who agree to ensure that all of their Windows machines are powerful enough to run Windows NT for Workstations. To the extent this provision induces OEMs to concentrate their efforts on the development of relatively powerful, expensive PCs, it makes OEMs less likely to pursue simultaneously the opposite path of developing “thin client” systems, which could threaten demand for Microsoft's Intel-compatible PC operating-system products.

Microsoft's Response

This Finding was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 27-28.)

Finding 68

Middleware technologies have the potential to weaken the applications barrier to entry. 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 would run, as written, on any operating system hosting the requisite middleware. So the more popular middleware became and the more APIs it exposed, the more the positive feedback loop that sustains the applications barrier to entry would dissipate. Microsoft was concerned with middleware as a category of software; each type of middleware contributed to the threat posed by the entire category. At the same time, Microsoft focused its antipathy on two incarnations of middleware that, working together, had the potential to weaken the

applications barrier severely without the assistance of any other middleware. These were Netscape's Web browser and Sun's implementation of the Java technologies.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 16-17, 27-28.)

Finding 72

As soon as Netscape released Navigator on December 15, 1994, the product began to enjoy dramatic acceptance by the public; shortly after its release, consumers were already using Navigator far more than any other browser product. This alarmed Microsoft, which feared that Navigator's enthusiastic reception could embolden Netscape to develop Navigator into an alternative platform for applications development. In late May 1995, Bill Gates, the chairman and CEO of Microsoft, sent a memorandum entitled "The Internet Tidal Wave" to Microsoft's executives describing Netscape as a "new competitor 'born' on the Internet." He warned his colleagues within Microsoft that 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 applications barrier to entry.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 27-28.)

Finding 74

The inventors of Java at Sun Microsystems intended the technology to enable applications written in the Java language to run on a variety of platforms with minimal porting. A program written in Java and relying only on APIs exposed by the Java class libraries will run on any PC system containing a JVM that has itself been ported to the resident operating system. Therefore, Java developers need to port their applications only to the extent that those applications rely directly on the APIs exposed by a particular operating system. The more an application written in Java relies on APIs exposed by the Java class libraries, the less work its developer will need to do to port the application to different operating systems. The easier it is for developers to port their applications to different operating systems, the more applications will be written for operating systems other than Windows. To date, the Java class libraries do not expose enough APIs to support the development of full-featured applications that will run well on multiple operating systems without the need for porting; however, they do allow relatively simple, network-centric applications to be written cross-platform. It is Sun's ultimate ambition to expand the class libraries to such an extent that many full-featured, end-user-oriented applications will be written cross-platform. The closer Sun gets to this goal of "write once, run anywhere," the more the applications barrier to entry will erode.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 27-28.)

Finding 75

Sun announced in May 1995 that it had developed the Java programming language. Mid-level executives at Microsoft began to express concern about Sun's Java vision in the fall of that year, and by late spring of 1996, senior Microsoft executives were deeply worried about the potential of Sun's Java technologies to diminish the applications barrier to entry.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 27-28.)

Finding 76

Sun's strategy could only succeed if a Java runtime environment that complied with Sun's standards found its way onto PC systems running Windows. Sun could not count on Microsoft to ship with Windows an implementation of the Java runtime environment that threatened the applications barrier to entry. Fortunately for Sun, Netscape agreed in May 1995 to include a copy of Sun's Java runtime environment with every copy of Navigator, and Navigator quickly became the principal vehicle by which Sun placed copies of its Java runtime environment on the PC systems of Windows users.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 27-28.)

Finding 77

The combined efforts of Netscape and Sun threatened to hasten the demise of the applications barrier to entry, opening the way for non-Microsoft operating systems to emerge as acceptable substitutes for Windows. By stimulating the development of network-centric Java applications accessible to users through browser products, the collaboration of Netscape and Sun also heralded the day when vendors of information appliances and network computers could present users with viable alternatives to PCs themselves. Nevertheless, these middleware technologies have a long way to go before they might imperil the applications barrier to entry. Windows 98 exposes nearly ten thousand APIs, whereas the combined APIs of Navigator and the Java class libraries, together representing the greatest hope for proponents of middleware, total less than a thousand. Decision-makers at Microsoft are apprehensive of potential as well as present threats, though, and in 1995 the implications of the symbiosis between Navigator and Sun's Java implementation were not lost on executives at Microsoft, who viewed Netscape's cooperation with Sun as a further reason to dread the increasing use of Navigator.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 27-28.)

Finding 80

Executives at Microsoft received confirmation in early May 1995 that Netscape was developing a version of Navigator to run on Windows 95, which was due to be released in a couple of months.

Microsoft's senior executives understood that if they could prevent this version of Navigator from presenting alternatives to the Internet-related APIs in Windows 95, the technologies branded as Navigator would cease to present an alternative platform to developers. Even if non-Windows versions of Navigator exposed Internet-related APIs, applications written to those APIs would not run on the platform Microsoft executives expected to enjoy the largest installed base, i.e., Windows 95. So, as long as the version of Navigator written for Windows 95 relied on Microsoft's Internet-related APIs instead of exposing its own, developing for Navigator would not mean developing cross-platform. Developers of network-centric applications thus would not be drawn to Navigator's APIs in substantial numbers. Therefore, with the encouragement and support of Gates, a group of Microsoft executives commenced a campaign in the summer of 1995 to convince Netscape to halt its development of platform-level browsing technologies for Windows 95.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 28.)

Finding 84

[At a June 21, 1995 meeting,] when [Netscape CEO James] Barksdale brought the discussion back to the particular Windows 95 APIs that actually wanted to rely on and needed from Microsoft, the representatives from Microsoft explained that if Netscape entered a "special relationship" with Microsoft, the company would treat as a "preferred ISV." This meant that Netscape would enjoy preferential access to technical information, including APIs. They intimated that Microsoft's internal developers had already created the APIs that Netscape was seeking, and that Microsoft had not yet decided either which ISVs would be privileged to receive them or when access would be granted. The Microsoft representatives made clear that the alacrity with which Netscape would receive the desired Windows 95 APIs and other technical information would depend on whether Netscape entered this "special relationship" with Microsoft.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 28.)

Finding 90

Microsoft knew that Netscape needed certain critical technical information and assistance in order to complete its Windows 95 version of Navigator in time for the retail release of Windows 95. Indeed, Netscape executives had made a point of requesting this information, especially the so-called Remote Network Access ("RNA") API, at the June 21 meeting. As was discussed above, the Microsoft representatives at the meeting had responded that the haste with which Netscape received the desired technical information would depend on whether Netscape entered the so-called "special relationship" with Microsoft. Specifically, Microsoft representative J. Allard had told Barksdale that the way in which the two companies concluded the meeting would determine whether Netscape received the RNA API immediately or in three months.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 28.)

Finding 91

Although Netscape declined the special relationship with Microsoft, its executives continued, over the weeks following the June 21 meeting, to plead for the RNA API. Despite Netscape's persistence, Microsoft did not release the API to Netscape until late October, i.e., as Allard had warned, more than three months later. The delay in turn forced Netscape to postpone the release of its Windows 95 browser until substantially after the release of Windows 95 (and Internet Explorer) in August 1995. As a result, Netscape was excluded from most of the holiday selling season.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 28.)

Finding 92

Microsoft similarly withheld a scripting tool that Netscape needed to make its browser compatible with certain dial-up ISPs. Microsoft had licensed the tool freely to ISPs that wanted it, and in fact had cooperated with Netscape in drafting a license agreement that, by mid-July 1996, needed only to be signed by an authorized Microsoft executive to go into effect. There the process halted, however. In mid-August, a Microsoft representative informed Netscape that senior executives at Microsoft had decided to link the grant of the license to the resolution of all open issues between the companies. Netscape never received a license to the scripting tool and, as a result, was unable to do business with certain ISPs for a time.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 17, 28.)

Finding 93

Other firms in the computer industry have had encounters with Microsoft similar to the experiences of Netscape described above. These interactions demonstrate that it is Microsoft's corporate practice to pressure other firms to halt software development that either shows the potential to weaken the applications barrier to entry or competes directly with Microsoft's most cherished software products.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 19 n.15, 29.)

Finding 115

IBM is both a hardware and a software company. On the hardware side, IBM manufactures and licenses, among other things, Intel-compatible PCs. On the software side, IBM develops and sells, among other things, Intel-compatible PC operating systems and office productivity applications. The IBM PC Company relies heavily on Microsoft's cooperation to make a profit, for few consumers would buy IBM PC systems if those systems did not work well with Windows and, further, if they did not come with Windows included. IBM's software division, on the other hand, competes directly with Microsoft in other respects. For instance, IBM has in the past marketed OS/2 as an alternative to Windows, and it currently markets the SmartSuite bundle of office productivity applications as an alternative to Microsoft's Office suite. The fact that IBM's software division markets products that compete directly with Microsoft's most profitable products has frustrated the efforts of the IBM PC Company to maintain a cooperative relationship with the firm that controls the product (Windows) without which the PC Company cannot survive.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 116

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. Microsoft leveraged the fact that the PC Company needed to license Windows at a competitive price and on a timely basis, and the fact that the company needed Microsoft's support in more subtle ways. When IBM refused to abate the promotion of those of its own products that competed with Windows and Office, Microsoft punished the IBM PC Company with higher prices, a late license for Windows 95, and the withholding of technical and marketing support.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 119

Representatives from IBM and Microsoft, including Bill Gates, met to discuss the relationship between their companies at an industry conference in November 1994. At that meeting, IBM informed Microsoft that, rather than enter into the Frontline Partnership with Microsoft, IBM was going to pursue an initiative it called "IBM First." Consistent with the title of the initiative, IBM would aggressively promote IBM's software products, would not promote any Microsoft products, and would pre-install OS/2 Warp on all of its PCs, including those on which it would also pre-install Windows. IBM thus rejected the terms that would have resulted in an \$8 reduction in the per-copy royalty price of Windows 95.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 120

True to its word, IBM began vigorous promotion of its software products. This effort included an advertising campaign, starting in late 1994, that extolled OS/2 Warp and disparaged Windows. IBM's drive to best Microsoft in the PC software venue intensified in June 1995, when IBM reached an agreement with the Lotus Development Corporation for the acquisition of that company. As a consequence of the acquisition, IBM took ownership of the Lotus groupware product, Lotus Notes, and the Lotus SmartSuite bundle of office productivity applications. Microsoft had already identified Notes as a middleware threat, because it presented users with a common interface, and ISVs with a common set of APIs, across multiple platforms. For its part, SmartSuite competed directly with Microsoft Office. In mid-July 1995, IBM announced that it was going to make SmartSuite its primary desktop software offering in the United States.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 121

Microsoft did not intend to capitulate. In July, Gates called an executive at the IBM PC Company to berate him about IBM's public statements denigrating Windows. Just a few days later, Microsoft began to retaliate in earnest against the IBM PC Company.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 122

The IBM PC Company had begun negotiations with Microsoft for a Windows 95 license in late March 1995. For the first two months, the negotiations had progressed smoothly and at an expected pace. After IBM announced its intention to acquire Lotus, though, the Microsoft negotiators began canceling meetings with their IBM counterparts, failing to return telephone calls, and delaying the return of marked-up license drafts that they received from IBM. Then, on July 20, 1995, just three days after IBM announced its intention to pre-install SmartSuite on its PCs, a Microsoft executive informed his counterpart at the IBM PC Company that Microsoft was terminating further negotiations with IBM for a license to Windows 95. Microsoft also refused to release to the PC Company the Windows 95 "golden master" code. The PC Company needed the code for its product planning and development, and IBM executives knew that Microsoft had released it to IBM's OEM competitors on July 17. Microsoft's purported reason for halting the negotiations was that it wanted first to resolve an ongoing audit of IBM's past royalty payments to Microsoft for several different operating systems.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 123

Prior to the call on July 20, neither company's management had ever linked the ongoing audit to IBM's negotiations for a license to Windows 95. IBM was dismayed by the abrupt halt in the license negotiations and the prospect that it might not get a license for Windows 95 until the audit process concluded. IBM's executives surmised that all of its major competitors had already signed licenses for Windows 95. The PC Company would lose a great deal of business to those competitors during the crucial back-to-school season if it could not begin pre-installing Windows 95 on its PCs immediately. The conclusion of the audit appeared to be weeks, if not months, away. The PC Company thus faced the prospect of missing the holiday selling season as well. IBM executives pleaded with Microsoft to uncouple the license negotiations from the ongoing audit and offered Microsoft a \$10 million bond that Microsoft could use to indemnify itself against any discrepancies that the audit might ultimately reveal. IBM also offered to add a term to any Windows 95 license agreement whereby IBM would pay penalties and interest if any future audit disclosed under-reporting of royalties by IBM.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 124

On August 9, 1995, a senior executive at the IBM PC Company went to Redmond to meet with Joachim Kempin, the Microsoft executive in charge of the firm's sales to OEMs. At the meeting, Kempin offered to accept a single, lump-sum payment from IBM that would close all outstanding audits. The amount of this payment would be reduced if IBM offered a concession that Kempin could take back to Gates. As one possibility, Kempin suggested that IBM agree to not bundle SmartSuite with its PCs for a period of six months to one year. He explained that the prospect of IBM bundling SmartSuite with its PCs threatened the profit margins that Microsoft derived from Office and constituted a core issue in the relationship between the two companies. The IBM executive rejected Kempin's suggestion. In a follow-up letter, Kempin stated that Microsoft would require \$25 million from IBM in order to settle all outstanding audits. Kempin reiterated that,

If you believe that the amount I am asking for is too much, I would be willing to trade certain relationship improving measures for the settlement charges and/or convert some of the amounts into marketing funds if IBM too agrees to promote Microsoft's software products together with their hardware offerings.

The message was clear: IBM could resolve the impasse ostensibly blocking the issuance of a Windows 95 license – the royalties audit by de-emphasizing those products of its own that competed with Microsoft and instead promoting Microsoft's products.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 125

IBM never agreed to renounce SmartSuite or to increase its support for Microsoft software, and in the end, Microsoft did not grant IBM a license to pre-install Windows 95 until fifteen minutes before the start of Microsoft's official launch event on August 24, 1995. That same day, the firms brought the audit issue to a close with a settlement agreement under which IBM ultimately paid Microsoft \$31 million. The release of Windows 95 had been postponed more than once, and many consumers apparently had been postponing buying PC systems until the new operating system arrived. The pent-up demand caused an initial surge in the sales of PCs loaded with Windows 95. IBM's OEM competitors reaped the fruits of this surge, but because of the delay in obtaining a license, the IBM PC Company did not. The PC Company also missed the back-to-school market. These lost opportunities cost IBM substantial revenue.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 130

The discriminatory treatment that the IBM PC Company received from Microsoft on account of the "software directions" of its parent company also manifested itself in the royalty price that IBM paid for Windows. In the latter half of the 1990s, IBM (along with Gateway) paid significantly more for Windows than other major OEMs (like Compaq, Dell, and Hewlett Packard) that were more compliant with Microsoft's wishes.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 132

In sum, from 1994 to 1997, Microsoft consistently pressured IBM to reduce its support for software products that competed with Microsoft's offerings, and it used its monopoly power in the market for Intel-compatible PC operating systems to punish IBM for its refusal to cooperate. Whereas, in the case of Netscape, Microsoft tried to induce a company to move its business away from offering software that could weaken the applications barrier to entry, Microsoft's primary concern with IBM was to reduce the firm's support for software products that competed directly with Microsoft's most profitable products, namely Windows and Office. That being said, it must be noted that one of the IBM products to which Microsoft objected, Notes, was like Navigator in that it exposed middleware APIs. In any event, Microsoft's interactions with Netscape, IBM, Intel, Apple, and RealNetworks all reveal Microsoft's business strategy of directing its monopoly power toward inducing other companies to abandon projects that threaten and toward punishing those that resist.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 29.)

Finding 144

Very soon after it recognized [by April or May of 1995] the need to gain browser usage share at Navigator's expense, Microsoft identified pre-installation by OEMs and bundling with the proprietary client software of IAPs as the two distribution channels that lead efficiently to browser usage. Two reasons explain why these channels are so efficient. First, users must acquire a computer and connect to the Internet before they can browse the Web. Thus, the OEM and IAP channels lead directly to virtually every user of browsing software. Second, both OEMs and IAPs are able to place browsing software at the immediate disposal of a user without any effort on the part of the user. If an OEM pre-installs a browser onto its PCs and places an icon for that browser on the default screen, or "desktop," of the operating system, purchasers of those will be confronted with the icon as soon as the operating system finishes loading into random access memory ("RAM"). If an IAP bundles a browser with its own proprietary software, its subscribers will, by default, use the browser whenever they connect to the Web. In its internal decision-making, Microsoft has placed considerable reliance on studies showing that consumers tend strongly to use whatever browsing software is placed readily at their disposal, and that once they have acquired, found, and used one browser product, most are reluctant – and indeed have little reason – to expend the effort to switch to another. Microsoft has also relied on studies showing that a very large majority of those who browse the Web obtain their browsing software with either their PCs or their IAP subscriptions.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 16, 29.)

Finding 145

Indeed, no other distribution channel for browsing software even approaches the efficiency of OEM pre-installation and IAP bundling. The primary reason is that the other channels require users to expend effort before they can start browsing. The traditional retail channel, for example, requires the consumer to make contact with a retailer, and retailers generally do not distribute products without charging a price for them. Naturally, once Microsoft and Netscape began offering browsing software for free, consumers for the most part lost all incentive to pay for it.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 16, 29.)

Finding 148

Knowing that OEMs and IAPs represented the most efficient distribution channels of browsing software, Microsoft sought to ensure that, to as great an extent as possible, OEMs and IAPs bundled and promoted Internet Explorer to the exclusion of Navigator.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 16, 29.)

Finding 157

Microsoft subsequently decided to develop a browser to run on Windows 95. As late as June 1995, however, Microsoft had not decided to bundle that browser with the operating system. The plan at that point, rather, was to ship the browser in a separate "frosting" package, for which Microsoft intended to charge. By April or May of that year, however, Microsoft's top executives had identified Netscape's browser as a potential threat to the applications barrier to entry. Throughout the spring, more and more key executives came to the conclusion that Microsoft's best prospect of quashing that threat lay in maximizing the usage share of Microsoft's browser at Navigator's expense. The executives believed that the most effective way of carrying out this strategy was to ensure that every copy of Windows 95 carried with it a copy of Microsoft's browser, then code-named "O'Hare." For example, two days after the June 1995 meeting between Microsoft and Netscape executives, Microsoft's John Ludwig sent an E-mail to Paul Maritz and the other senior executives involved in Microsoft's browser effort. "[O]bviously Netscape does see us as a client competitor," Ludwig wrote. "[W]e have to work extra hard to get share on the oem disks."

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 158

Microsoft did manage to bundle Internet Explorer 1.0 with the first version of Windows 95 licensed to OEMs in July 1995. It also included a term in its OEM licenses that prohibited the OEMs from modifying or deleting any part of Windows 95, including Internet Explorer, prior to shipment. The OEMs accepted this restriction despite their interest in meeting consumer demand for PC operating systems without Internet Explorer. After all, Microsoft made the restriction a non-negotiable term in its Windows 95 license, and the OEMs felt they had no commercially viable alternative to pre-installing Windows 95 on their PCs. Apart from a few months in the fall of 1997, when Microsoft provided OEMs with Internet Explorer 4.0 on a separate disk from Windows 95 and permitted them to ship the latter without the former, Microsoft has never allowed OEMs to ship Windows 95 to consumers without Internet Explorer. This policy has guaranteed the presence of Internet Explorer on every new Windows PC system.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 159

Microsoft knew that the inability to remove Internet Explorer made OEMs less disposed to pre-install Navigator onto Windows 95. OEMs bear essentially all of the consumer support costs for the Windows PC they sell. These include the cost of handling consumer complaints and questions generated

by Microsoft's software. Pre-installing more than one product in a given category, such as word processors or browsers, onto its PC systems can significantly increase an OEM's support costs, for the redundancy can lead to confusion among novice users. In addition, pre-installing a second product in a given software category can increase an OEM's product testing costs. Finally, many OEMs see pre-installing a second application in a given software category as a questionable use of the scarce and valuable space on a PC's hard drive.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 160

Microsoft's executives believed that the incentives that its contractual restrictions placed on OEMs would not be sufficient in themselves to reverse the direction of Navigator's usage share. Consequently, in late 1995 or early 1996, Microsoft set out to bind Internet Explorer more tightly to Windows 95 as a technical matter. The intent was to make it difficult for anyone, including systems administrators and users, to remove Internet Explorer from Windows 95 and to simultaneously complicate the experience of using Navigator with Windows 95. As Brad Chase wrote to his superiors near the end of 1995, "We will bind the shell to the Internet Explorer, so that running any other browser is a jolting experience."

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 161

Microsoft bound Internet Explorer to Windows 95 by placing code specific to Web browsing in the files as code that provided operating system functions. Starting with the release of Internet Explorer 3.0 and "OEM Service 2.0 Release" ("OSR 2") of Windows 95 in August 1996, Microsoft offered only a version of Windows 95 in which browsing-specific code shared files with code upon which non-browsing features of the operating system relied.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action. (Microsoft Br. at 15.)

Finding 164

Starting with Windows 95 OSR 2, Microsoft placed many of the routines that are used by Internet Explorer, including browsing-specific routines, into the same files that support the 32-bit Windows APIs. Microsoft's primary motivation for this action was to ensure that the deletion of any file containing browsing-specific routines would also delete vital operating system routines and thus cripple Windows 95. Although some of the code that provided Web browsing could still be removed, without disabling the operating system, by entering individual files and selectively deleting routines used only for Web browsing, licensees of Microsoft software were, and are, contractually prohibited from reverse engineering, decompiling, or disassembling any software files. Even if this were not so, it is prohibitively

difficult for anyone who does not have access to the original, human-readable source code to change the placement of routines into files, or otherwise to alter the internal configuration of software files, while still preserving the software's overall functionality.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action. (Microsoft Br. at 15.)

Finding 166

In late 1996, senior executives within Microsoft, led by James Allchin, began to argue that Microsoft was not binding Internet Explorer tightly enough to Windows and as such was missing an opportunity to maximize the usage of Internet Explorer at Navigator's expense. Allchin first made his case to Paul Maritz in late December 1996. He wrote:

I don't understand how IE is going to win. The current path is simply to copy everything that Netscape does packaging and product wise. Let's [suppose] IE is as good as Navigator/Communicator. Who wins? The one with 80% market share. Maybe being free helps us, but once people are used to a product it is hard to change them. Consider Office. We are more expensive today and we're still winning. My conclusion is that we must leverage Windows more. Treating IE as just an add-on to Windows which is cross-platform [means] losing our biggest advantage – Windows marketshare. We should dedicate a cross group team to come up with ways to leverage Windows technically more. . . . We should think about an integrated solution – that is our strength.

Allchin followed up with another message to Maritz on January 2, 1997:

You see browser share as job 1. . . . I do not feel we are going to win on our current path. We are not leveraging Windows from a marketing perspective and we are trying to copy Netscape and make IE into a platform. We do not use our strength – which is that we have an installed base of Windows and we have a strong OEM shipment channel for Windows. Pitting browser against browser is hard since Netscape has 80% marketshare and we have <20%.... I am convinced we have to use Windows – this is the one thing they don't have. . . . We have to be competitive with features, but we need something more – Windows integration.

If you agree that Windows is a huge asset, then it follows quickly that we are not investing sufficiently in finding ways to tie IE and Windows together. This must come from you. . . . Memphis [Microsoft's code-name for Windows 98] must be a simple upgrade, but most importantly it must be killer on OEM shipments so that Netscape never gets a chance on these systems.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 169

Allchin and Maritz gained support for their initiative within Microsoft in the early spring of 1997, when a series of market studies confirmed that binding Internet Explorer tightly to Windows was the way

to get consumers to use Internet Explorer instead of Navigator. Reporting on one study in late February, Microsoft's Christian Wildfeuer wrote:

The stunning insight is this: To make [users] switch away from Netscape, we need to make them upgrade to Memphis. . . . It seems clear to me that it will be very hard to increase browser market share on the merits of IE 4 alone. It will be more important to leverage the OS asset to make people use IE instead of Navigator.

Microsoft's survey expert, Kumar Mehta, agreed. In March he shared with a colleague his "feeling, based on all the IE research we have done, [that] it is a mistake to release Memphis without bundling IE with it."

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 175

No technical reason can explain Microsoft's refusal to license Windows 95 without Explorer 1.0 and 2.0. The version of Internet Explorer (1.0) that Microsoft included with the original OEM version of Windows 95 was a separable, executable program file supplied on a separate disk. Web browsing thus could be installed or removed without affecting the rest of Windows 95's functionality in any way. The same was true of Internet Explorer 2.0. Microsoft, moreover, created an easy way to remove Internet Explorer 1.0 and 2.0 from Windows 95 after they had been installed, via the "Add/Remove" panel. This demonstrates the absence of any technical reason for Microsoft's refusal to supply Windows 95 without Internet Explorer 1.0 and 2.0.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 176

Similarly, there is no technical justification for Microsoft's refusal to license Windows 95 to OEMs with Internet Explorer 3.0 or 4.0 or for its refusal to permit OEMs to uninstall Internet Explorer 3.0 or 4.0. Microsoft's decision to provide users with an "uninstall" procedure for Internet Explorer 3.0 and 4.0 and its decision to promote Internet Explorer on the basis of that feature demonstrate that there was no technical or quality-related reason for refusing to permit OEMs to use this same feature. Microsoft would not have permitted users to uninstall Internet Explorer, nor would consumers have such an option, if the process would have fragmented or degraded the other functionality of the operating system.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 177

As with Windows 95, there is no technical justification for Microsoft's refusal to meet consumer demand for a browserless version of Windows 98. Microsoft could easily supply a version of Windows 98 that does not provide the ability to browse the Web, and to which users could add the browser of their choice. Indicative of this is the fact that it remains possible to remove Web browsing functionality from Windows 98 without adversely affecting non-Web browsing features of Windows 98 or the functionality of applications running on the operating system. In fact, the revised version of Professor Felten's prototype removal program produces precisely this result when run on a computer with Windows 98 installed.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 15, 30.)

Finding 203

If OEMs removed the most visible means of invoking Internet Explorer, and pre-installed Navigator with facile methods of access, Microsoft's purpose in forcing OEMs to take Internet Explorer – capturing browser usage share from Netscape – would be subverted. The same would be true if OEMs simply configured their machines to promote Navigator before Windows had a chance to promote Internet Explorer. Decision-makers at Microsoft believed that as Internet Explorer caught up with Navigator in quality, OEMs would ultimately conclude that the costs of pre-installing and promoting Navigator, and removing easy access to Internet Explorer, outweighed the benefits. Still, those decision-makers did not believe that Microsoft could afford to wait for the several large OEMs that represented virtually all Windows PCs shipped to come to this desired conclusion on their own. Therefore, in order to bring the behavior of OEMs into line with its strategic goals quickly, Microsoft threatened to terminate the Windows license of any OEM that removed Microsoft's chosen icons and program entries from the Windows desktop or the "Start" menu. It threatened similar punishment for OEMs that added programs that promoted third-party software to the Windows "boot" sequence. These inhibitions soured Microsoft's relations with OEMs and stymied innovation that might have made Windows PC systems more satisfying to users. Microsoft would not have paid this price had it not been convinced that its actions were necessary to ostracize Navigator from the vital OEM distribution channel.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 14, 30.)

Finding 208

In its confrontation with Compaq, Microsoft demonstrated that it was prepared to go to the brink of losing all Windows sales through its highest-volume OEM partner in order to enforce its prohibition against removing Microsoft's Internet-related icons from the Windows desktop.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 14, 30.)

Finding 213

In an effort to thwart the practice of OEM customization, Microsoft began, in the spring of 1996, to force OEMs to accept a series of restrictions on their ability to reconfigure the Windows 95 desktop and boot sequence. There were five such restrictions, which were manifested either as amendments to existing Windows 95 licenses or as terms in new Windows 98 licenses. First, Microsoft formalized the prohibition against any icons, folders, or “Start” menu entries that Microsoft itself had placed on the Windows desktop. Second, Microsoft prohibited OEMs from modifying the initial Windows boot sequence. Third, Microsoft prohibited OEMs from installing programs, including alternatives to the Windows desktop user interface, which would launch automatically upon completion of the initial Windows boot sequence. Fourth, Microsoft prohibited OEMs from adding icons or folders to the Windows desktop that were not similar in size and shape to icons supplied by Microsoft. Finally, when Microsoft later released the Active Desktop as part of Internet Explorer 4.0, it added the restriction that OEMs were not to use that feature to display third-party brands.

Microsoft’s Response

This Finding is not relevant to Novell’s claims in this action. (Microsoft Br. at 14.)

Finding 227

To the extent Microsoft is apprehensive that OEMs might, absent restrictions, change the set of APIs exposed by the software on their PCs, the concern is not that OEMs would modify the Windows API set. Rather, the worry is that OEMs would pre-install, on top of Windows, other software exposing additional APIs not controlled by Microsoft. In the case of alternate user interfaces, Microsoft is fearful that, if these programs loaded automatically the first time users turned on their PCs, the programs would attract so much usage that developers would be encouraged to take advantage of any APIs that the programs exposed. Indeed, one user interface in particular that OEMs could configure to load automatically and obscure the Windows desktop – Navigator – exposes a substantial number of APIs. Therefore, Microsoft’s real concern has not been that OEM modifications would fragment the Windows platform to the detriment of developers and consumers. What has motivated Microsoft’s prohibition against automatically loading shells is rather the fear – once again – that OEMs would pre-install and give prominent placement to middleware that could weaken the applications barrier to entry.

Microsoft’s Response

This Finding is not relevant to Novell’s claims in this action and was not “critical and necessary” to the judgment in the Government Case. (Microsoft Br. at 14, 30.)

Finding 239

Microsoft has largely succeeded in exiling Navigator from the crucial OEM distribution channel. Even though a few OEMs continue to offer Navigator on some of their PCs, Microsoft has caused the number of OEMs offering Navigator, and the number of PCs on which they offer it, to decline dramatically. Before 1996, Navigator enjoyed a substantial and growing presence on the desktop of new PCs. Over the next two years, however, Microsoft’s actions forced the number of copies of Navigator distributed through the OEM channel down to an exiguous fraction of what it had been. By January 1998, Kempin could report to his superiors at Microsoft that, of the sixty OEM sub-channels (fifteen major OEMs each offering corporate desktop, business, notebook, and workstation PCs), Navigator was being shipped through only four. Furthermore, most of the PCs shipped with Navigator featured the

product in a manner much less likely to lead to usage than if its icon appeared on the desktop. For example, Sony only featured Navigator in a folder rather than on the desktop, and Gateway only shipped Navigator on a separate CD-ROM rather than pre-installed on the hard drive. By the beginning of January 1999, Navigator was present on the desktop of only a tiny percentage of the PCs that OEMs were shipping.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 14, 30.)

Finding 386

For Microsoft, a key to maintaining and reinforcing the applications barrier to entry has been preserving the difficulty of porting applications from Windows to other platforms, and vice versa. In 1996, senior executives at Microsoft became aware that the number of developers writing network-centric applications in the Java programming language had become significant, and that Java was likely to increase in popularity among developers. Microsoft therefore became interested in maximizing the difficulty with which applications written in Java could be ported from Windows to other platforms, and vice versa.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 30.)

Finding 394

In a further effort intended to increase the incompatibility between Java applications written for its Windows JVM and other Windows JVMs, and to increase the difficulty of porting Java applications from the Windows environment to other platforms, Microsoft designed its Java developer tools to encourage developers to write their Java applications using certain "keywords" and "compiler directives" that could only be executed properly by Microsoft's version of the Java runtime environment for Windows. Microsoft encouraged developers to use these extensions by shipping its developer tools with the extensions enabled by default and by failing to warn developers that their use would result in applications that might not run properly with any runtime environment other than Microsoft's and that would be difficult, and perhaps impossible, to port to JVMs running on other platforms. This action comported with the suggestion that Microsoft's Thomas Reardon made to his colleagues in November 1996: "[W]e should just quietly grow j++ [Microsoft's developer tools] share and assume that people will take more advantage of our classes without ever realizing they are building win32-only java apps." Microsoft refused to alter its developer tools until November 1998, when a court ordered it to disable its keywords and compiler directives by default and to warn developers that using Microsoft's Java extensions would likely cause incompatibilities with non-Microsoft runtime environments.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action. (Microsoft Br. at 18.)

Finding 395

If all Microsoft had done to combat the growth of easily portable Java applications had been to increase the incompatibility between its Java implementation and ones complying with Sun's standards, the effect might have been limited. For if Sun could have assured developers that a Windows-compatible Java runtime environment that complied with Sun's standards would be installed on as many Windows PCs as Microsoft's version, and that it would run Java applications as well as Microsoft's, developers might have considered the cost in portability associated with relying on Microsoft-specific technologies and instead written their Java applications using Sun's developer tools. When Netscape announced in May 1995 that it would include with every copy of Navigator a copy of a Windows JVM that complied with Sun's standards, it appeared that Sun's Java implementation would achieve the necessary ubiquity on Windows.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 31.)

Finding 401

Microsoft took the further step of offering valuable things to ISVs that agreed to use Microsoft's Java implementation. Specifically, in the First Wave agreements that it signed with dozens of ISVs in 1997 and 1998, Microsoft conditioned early Windows 98 and Windows NT betas, other technical information, and the right to use certain Microsoft seals of approval on the agreement of those ISVs to use Microsoft's version of the Windows JVM as the "default." Microsoft and the ISVs all read this requirement to obligate the ISVs to ensure that their Java applications were compatible with Microsoft's version of the Windows JVM. The only effective way to ensure compatibility with Microsoft's JVM was to use Microsoft's Java developer tools, which in turn meant using Microsoft's methods for making native calls and (unless the developers were especially wary and sophisticated) Microsoft's other Java extensions. Thus, a very large percentage of the Java applications that the First Wave ISVs wrote would run only on Microsoft's version of the Windows JVM. With that in mind, the First Wave ISVs would not have any reason to distribute with their Java applications any JVM other than Microsoft's. So, in exchange for costly technical support and other blandishments, Microsoft induced dozens of important ISVs to make their Java applications reliant on Windows-specific technologies and to refrain from distributing to Windows users JVMs that complied with Sun's standards. The record contains no evidence that the relevant provision in the First Wave agreements had any purpose other than to maximize the difficulty of porting Java applications between Windows and other platforms. Microsoft remained free to hold the First Wave ISVs to this provision until a court enjoined its enforcement in November 1998.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action. (Microsoft Br. at 18.)

Finding 407

Had Microsoft not been committed to protecting and enhancing the applications barrier to entry, it might still have developed a high-performance JVM and enabled Java developers to call upon Windows APIs. Absent this commitment, though, Microsoft would not have taken efforts to maximize the difficulty of porting Java applications written to its implementation and to drastically limit the ability of

developers to write Java applications that would run in both Microsoft's version of the Windows runtime environment and versions complying with Sun's standards. Nor would Microsoft have endeavored to limit Navigator's usage share, to induce ISVs to neither use nor distribute non-Microsoft Java technologies, and to impede the expansion of the Java class libraries, had it not been determined to discourage developers from writing applications that would be easy to port between Windows and other platforms. Microsoft's dedication to the goal of protecting the applications barrier to entry is highlighted by the fact that its efforts to create incompatibility between its JVM and others resulted in fewer applications being able to run on Windows than otherwise would have. Microsoft felt it was worth obstructing the development of Windows-compatible applications where those applications would have been easy to port to other platforms. It is not clear whether, absent Microsoft's interference, Sun's Java efforts would by now have facilitated porting between Windows and other platforms enough to weaken the applications barrier to entry. What is clear, however, is that Microsoft has succeeded in greatly impeding Java's progress to that end with a series of actions whose sole purpose and effect were to do precisely that.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 18, 31.)

Finding 411

Many of the tactics that Microsoft has employed have also harmed consumers indirectly by unjustifiably distorting competition. The actions that Microsoft took against Navigator hobbled a form of innovation that had shown the potential to depress the applications barrier to entry sufficiently to enable other firms to compete effectively against Microsoft in the market for Intel-compatible PC operating systems. That competition would have conduced to consumer choice and nurtured innovation. The campaign against Navigator also retarded widespread acceptance of Sun's Java implementation. This campaign, together with actions that Microsoft took with the sole purpose of making it difficult for developers to write Java applications with technologies that would allow them to be ported between Windows and other platforms, impeded another form of innovation that bore the potential to diminish the applications barrier to entry. There is insufficient evidence to find that, absent Microsoft's actions, Navigator and Java already would have ignited genuine competition in the market for Intel-compatible PC operating systems. It is clear, however, that Microsoft has retarded, and perhaps altogether extinguished, the process by which these two middleware technologies could have facilitated the introduction of competition into an important market.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 19, 31-32.)

Finding 412

Most harmful of all is the message that Microsoft's actions have conveyed to every enterprise with the potential to innovate in the computer industry. Through its conduct toward Netscape, IBM, Compaq, Intel, and others, Microsoft has demonstrated that it will use its prodigious market power and immense profits to harm any firm that insists on pursuing initiatives that could intensify competition against one of Microsoft's core products. Microsoft's past success in hurting such companies and stifling innovation deters investment in technologies and businesses that exhibit the potential to threaten

Microsoft. The ultimate result is that some innovations that would truly benefit consumers never occur for the sole reason that they do not coincide with Microsoft's self-interest.

Microsoft's Response

This Finding is not relevant to Novell's claims in this action and was not "critical and necessary" to the judgment in the Government Case. (Microsoft Br. at 19, 31-32.)