APPENDIX C

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This Appendix explains why the 72 Findings for which Novell seeks preclusion are necessary to the determinations of the D.C. District Court that were affirmed by the D.C. Circuit. The 72 Findings are listed and quoted in Appendix B.

The offense of monopolization 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 (1966). The D.C. Circuit affirmed the District Court's determination that Microsoft engaged in 12 illegal acts of monopolization. The District Court based its determination on rulings, also affirmed by the D.C. Circuit, regarding: the definition of the relevant market; Microsoft's dominant share in the relevant market; the existence of a barrier to entry; Microsoft's possession of monopoly power; the exclusionary effect of Microsoft's conduct; the lack of procompetitive justification for Microsoft's conduct; and harm caused to competition and consumers. The 72 Findings are necessary to these Rulings.[1]

I. Findings 2, 4, 6 Through 10, 18, 30, 31, 33, And 34 Are Necessary To The Ruling That Microsoft Possessed Monopoly Power

The D.C. Circuit "uph[e]ld the District Court's finding of monopoly power *in its entirety*." *United States v. Microsoft Corp.*, 253 F.3d 34, 51 (D.C. Cir. 2001) (emphasis supplied). Microsoft concedes that Findings 18, 33, and 34 – which describe the relevant market and Microsoft's monopoly power – are necessary to the determination that Microsoft held monopoly power.

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[1] The statement of liability rulings made by the D.C. Circuit (referred to, collectively, as the "Rulings," and individually, as "Ruling __") are listed in Appendix A.

Although the admittedly necessary Findings 18, 33, and 34 refer repeatedly to the terms "Windows" and "Intel-compatible PC operating systems," and Finding 18 also identifies the relevant market as "the licensing of all Intel-compatible PC operating systems worldwide," these Findings do not define or describe these crucial terms. This is done by Findings 6 through 10 (among others). These Findings are necessary because they describe Windows and how Microsoft developed and marketed it, and provide definitions and essential background for terms used in the Rulings, including the terms "OEMs" (Rulings 3 & 4), "Windows" (Rulings 1-7, 10, 11), "Windows 98" (Rulings 4-6), and "Apple" (Ruling 9).

Furthermore, the D.C. Circuit relied upon Findings 6 and 7 in rejecting Microsoft's "[challenge to] the existence of the applications barrier to entry." *Microsoft*, 253 F.3d at 55. The D.C. Circuit expressly cited Findings 6 and 7 in concluding that, unlike Microsoft's actual and potential competitors, "[w]hen Microsoft entered the operating system market with MS-DOS and the first version of Windows, it did not confront a dominant rival operating system with as massive an installed base and as vast an existing array of applications as the Windows operating systems have since enjoyed." *Id.* at 56.

Findings 2 and 4 are necessary because they provide essential information about the applications barrier to entry and "middleware." On appeal, Microsoft's "main challenge" to the District Court's market definition was the "exclusion of middleware." *Id.* at 53. "Because of the importance of middleware to this case," the D.C. Circuit explained in detail what middleware is and how it related to the case. *Id.* Findings 2 and 4 were critical to this explanation. The D.C. Circuit explained that "[m]iddleware refers to software products that expose their own APIs," where:

> Operating systems perform many functions, including allocating computer memory and controlling peripherals such as printers and keyboards. Operating systems also function as platforms for software applications. They do this by "exposing" – *i.e.*, making available to

> software developers – routines or protocols that perform certain widely-used functions. These are known as Application Programming Interfaces, or "APIs." For example, Windows contains an API that enables users to draw a box on the screen. Software developers wishing to include that function in an application need not duplicate it in their own code. Instead, they can "call" – *i.e.*, use – the Windows API. . . .
>
> Every operating system has different APIs. Accordingly, a developer who writes an application for one operating system and wishes to sell the application to users of another must modify, or "port," the application to the second operating system. *Findings of Fact* ¶ 4. This process is both time consuming and expensive. [*Findings of Fact*] ¶ 30.

Id. (citations omitted). The first paragraph of this passage closely paraphrases Finding 2, while the second paragraph expressly cites Finding 4.

Finding 30 also is cited in this passage, and is critical as well to the D.C. Circuit's conclusion that the applications barrier to entry protected Microsoft's Windows monopoly:

> That barrier – the "applications barrier to entry" – stems from two characteristics of the software market: (1) most consumers prefer operating systems for which a large number of applications have already been written; and (2) most developers prefer to write for operating systems that already have a substantial consumer base. *See Findings of Fact* ¶¶ 30, 36. This "chicken-and-egg" situation ensures that applications will continue to be written for the already dominant Windows, which in turn ensures that consumers will continue to prefer it over other operating systems. *Id.*

Microsoft, 253 F.3d at 55.

Finding 30 and also Finding 31 are essential to the definition of the relevant market, because the District Court relied upon them in finding that

> no firm not currently marketing 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 such consumers with a viable alternative to existing Intel-compatible PC operating systems.

United States v. Microsoft Corp., 87 F. Supp. 2d 30, 36 (D.D.C. 2000) (citing Findings 30 & 31).

II. Finding 35 Is Necessary To The Ruling That Microsoft Held A Dominant Market Share

The District Court found, and the D.C. Circuit affirmed, that Microsoft enjoyed a "dominant, persistent market share protected by a substantial barrier to entry." *Microsoft*, 87 F. Supp. 2d at 37. The admittedly necessary Finding 34 states this summary conclusion, but does not provide the specific factual basis for it. Critical facts are provided by, *inter alia*, Finding 35, which was cited by both the D.C. Circuit, *Microsoft*, 253 F.3d at 54 (citing Finding 35 in concluding that "Windows accounts for a greater than 95% share" and "even if Mac OS were included, Microsoft's share would exceed 80%," and further noting that "Microsoft challenges neither finding, nor does it argue that such a market share is not predominant"), and the District Court. *Microsoft.*, 87 F. Supp. 2d at 36 (citing Finding 35 for the finding that "Microsoft's share of the worldwide market for Intel-compatible PC operating systems currently exceeds ninety-five percent, and the firm's share would stand well above eighty percent even if the Mac OS were included in the market").

III. Findings 36 Through 39, 44, 52, 54, 55, 64, 66, And 72 Are Necessary To The Ruling That Microsoft Held Monopoly Power

On appeal, Microsoft conceded that it held a dominant market share, but contended that "even a predominant market share does not by itself indicate monopoly power," and "because of the possibility of competition from new entrants, looking to current market share alone can be 'misleading.'" *Microsoft*, 253 F.3d at 54 (citations omitted). The D.C. Circuit rejected Microsoft's contention, holding that "the District Court was not misled. Considering the possibility of new rivals, the court focused not only on Microsoft's present market share, but also on the structural barrier that protects the company's future position," *id.* at 54-55 – *i.e.*, the applications barrier to entry.

In affirming the District Court's holding that the applications barrier to entry protected Microsoft's Windows monopoly, the D.C. Circuit relied upon Finding 36 (as well as

Finding 30, *see supra* p. 3) to describe the barrier. *Microsoft*, 253 F.3d at 55. Finding 36 – the introductory, summary paragraph of a section of the Findings titled "Description of the Applications Barrier to Entry" – summarizes essential information about the applications barrier to entry found in other Findings in the same section. *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 19 (D.D.C. 1999). These include Findings 37, 38, 39, and 44, which explain in more detail Finding 36's summary statement that the applications barrier to entry "prevents Intel-compatible PC operating systems other than Windows from attracting significant consumer demand, and. . . . would continue to do so even if Microsoft held its prices substantially above the competitive level." *Id.* The D.C. Circuit quoted from Finding 37 to explain that "the applications barrier to entry gives consumers reason to prefer the dominant operating system even if they have no need to use all applications written for it." *Microsoft*, 253 F.3d at 55.

Also essential to the finding that the applications barrier to entry protected Microsoft's Windows monopoly are: Finding 44, cited for the D.C. Circuit's conclusion that "when Microsoft introduced Windows 95 and 98, it was able to bypass the applications barrier to entry that protected the incumbent Windows by including APIs from the earlier version in the new operating systems," *id.* at 56; Finding 66, cited for the conclusion that Microsoft's pricing behavior "is not inconsistent with possession or improper use of monopoly power," *id.* at 57; and Finding 72, cited to explain why successful middleware would erode the applications barrier. *Id.* at 55 ("Because applications written for multiple operating systems could run on any operating system on which the middleware product was present with little, if any, porting, the operating system market would become competitive.").

Findings 36 through 39, 44, and 52 – which describe the applications barrier to entry – are essential not only to the D.C. Circuit's decision, but also to the District Court's holding that "the applications barrier to entry protects Microsoft's dominant market share. [Findings of Fact]

¶¶ 36-52." *Microsoft*, 87 F. Supp. 2d at 36. The District Court also cited as corroborative evidence of Microsoft's monopoly power Findings 54 and 55 – which describe the lack of viable alternatives to Windows – and Findings 64 and 66 – which concern Microsoft's pricing behavior. *Id.* at 37 ("[N]either Microsoft's efforts at technical innovation nor its pricing behavior is inconsistent with the possession of monopoly power.").

IV. Findings 68, 72, And 74 Through 77 Are Necessary To The Ruling That Microsoft's Illegal Conduct Harmed Competition

The D.C. Circuit rejected Microsoft's challenge to causation, holding that plaintiffs "established a causal link between Microsoft's anticompetitive conduct, in particular its foreclosure of Netscape's and Java's distribution channels, and the maintenance of Microsoft's operating system monopoly." *Microsoft*, 253 F.3d at 78. Findings 68, 72, and 74 through 77 are necessary to this ruling, because the D.C. Circuit specifically cited them as part of the District Court's "*ample findings* that both Navigator and Java showed potential as middleware platform threats. *Findings of Fact* ¶¶ 68-77." *Id.* at 79 (emphasis supplied).

V. Findings 74 And 76 Are Necessary To The Rulings That Microsoft Engaged In Illegal Conduct Towards Java

The D.C. Circuit affirmed holdings by the District Court that Microsoft illegally entered into contracts with major software producers ("ISVs") which required them to promote Microsoft's Java product exclusively, deceived Java developers, and coerced Intel to stop aiding Sun in improving Java technologies. *Microsoft*, 253 F.3d at 74, 75-79. Necessary to these rulings are Findings 74 and 76, which describe Java, the threat that Java posed to Microsoft's Windows monopoly, and Microsoft's efforts to eliminate the threat.

Citing Findings 74 and 76, the D.C. Circuit explained:

> Java, a set of technologies developed by [Sun], is another type of middleware posing a potential threat to Windows' position as the ubiquitous platform for software development. . . . Programs calling upon the Java APIs will run on any machine with a "Java runtime

> environment," that is, Java class libraries [which expose Java APIs] and a JVM [or Java Virtual Machine, which translates Java commands into instructions to the operating system]. [Findings] ¶¶ 73, 74.
>
> In May 1995 Netscape agreed with Sun to distribute a copy of the 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." *Id.* ¶ 76. Microsoft, too, agreed to promote the Java technologies – or so it seemed. For at the same time, Microsoft took steps "to maximize the difficulty with which applications written in Java could be ported from Windows to other platforms, and vice versa." *Conclusions of Law*, at 43.

Id. at 74.

VI. Findings 72, 80, 84, 90 Through 93, 115, 116, 119 Through 125, 130, And 132 Are Necessary To The Rulings That Microsoft Illegally Forced OEMs To Accept Windows License Restrictions

The D.C. Circuit affirmed the District Court's holding that, in response to the threat posed by Netscape's Navigator, Microsoft illegally forced computer manufacturers ("OEMs") to accept Windows license restrictions. *Microsoft*, 253 F.3d at 64. Facts essential to the District Court's holding included not only evidence of the license restrictions' exclusionary effect on Navigator, *see infra* Part VII.A, but also "[p]roof that [Microsoft's] conduct was motivated by a desire to prevent other firms from competing on the merits." *Microsoft*, 87 F. Supp. 2d at 37 n.1. Such proof "can contribute to a finding that the conduct has had, or will have, the intended, exclusionary effect." *Id.*; *Microsoft*, 253 F.3d at 59 ("Evidence of the intent behind the conduct of a monopolist is relevant only to the extent it helps us understand the likely effect of the monopolist's conduct.").

The District Court concluded:

> The same ambition that inspired Microsoft's efforts to induce Intel, Apple, RealNetworks and IBM to desist from certain technological innovations and business initiatives – namely, the desire to preserve the applications barrier – motivated the firm's June 1995 proposal that Netscape abstain from releasing platform-level browsing software for 32-bit versions of Windows. *See* [Findings] ¶¶ 79-80, 93-132. This proposal, together with the punitive measures that Microsoft inflicted on Netscape when it rebuffed the overture, illuminates the context in which Microsoft's

> subsequent behavior toward [OEMs], [IAPs], and other firms must be viewed.

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

In other words, the District Court found that Microsoft initially responded to the threats posed by companies like IBM and Netscape by pressuring them to halt software development that could erode the applications barrier to entry. Although this conduct was not found to be illegal, it was a "necessary component," *Belmont Realty Corp. v. Bogosian*, 11 F.3d 1092, 1097 (1st Cir. 1994) (citation and internal quotation marks omitted), of the ruling that Microsoft's subsequent conduct towards OEMs and IAPs "had, or will have, the intended, exclusionary effect" and therefore was illegal, *Microsoft*, 87 F. Supp. 2d at 37 n.1. Consequently, the expressly referenced Findings 115, 116, 119 through 125, and 130 are necessary because they provide proof of Microsoft's efforts to interfere with IBM's software development. Finding 115 provides essential background information about IBM and its business relationships with Microsoft. Findings 116, 119 through 125, and 130 detail how Microsoft tried to pressure IBM away from competing with Microsoft products, and punished IBM when it refused to do so.

For the same reasons, Findings describing Microsoft's efforts to interfere with and pressure Netscape also are necessary. These include Finding 72 and the expressly referenced Finding 80, which describe the "motivation" behind Microsoft's "June 1995 proposal that Netscape abstain from releasing platform-level browsing software for 32-bit versions of Windows," *Microsoft*, 87 F. Supp. 2d at 39, and Findings 84, 90, 91, and 92, which describe in detail "the punitive measures that Microsoft inflicted on Netscape when it rebuffed [Microsoft's] overture," *id.*, such as withholding crucial technical information.

The District Court explained the connection between Microsoft's efforts to pressure IBM, Netscape, and others and its illegal use of monopoly power in the expressly cited

Finding 93 ("[t]hese 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"), and Finding 132 ("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 Microsoft and toward punishing those companies that resist").

VII. Findings 144, 145, 148, 157 Through 160, 166, 169, 175 Through 177, 203, 208, 213, 227 And 239 Are Necessary To The Rulings That Microsoft Illegally Forced OEMs To Accept Windows License Restrictions

The D.C. Circuit affirmed the District Court's holdings that, in response to the threat posed by Netscape's Navigator, Microsoft illegally forced OEMs to accept Windows licenses that prohibited OEMs from (1) removing visible means of user access to Internet Explorer, (2) modifying the initial Windows boot sequence to promote services of IAPs, (3) promoting Web browsing software that rivaled Internet Explorer by adding to the Windows desktop icons or folders different in size or shape from those supplied by Microsoft, and (4) using the "Active Desktop" feature of Windows 98 to promote rival Web browsing software. *Microsoft*, 253 F.3d at 61-62.

Microsoft has conceded that Finding 213 is necessary to these rulings. Finding 213, however, only states in summary fashion that Microsoft sought to "thwart the practice of OEM customization," and only provides summary descriptions of Microsoft's illegal conduct. A number of other, more detailed Findings also are necessary.

A. Findings 144, 145, 148, 157 Through 160, 166, 169, 203, 208, 213, 227, And 239 Are Necessary To The Rulings That Windows Licensing Restrictions Were Anticompetitive

The District Court employed a two-step analysis of the license restrictions and other challenged conduct:

> The threshold question in this analysis is 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 the evidence reveals a significant exclusionary impact in the relevant market, the defendant's conduct will be labeled "anticompetitive" – and liability will attach – unless the defendant comes forward with specific, procompetitive business motivations that explain the full extent of its exclusionary conduct.

Microsoft, 87 F. Supp. 2d at 37-38 (citation omitted).

The District Court held, and the D.C. Circuit affirmed, that "like many of Microsoft's other actions at issue in this case," Microsoft's imposition of the Windows license restrictions was anticompetitive because it "serve[d] to reduce usage share of Netscape's browser and, hence, protect Microsoft's operating system monopoly." *Microsoft*, 253 F.3d at 60.

Findings 157 through 160, 166, 169, 203, 208, 213, and 227 – in addition to the Findings concerning Microsoft's anticompetitive intent addressed in Part VI *supra* – are necessary to this ruling. These Findings, which describe Microsoft's efforts to reduce Netscape's share in the OEM distribution channel, were critical to the D.C. District Court's conclusion that the license restrictions (and other conduct by Microsoft) reduced Navigator's usage share:

> Microsoft bound Internet Explorer to Windows with contractual and, later, technological shackles in order to ensure the prominent (and ultimately permanent) presence of Internet Explorer on every Windows user's PC system, and to increase the costs attendant to installing and using Navigator on any PCs running Windows. [Findings] ¶¶ 155-74. . . . Microsoft imposed stringent limits on the freedom of OEMs to reconfigure or modify Windows 95 and Windows 98 in ways that might enable OEMs to generate usage for Navigator in spite of the contractual and

> technological devices that Microsoft had employed to bind Internet Explorer to Windows. [Findings] ¶¶ 202-29.

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

Also necessary are Findings 148, 159, and 239, which describe the exclusionary effects of the license restrictions. The District Court did not expressly cite Finding 148, but closely paraphrased it:

> The core of [Microsoft's] strategy was ensuring that the firms comprising the most effective channels for the generation of browser usage would devote their distributional and promotional efforts to Internet Explorer rather than Navigator. Recognizing that pre-installation by OEMs and bundling with the proprietary software of IAPs led more directly and efficiently to browser usage than any other practices in the industry, Microsoft devoted major efforts to usurping those two channels.

Id. at 39.

The District Court cited Finding 159 in concluding that "Microsoft's actions increased the likelihood that pre-installation of Navigator onto Windows would cause user confusion and system degradation, and therefore lead to higher support costs and reduced sales for OEMs," *id.* at 39, and cited Finding 239 in concluding that "[n]ot willing to take actions that would jeopardize their already slender profit margins, OEMs felt compelled by Microsoft's actions to reduce drastically their distribution and promotion of Navigator," *id.* at 39-40.

Findings 144, 145, 159, and 203 also were critical to the D.C. Circuit's affirmance. The D.C. Circuit cited Finding 145 in concluding that the license restrictions "are of particular importance in determining browser usage share because having an OEM pre-install a browser on a computer is one of the two most cost-effective methods by far of distributing browsing software." *Microsoft*, 253 F.3d at 60. Finding 145 is rooted in and expands upon Finding 144, which explains why the OEM channel was one of the two that led most efficiently to browser usage. Consequently, Findings 144 and 145 are both necessary to the D.C. Circuit's decision.

The D.C. Circuit cited Finding 159 in concluding that "[t]he OEMs cannot practically install a second browser in addition to IE, the [District Court] found, in part because '[p]re-installing more than one product in a given category . . . can significantly increase an OEM's support costs, for the redundancy can lead to confusion among novice users," *Microsoft*, 253 F.3d at 61, and upheld Finding 159 over one of Microsoft's rare challenges to a finding of fact. *Id.* ("we reject Microsoft's argument that we should vacate the District Court's Finding of Fact 159 as it relates to consumer confusion"). The D.C. Circuit cited Finding 203 in concluding that the prohibition against removal of desktop icons, folders, and start menu entries was anticompetitive because it "thwart[ed] the distribution of a rival browser by preventing OEMs from removing visible means of user access to Internet Explorer." *Id.*

B. Findings 159, 175 Through 177, And 227 Are Necessary To The Rulings That The Windows License Restrictions Lacked Procompetitive Justification

As noted above, the second step in the District Court's analysis of the Windows license restrictions was to determine whether there were "specific, procompetitive business motivations that explain the full extent of [Microsoft's] exclusionary conduct." *Microsoft*, 87 F. Supp. 2d at 38. The District Court held that the license restrictions lacked procompetitive justification, and the D.C. Circuit affirmed. *Microsoft*, 253 F.3d at 64 ("[T]he OEM license restrictions at issue represent uses of Microsoft's market power to protect its monopoly, unredeemed by any legitimate justification.").

Findings 175, 176, and 177 are necessary because the District Court cited them in finding that there were no quality-related or technical justifications for Microsoft's refusal to license Windows 95 to OEMs without Internet Explorer, permit OEMs to uninstall versions 3.0 or 4.0 of Internet Explorer, or offer a browserless version of Windows to consumers and OEMs. *Microsoft*, 87 F. Supp. 2d at 40. So too is Finding 227, which the District Court cited in finding

that Microsoft's motive for the license restrictions was not concern about the quality or integrity of Windows, as Microsoft claimed, but rather "its foreboding that OEMs would pre-install and give prominent placement to middleware like Navigator that could attract enough developer attention to weaken the applications barrier to entry." *Id.* at 41.

The D.C. Circuit also relied upon Finding 227, as well as Finding 159, in rejecting Microsoft's attempt to justify the license restrictions as protecting its copyrighted work. *Microsoft*, 253 F.3d at 63-64 (citing Finding 227 for the conclusion that the stability and consistency of Windows are not affected by OEMs altering the appearance of the desktop or promoting programs in the boot sequence, and Finding 159 for the conclusion that OEMs, not Microsoft, bore the cost of OEMs' modifications of the pre-install process).

VIII. Findings 159, 160, 161, 164, 175 And 176 Are Necessary To The Rulings That Microsoft Illegally Integrated Internet Explorer And Windows

The D.C. Circuit affirmed the District Court's holdings that Microsoft illegally integrated Internet Explorer with Windows 98 by excluding Internet Explorer from the "Add/Remove Programs" utility and commingling browsing and non-browsing code in the same files, and the D.C. Circuit affirmed. *Microsoft*, 253 F.3d at 67.

Microsoft has conceded, as it must, that Findings 161 and 164 – which describe how Microsoft integrated Internet Explorer and Windows 98 – are necessary. The District Court relied, however, not only upon Findings 161 and 164, but also upon Findings 159 and 160, in finding that "Microsoft bound Internet Explorer to Windows with contractual and, later, technological shackles in order to ensure the prominent (and ultimately permanent) presence of Internet Explorer on every Windows user's PC system, and to increase the costs attendant to installing and using Navigator on any PCs running Windows. [Findings] ¶¶ 155-74." *Microsoft*, 87 F. Supp. 2d at 39. Finding 160 provides essential background and context for Findings 161 and 164.

In affirming the District Court, the D.C. Circuit relied on Finding 159, as well as Findings 175 and 176, in concluding that Microsoft's exclusion of Internet Explorer from the "Add/Remove Programs" utility was anticompetitive:

> Microsoft had included IE in the Add/Remove Programs utility in Windows 95, *see* [Findings] ¶¶ 175-76, but when it modified Windows 95 to produce Windows 98, it took IE out of the Add/Remove Programs utility. This change reduces the usage share of rival browsers not by making Microsoft's own browser more attractive to consumers but, rather, by discouraging OEMs from distributing rival products. *See* [Finding] 159. Because Microsoft's conduct, through something other than competition on the merits, has the effect of significantly reducing usage of rivals' products and hence protecting its own operating system monopoly, it is anticompetitive. . . .

Microsoft, 253 F.3d at 65.

The D.C. Circuit also relied upon Findings 159, 161, and 164, quoting them in part in concluding that Microsoft anticompetitively commingled browsing and non-browsing code:

> [T]he District Court condemned Microsoft's decision to bind IE to Windows 98 "by placing code specific to Web browsing in the same files as code that provided operating system functions." [Finding] ¶ 161; *see also* [Findings] ¶¶ 174, 192. Putting code supplying browsing functionality into a file with code supplying operating system functionality "ensure[s] that the deletion of any file containing browsing-specific routines would also delete vital operating system routines and thus cripple Windows. . . ." [Finding] ¶ 164. As noted above, preventing an OEM from removing IE deters it from installing a second browser because doing so increases the OEM's product testing and support costs; by contrast, had OEMs been able to remove IE, they might have chosen to pre-install Navigator alone. *See* [Finding] ¶ 159.

Id. at 65-66. The D.C. Circuit specifically rejected Microsoft's argument that Finding 159 should be vacated. *Id.* at 66.

IX. Findings 386, 394, 395, 401, And 407 Are Necessary To The Rulings That Microsoft Engaged In Exclusionary Conduct Towards Java

The D.C. Circuit affirmed holdings by the District Court that Microsoft illegally "enter[ed] into contracts, the so-called 'First Wave Agreements,' requiring major ISVs to promote Microsoft's JVM exclusively; . . . deceiv[ed] Java developers about the Windows-

specific nature of the tools it distributed to them; and . . . coerc[ed] Intel to stop aiding Sun in improving the Java technologies." *Microsoft*, 253 F.3d at 74, 75-79.

Findings 386 and 407, which describe the exclusionary design and effect of Microsoft's efforts against Java, are necessary to these rulings. The D.C. Circuit quoted Finding 386 in part: "Microsoft took steps 'to maximize the difficulty with which applications written in Java could be ported from Windows to other platforms, and vice versa.'" *Id.* at 74. The District Court paraphrased it: "As part of its grand strategy to protect the applications barrier, Microsoft employed an array of tactics designed to maximize the difficulty with which applications written in Java could be ported from Windows to other platforms, and *vice versa*." *Microsoft*, 87 F. Supp. 2d at 43.

The District Court relied upon Finding 407 in concluding that "Microsoft's actions markedly impeded Java's progress" towards "facilitat[ing] porting between Windows and other platforms to a degree sufficient to render the applications barrier to entry vulnerable," *Id.* at 43 (citing Finding 407), and consequently that "Microsoft's actions with respect to Java have restricted significantly the ability of other firms to compete on the merits in the market for Intel-compatible PC operating systems." *Id.* The D.C. Circuit endorsed this conclusion, holding that "Microsoft's conduct related to its Java developer tools served to protect its monopoly of the operating system in a manner not attributable either to the superiority of the operating system or to the acumen of its makers, and therefore was anticompetitive." *Microsoft*, 253 F.3d at 77.

Other findings are necessary to rulings on Microsoft's specific illegal acts to eliminate the threat from Java.

A. Finding 394 Is Necessary To The Ruling That Microsoft Illegally Deceived Java Developers

In affirming the D.C. District Court's ruling that Microsoft "deceiv[ed] Java developers about the Windows-specific nature of the tools it distributed to them," *Microsoft*, 253 F.3d at 74, the D.C. Circuit expressly relied upon Finding 394:

> Microsoft deceived Java developers regarding the Windows-specific nature of the tools. Microsoft's tools included "certain 'keywords' and 'compiler directives' that could only be executed properly by Microsoft's version of the Java runtime environment for Windows." [Finding] ¶ 394. . . . As a result, even Java "developers who were opting for portability over performance . . . unwittingly [wrote] Java applications that [ran] only on Windows." *Conclusions of Law*, at 43. That is, developers who relied upon Microsoft's public commitment to cooperate with Sun and who used Microsoft's tools to develop what Microsoft led them to believe were cross-platform applications ended up producing applications that would run only on the Windows operating system.

Id. at 76 (citation omitted).

Microsoft has conceded that a portion of Finding 394 (boldfaced in the following quotation) is necessary:

> 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.

The admittedly necessary portion of Finding 394 describes Microsoft's efforts to restrict its Java tools to run properly only on Windows. In fact, all of Finding 394 is necessary. The initial portion that Microsoft would exclude is a factual predicate for – and was paraphrased in – the D.C. Circuit's conclusion that Microsoft's objective was "to maximize the difficulty with which applications written in Java could be ported from Windows to other platforms, and vice versa." *Microsoft*, 253 F.3d at 74 (quoting *Microsoft*, 87 F. Supp. 2d at 43). The statement by Microsoft executive Thomas Reardon is part of the proof that Microsoft undertook, "by means of subterfuge," *Microsoft*, 87 F. Supp. 2d at 43, a "campaign to deceive developers" for which Microsoft "unsurprisingly" offered no procompetitive justification. *Microsoft.*, 253 F.3d at 77. The last sentence of Finding 394 establishes the time frame during which Microsoft's illegal conduct had an anticompetitive effect – *i.e.*, until November 1998 when a court ordered Microsoft to change its ways. *Microsoft*, 87 F. Supp. 2d at 43.

B. Findings 395 And 401 Are Necessary To The Ruling That The First Wave Agreements Were Illegal

Finding 395 is necessary because the D.C. Circuit quoted it in part in concluding that:

> Microsoft's exclusive deals with the leading ISVs took place against a backdrop of foreclosure: the District Court found that "[w]hen Netscape announced in May 1995 [prior to Microsoft's execution of the First Wave Agreements] 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." *Findings of Fact* ¶ [395]. As discussed above, however, Microsoft undertook a number of anticompetitive actions that seriously reduced the distribution of Navigator, and the District Court found that those actions thereby seriously impeded distribution of Sun's JVM.

Microsoft, 253 F.3d at 75.[2]

The D.C. Circuit relied upon Finding 401 in concluding that "although not literally exclusive, the [First Wave Agreements] were exclusive in practice because they required

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[2] The D.C. Circuit opinion cites Finding 394, but this appears to be a typographical error because the quoted passage comes from Finding 395.

developers to make Microsoft's JVM the default in the software they developed." *Microsoft*, 253 F.3d at 75 (citing Finding 401). Microsoft has conceded that a portion of Finding 401 – boldfaced in the following quotation – is necessary:

> 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.

The last two sentences of Finding 401 also are necessary, however, because they provide the factual basis for the D.C. Circuit's conclusion – citing Finding 401 – that "Microsoft offered no procompetitive justification for the default clause that made the First Wave Agreements exclusive as a practical matter. *See Findings of Fact* ¶ 401." *Microsoft*, 253 F.3d at 76. The first sentence of Finding 401 also is necessary, as it accurately summarizes the conduct described in detail in subsequent sentences.

X. Findings 411 And 412 Are Necessary To The Rulings That Microsoft's Illegal Conduct Caused Harm To Competition

The District Court found that to assess the harm that Microsoft caused to competition, it was necessary to consider not just Microsoft's individual, discrete categories of illegal conduct, but Microsoft's entire "campaign to protect the applications barrier from erosion by network-centric middleware" including Navigator and Java. *Microsoft*, 87 F. Supp. 2d at 44. The District Court explained: "[O]nly when the separate categories of conduct are viewed, as they should be, as a single, well-coordinated course of action does the full extent of the violence that Microsoft has done to the competitive process reveal itself." *Id.* Microsoft's overall conduct served to "illuminate[] the context" in which Microsoft's specific acts of illegal conduct must be viewed. *Id.* at 39.

Findings 411 and 412, which describe how Microsoft caused harm to consumers and competition, are necessary to the District Court's holding that the 12 anticompetitive acts upheld on appeal harmed competition. The D.C. District Court relied upon them in finding that:

> In essence, 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. [Finding] ¶ 411. While the evidence does not prove that they would have succeeded absent Microsoft's actions, it does reveal that Microsoft placed an oppressive thumb on the scale of competitive fortune, thereby effectively guaranteeing its continued dominance in the relevant market. More broadly, Microsoft's anticompetitive actions trammeled the competitive process through which the computer software industry generally stimulates innovation and conduces to the optimum benefit of consumers. [Finding] ¶ 412.

Microsoft, 87 F. Supp. 2d at 44. Although the D.C. Circuit reversed the holding that Microsoft's entire course of conduct constituted an independent violation of Section 2 of the Sherman Act, the D.C. Circuit did not criticize, let alone vacate, the D.C. District Court's "broad, summarizing conclusions" regarding the harm caused to competition by the specific illegal acts that were affirmed. *Microsoft*, 253 F.3d at 78.