

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendant.

Civil Action No. 98-1232 (CKK)

STATE OF NEW YORK ex rel.

Attorney General ELIOT SPITZER, et al.,

Plaintiffs,

v.

MICROSOFT CORPORATION,

Defendant.

Civil Action No. 98-1233 (CKK)

**COMMENTS ON THE DEPARTMENT OF JUSTICE
PROPOSED SETTLEMENT AND FINAL JUDGEMENT
SUBMITTED BY
CONSUMERS FOR COMPUTING CHOICE
AND
OPEN PLATFORM WORKING GROUP**

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I. Introduction

As Consumers for Computing Choice stressed in the brief it filed with the District Court, consumers will need advanced computing applications to enjoy the benefits of the coming digital age. These applications rely on a new generation of state-of-the-art operating systems and microprocessors. A number of more advanced operating systems and related microprocessor technologies are endangered because of a Windows standard arising from Microsoft's misuse of its monopoly power.

The Microsoft case will determine whether competition in information technology occurs among a diversity of innovative software producers or is limited to a few monolithic companies. In order to ensure robust competition, we propose that the Court include in any Final Judgment remedies that will rapidly and reliably erode the applications barrier to entry by enabling state of the art operating systems to compete on a level playing field. The most important of these remedies is to provide a way to enable the 70,000 applications supported by Windows to run on any modern operating system.

Now that the Appeals Court has rejected Plaintiffs structural remedies, the District Court must seriously review the currently proposed Final Judgment to determine whether it will enable Windows applications to run on other operating systems. Consumers for Computing Choice believe it will not. The applications barrier is here now, it is limiting consumer choice and innovation now, and it can be addressed now. We urge the court to reject the proposed settlement and Final Judgment and replace them with a Final Judgment that includes remedies that provide for interoperability of Windows applications with any other modern operating system and other related interoperability.

Our recommended remedies are directly focused on the applications barrier to entry, providing an essential addition to their proposed remedies. Microsoft's compliance with these remedies will create an immediate change in market incentives, opening a path to adoption of a number of advanced operating systems and creating attractive competitive opportunities for ISVs to write applications for these systems. In the interest of robust competition, innovation, and consumer choice, the Court should reject the settlement and Proposed Final Judgment and replace it with a Final Judgment that includes these remedies.

II. Hold Thorough Public Proceedings With Consumer Participation

The Court should hold thorough public proceedings on remedies and provide opportunities for full participation by citizens and organizations that represent the consumer interest. Robust competition and innovation in software are crucial to our short- and long-term economic recovery. No industry was more crucial to the economic prosperity in the 1990s. Yet the incentives for innovation have been destroyed by Microsoft's increasing monopolization of the most common categories of software. There is no incentive for any company to create a new operating system, productivity suite, or Internet browser. Computer hardware manufacturers cannot profitably innovate as long as Microsoft has the power to control the specification for microprocessor architecture and other hardware components. OEMs have become little more than "value added resellers" with minimal influence over design decisions. If present trends continue, the only incentives for innovation will be in the most obscure niches.

Moreover, American prosperity in the coming century will depend on our ability to increase our quality of life while reducing resource consumption and environmental pollution. Just as machines supplanted physical labor in the past, software will supplant much of the work

done by industrial-era machines in the future. During the last century, machines improved labor productivity by a factor of 40. Software has the potential to provide similarly dramatic improvements.

Consumers are the major player in the computer market without a seat at the Microsoft and Justice Department negotiating table. In 1974 Congress passed the Antitrust Procedures and Penalties Act (15 U.S.C. sec 16), designed to provide the public with the opportunity to comment on a proposed Final Judgment. This act also required the benefiting party, in this case Microsoft, to file a Competitive Impact statement (CIS) to provide essential information for the public. Microsoft has failed to do so.

Former California Senator John Tunney, the author the legislation, filed an affidavit in this proceeding that says Microsoft's filing "is inadequate to satisfy the clear language and intent of the Tunney Act." Microsoft does not reveal what its President Steve Balmer spoke about with Vice President Dick Chaney when they met. News sources report that Attorney General Ashcroft received campaign contributions from sources politically connected with Microsoft. In a similar situation with Enron, Ashcroft recused himself. He should do the same in this case.

It is not possible to have the most robust and accessible information system without the full participation of capable consumers. By withholding information, Microsoft is denying consumers information they need. Without the information, consumers are handicapped in effectively pointing out Microsoft's limitations and failures.

Consumers must be informed, and they have the right to be heard. These are essential developments if the desktop and Internet are to grow into their potential as an integrated sphere of rapid, accurate, and dependable communication. If Microsoft has its way the potential computing revolution on our doorstep will remain a potential.

Consumers need "Four Freedoms" to benefit from a competitive market in computing

platforms. The first is the freedom to switch to any new operating system without abandoning their investment in applications. The second is the freedom to switch to any new application without abandoning the documents and data they have created. The third is the freedom to replace any component or feature in an operating system or application with superior or special purpose components. The fourth is the freedom to switch to any new microprocessor architecture without abandoning their investment in an operating system.

Microsoft denies the Four Freedoms. Its comprehensive strategy locks products together, excludes superior competitors, and raise switching costs for consumers. The Court should insist that any settlement or Final Judgment enables the Four Freedoms.

III. Address the Essential Elements of a Competitive Market in Computing Platforms

In the early 1990s, experts recognized that the basic architecture of existing platforms was inadequate to meet the needs of the emerging digital age. This realization led to a wave of extraordinary innovation in computing. Visionary business leaders, engineers, marketers, and investors brought together their resources to create a wave of new products and possibilities. New operating systems from IBM, NeXT, and Be offered improved stability, speed, and application development. The PowerPC microprocessor and its Common Hardware Reference Platform came into service. Internet software like Netscape Navigator changed how people use the Internet. The OpenStep and Java cross-platform application environments enabled developers to write an application once and run it on multiple platforms.

With these innovations came the promise of a new generation of digital media applications. Unfortunately, most of these products are now road kill in Microsoft's quest to seize control of the information superhighway. IBM's OS/2 is now a niche product (Findings of

Fact, 46). NeXT was acquired by Apple and used to extend the life of the aging Macintosh platform. OpenStep for Intel and Open Step for Windows were removed from Apple's price list shortly after the so-called "normalization" of relations between Microsoft and Apple in 1997. Java's potential has been diminished by Microsoft's efforts to introduce an incompatible version. Netscape's market share has continued to decline since it was acquired by America Online.

More recently, while the current case was underway, Microsoft drove Be from the operating system market by threatening computer makers who had agreed to bundle Be as a second operating system. Microsoft threatened prohibitive increases in Windows licensing fees and refused to allow installation of a boot loader that would allow consumers running Windows to reboot their computers into the Be operating system. The state-of-the-art Be technology was sold to Palm for the fire sale price of \$11 million, approximately one day of Microsoft profits.

The market conditions needed to protect competition, innovation, and consumer choice are straightforward. *Competition must be a la carte, no less fine-grained than the process of innovation.* Everything must be able to run on everything. Developers must be free to remove, replace and combine components, and compete on the merits of each component. This will ensure robust competition, with innovators vying to improve components and vendors competing to assemble them in different combinations. There will be little competition or dynamism in the market for platform software if neither innovators nor users can replace anything without having to replace everything. No company or alliance can replace Wintel and its all its third party products at the drop of a hat.

Because Netscape had no applications barrier to entry to protectit, it was ported to more than fifteen different operating systems (Findings of Fact, 69). Operating system vendors differentiated the graphical user interface into a separate layer, allowing the application

environment to use the graphical interface of the host operating system on which it was running and to permit special interfaces. This occurs naturally in a competitive market. Everyone wants his software to run on every other platform, and everyone wants software from others to run on his platform. Competitors have incentives to cooperate, establish standards, and publish interfaces to ensure interoperability.

In a truly competitive market, there would be a wide variety of component combinations. Operating systems with multiple application environments would be common. Developers would be able to write for the application environments with the best capabilities for their specific application. Consumers would be able to choose operating systems and application environments with the best capabilities for their most demanding applications.

A competitive market would provide companies real incentives to pursue breakthrough innovations. Small producers with an idea for one great application or one great component would have a chance to bring it to market. Network effects would be counterbalanced by the benefits of cross-platform application environments. A number of operating systems would have substantial market share. Absent an applications barrier to entry, developers would promote these benefits. Consumers would readily recognize these benefits and demand them.

This is not speculative. Automobile manufacturing and customer service have substantial network effects, yet Chevrolet, Ford, Toyota and Honda, Porsche, and Ferrari still have dealer and service networks. They allow third-party products to enhance performance.

Among the most important breakthroughs in computing is the fact that operating systems now rely on *modular design*. A modern operating system includes a core operating system that schedules tasks for processing. Three basic layers correspond to the basic functions of an operating system recognized by the Court (Findings of Fact, 2 and 7). In a modular operating

system each of these major layers includes a number of distinct modules. Software developers can easily add or replace modules with superior or special purpose components without hidden code dependencies interfering with the rest of the system.

Another important benefit of modern operating system architecture is that it permits multiple application environments to run well on the same core operating system. This will allow consumers have an older application environment to run legacy applications and a modern application environment to perform demanding tasks, without maintaining two large, complex operating systems on one computer (Findings of Fact, 49).

In an important sense this case is about the important contributions multiple application environments on a single core operating system can make to competition, innovation, and consumer choice. Netscape Navigator and Sun's Java both provided cross-platform application environments that could run along with the standard application environment on different operating systems. If similarly adaptable applications are allowed to thrive in a truly free market, consumers will enjoy smooth migration of older technology and early adoption of the new technology crucial to full participation in the digital age.

IV. Provide a Way to Run Windows Applications on Any Other Operating System

The Court should reject any proposed settlement or Final Judgment that does not provide a way to run Windows applications on any other operating system. The applications barrier to entry is the central issue of this case. The installed base of 70,000 Windows applications is by far the most formidable element of this barrier. A competing operating system must have a large and varied base of compatible applications to reassure consumers that it will meet their computing needs (Findings of Fact, 40). The massive installed base of Windows applications

makes this prohibitively difficult and expensive (Findings of Fact, 46). As the Court recognized, the developer of a rival operating system could in theory circumvent this barrier by cloning the Windows APIs so that the applications written for Windows would then also run on that system (Findings of Fact, 52). The new competitor would not be able to translate this into practice, however, because it would never have all the current Windows APIs.

Widespread availability of a Windows Application Environment on all other operating systems would reduce this barrier to entry. A Windows Application Environment would be similar in structure and function to a Java Runtime Environment (Findings of Fact, 73). It would break the dependent relationship between Windows and the 70,000 applications written for the Windows APIs and allow those applications to work with other operating systems. This reduced barrier to entry would immediately encourage investment in the development and marketing of operating systems. Consumers could choose a superior core operating system with a modern application environment based on its features, without worrying about legacy Windows applications. This would substantially reduce the costs of migrating to other operating systems. No other remedy would do so much to restore competition, innovation, and consumer choice.

IBM recognized the important benefits of a Windows Application Environment when it invested tens of millions of dollars to clone the Windows APIs and enable Windows applications to run on its OS/2 operating system (Findings of Fact, 46). Sun Microsystems made a similar investment to develop a Windows Application Environment for its Solaris operating system.

A number of third party software developers have made serious efforts to implement the Windows APIs on other operating systems. The open source WINE (Wine Is Not an Emulator) project has implemented a sufficient percentage of the Windows APIs on the Linux operating system to run selected Windows applications. A WINE project for Apple's OS X operating

system is also in progress. The BeWine project, organized by a small group of software developers who needed access to the installed base of Windows applications, made substantial progress implementing Windows APIs on the state-of-the-art Be operating system. This project has been shelved since 1999 when Microsoft drove Be from the operating system market. A network of Be developers around the world is now working to resurrect the Be operating system, and BeWine will be one of its highest priorities. The new Lindows operating system is implementing Windows APIs as a way for consumers to run some of the major Windows applications on Linux. A preliminary version of Lindows will soon be released to the public.

In all of these projects, the major obstacle is the lack of complete and accurate disclosure of the Windows APIs and related technical specifications. Moreover, Microsoft frequently changes APIs. Often these are gratuitous changes intended only to frustrate interoperability. Yet Microsoft allows implementation of Windows APIs when it serves the company's interests. At least two ISVs, Mainsoft and Bristol, offer tools that implement the Windows APIs on Unix operating systems. They do it in markets where Microsoft is not the dominant vendor; i.e., in markets where Microsoft favors interoperability. These implementations work well because Mainsoft and Bristol have the benefit of Microsoft source code licenses, and need not be concerned about the completeness or accuracy of its API disclosure.

There are three major ways for the Court to ensure the availability of the installed base of Windows applications on all other operating systems.

Mandatory Porting

The first approach is to order Microsoft to offer mandatory ports of a Windows Application Environment to other operating systems. The initial ports should be to the five operating systems offered by competitors mentioned in the Findings of Fact. This approach

should require native and optimized ports that work well with the unique features of the host operating systems.

An advantage of this approach is that it appropriately shifts the burden for reducing the applications barrier to entry from disadvantaged competitors to Microsoft. These ports would be a very modest burden for a company as large as Microsoft. NeXT Software, a company with fewer than 400 employees and less than \$50 million annual revenue, ported the OpenStep operating system to four hardware platforms, and the OpenStep application environment to four other operating systems. Third party applications written for OpenStep ran properly on all these platforms without additional porting. The entire project cost approximately \$10 million. While the Windows code base is larger and more commingled, that is hardly an excuse for Microsoft to escape any additional burden that may result. These costs will be modest compared to the immense monopoly rents Microsoft has enjoyed as a result of the applications barrier to entry.

Microsoft should be required to sell these products to OEMs, ISVs, IHVs, and end users at a price not to exceed fifty per cent of the lowest price for any Windows Operating System Product. There would also need to be provisions for adding new operating systems at minimum cost to their developers.

A disadvantage of mandatory ports is the risk that Microsoft would likely attempt to delay progress or produce low-quality ports. Strong enforcement and serious sanctions for violations would be necessary to ensure compliance.

Mandatory Licenses to Port Windows Application Environment

Another approach would be to order Microsoft to offer licenses to port Windows Application Environments to any other operating for which its developer or a third party requests

one. The advantage of this approach is that developers or third parties would rapidly be able to develop high quality products to market on any operating system.

The developers of new and innovative operating systems offering the greatest potential consumer benefit are likely to have limited access to capital. Accordingly, a limited number of licenses should not be allocated by auction alone. A small number of major licensees could limit availability to their preferred operating systems and raise barriers to entry for small and innovative operating system developers. Moreover, Microsoft might attempt to control this process by encouraging compliant, though formally unaffiliated, ISVs to acquire licenses and limit their use to operating systems that present no competitive threat.

Instead, at least one license should be issued for each operating system for which a port is requested by its developer or any third party. The initial license fee should be no more than an amount sufficient to cover Microsoft's administrative costs associated with licensing. Microsoft should then receive a per unit royalty from ISVs, IHVs, and OEMs not to exceed twenty-five percent of the lowest royalty paid for any Windows Operating System Product.

Mandatory Disclosure of Interfaces and Technical Information

The third approach is to order that Microsoft fully disclose all of the functional specifications for APIs, other interfaces, and technical information necessary for competent software developers to implement their own Windows Application Environments on any other operating system. The advantage of this approach is that it would leverage the efforts of existing projects working to create Windows Application Environments.

The required disclosure should include the right to the technical information about file systems needed to read the files on a disk partition on which Microsoft products are installed.

This will permit consumers to install multiple operating systems on the same computer or home network.

This approach should also require Microsoft to grant a license of any intellectual property rights it claims are necessary to produce and sell these products. The license should be royalty-free and available on nondiscriminatory terms. The court should make it clear that “nondiscriminatory” requires that open source projects and their commercial derivatives are entitled to all of the benefits of these disclosures and licenses, provided that no Microsoft source code is incorporated into open source products.

Finally, Microsoft should be prohibited from including in its licensing terms any requirement that its software not be installed on computers with other operating systems. This will make consumers free to install and use existing Microsoft applications on other operating systems.

The remedies proposed by the Plaintiff Litigating States offer significant though partial steps toward this third approach. Section 4(a) (i) of their Remedial Proposal requires Microsoft to disclose all APIs, Technical Information and Communications Interfaces that Microsoft employs to enable each *Microsoft* (emphasis added) application to Interoperate with Microsoft Platform Software installed on the same Personal Computer.

The Plaintiff Litigating States clearly recognized the importance of disclosing these interfaces. The APIs Microsoft employs to enable Microsoft applications to interoperate with Windows include almost all the APIs it employs to enable Windows applications written by third parties to interoperate with Windows. However, there are a small number of APIs that are called only by third party Windows applications. Disclosure of all of these APIs is essential in order to

reduce the applications barrier to entry and enable consumers to run any of the 70,000 existing Windows applications on any other operating system.

It is likely that the Plaintiff Litigating States did not distinguish between these sets of APIs and intended that this remedy include the APIs used for all Windows applications. Nevertheless, the Court should insist that disclosure include all the APIs. The remedy could easily be changed to reflect this by requiring that Microsoft disclose all APIs, Technical Information and Communications Interfaces that Microsoft employs to enable *all Microsoft and/or third party Windows applications* to Interoperate with Microsoft Platform Software installed on the same Personal Computer.

The Windows APIs are the centerpiece of Microsoft's monopoly power. The Court should now use that monopoly power to reverse the effects of its abuse and move Microsoft toward open, cross-platform competition. This would allow the market to begin to recover. The Court noted (Findings of Fact, 29) that it would take several years for middleware and the applications it supports to evolve into a competitive threat to Windows. This has yet to occur. Moreover, the prospects are worse than they were in 1995 because Microsoft now dominates the market for browsers and may be able to leverage that dominance.

The Court should correct for this market failure by ensuring that any Final Judgment contains at least one of the remedies that will enable the installed base of 70,000 applications that comprise the applications barrier to entry to run on any other operating system.

V. Make Native Ports of Microsoft Office Available on Any Other Operating System

VI. Provide a Way to Make Native Ports of Microsoft Office Available on Any Other Operating System

The Court should reject any proposed settlement or Final Judgment that does not provide a way to make native ports of Microsoft Office available on any other operating system. This is another direct and certain way to address the applications barrier to entry.

In a competitive market, many consumers will choose operating systems because their features and benefits are necessary for advanced multimedia, networking, or other digital-age applications. Nevertheless, for many consumers, Office remains their one indispensable application. Its importance is highlighted by its role in the controversies between Microsoft and IBM and Microsoft and Apple. Unfortunately, the dependencies between Microsoft applications and Windows are another formidable element of the applications barrier to entry. Office and Internet Explorer are now dominant in most work environments, and most consumers need compatible applications at home. Office has proprietary file formats, APIs, and other features that add dependencies. If there is to be real competition in operating systems and other platform software, the dominance of Microsoft Office applications must not be allowed to favor Windows over other competitors.

Cross-platform ports of Office applications will ensure that consumers and businesses are free to choose alternative operating systems based on their distinct features and benefits. Porting Office to competing platforms is more certain and immediate than relying on other ISVs to develop productivity applications for them. Since their market share is presently low, there are few incentives for ISVs to write for them.

There are two major ways for the Court to ensure the availability of Office applications on all other operating systems.

Mandatory Porting

The first approach is to order Microsoft to offer mandatory ports of its Office applications to other operating systems. The initial ports should be to the five operating systems offered by

competitors mentioned in the Findings of Fact. This approach should require native and optimized ports that work well with the unique features of the host operating systems.

An advantage of this approach is that it appropriately shifts the burden for reducing the applications barrier to entry from disadvantaged competitors to Microsoft. The price charged for these products to ISVs, IHVs, OEMs and end users would need to be limited to the comparable price of Office for Windows. There would also need to be provisions for adding new operating systems at minimum cost to their developers.

A disadvantage of mandatory ports is the risk that Microsoft would likely attempt to delay progress or produce low-quality ports. Although mandatory ports of complex Silicon Graphics software worked well, strong enforcement and serious sanctions for violations would be necessary to ensure that Microsoft complies.

The specialized Macintosh Business Unit established by Microsoft after the 1997 agreement to continue the port of Office for Macintosh has demonstrated, with upgrades to Office and Internet Explorer, that Microsoft can optimize ports to take advantage of features not available on Windows. This optimization made a noticeable difference in the user experience and is one of the few positive results of the "normalization" between Microsoft and Apple.

Microsoft should be required to continue its port of Office to Apple operating systems. The existing agreement to port Office to the Macintosh operating system expires this year. Microsoft could again hold Apple hostage and demand concessions in exchange for continuing this port. The remedies proposed by the Plaintiff Litigating States require this. However, Apple now has a modern operating system with an advanced object-oriented application environment called Cocoa. Apple asked Microsoft to port to this application environment in 1997 and Microsoft declined. This was a decisive factor in delaying the release of the new OS X operating system and forcing Apple to add an interim application environment to that operating system.

Microsoft should be required to support the most advanced application environment on any operating system to which it ports Office. Any settlement or Final Judgment should require that Microsoft port Office to the Cocoa application environment within three years in order to allow Apple to shift the orientation to this new technology.

Mandatory Licenses to Port Office

Another approach would be to order Microsoft to offer licenses to port its Office applications to any other operating system for which its developer or a third party requests one. The advantage of this approach is that developers or third parties would rapidly be able to develop high quality products to market on any operating system.

The remedies proposed by the Plaintiff Litigating States offer significant though partial steps toward this approach. Section 14(b) of the Remedial Proposal submitted by the states requires that Microsoft offer to sell at auction at least three licenses to port Office to other operating systems without further royalty beyond the auction price.

The developers of new and innovative operating systems offering the greatest potential consumer benefit are likely to have limited access to capital. Accordingly, a limited number of licenses should not be allocated by auction alone. A small number of major licensees could limit availability to their preferred operating systems and raise barriers to entry for small and innovative operating system developers. Moreover, Microsoft might attempt to control this process by encouraging compliant though formally unaffiliated ISVs to acquire licenses and limit their use to operating systems that present no competitive threat.

Instead, at least one license should be issued for each operating system for which its developer or a third party requests one. The initial license fee should be no more than an amount sufficient to cover Microsoft's administrative costs associated with licensing. Microsoft should

then receive a per-unit royalty from ISVs, IHVs, OEMs, and end users indexed to a specified price for Office.

VI. Provide a Way for Competing Productivity Applications to Interoperate with Microsoft Applications.

The Court should reject any proposed settlement or Final Judgment that does not provide a way to run competing productivity applications on any other operating system and interoperate with Microsoft applications. The importance of competition in operating systems is to provide superior platforms that enable the development of applications with richer features and compelling benefits to consumers. Sustaining competition in operating systems will require renewed competition in applications.

Microsoft's proprietary file formats are another significant element of the applications barrier to entry. Their only benefit is to exclude competitors. A vast amount of valuable data is held captive in Office files. Just as consumers' ability to carry over their installed base of Windows applications to new platforms is essential to restoring competition in the market for operating systems, their ability to carry over data now held captive in Microsoft files to new applications is essential to competition in the markets for applications and, therefore, operating systems.

Any Final Judgment should require Microsoft to publish all file formats needed to read, write, and save Office files.

Requiring Microsoft to publish these file formats will allow consumers to migrate to new (and more advanced) applications without losing data. This will provide ISVs with ample incentives to write new applications for Windows and alternative operating systems and ensure

that, as market share grows, Microsoft applications are not the only ones ported to competing systems.

Microsoft also uses its Object Linking and Embedding (OLE) framework and other proprietary specifications for inter-application communications instead of published APIs. These make it possible for Office applications to exchange files, data, and services with other Microsoft applications. These are yet another significant element of the applications barrier to entry. Without open interfaces, competing applications cannot exchange data with Office applications.

Any Final Judgment should also require that Microsoft publish the file formats of its applications and the specification for OLE and other proprietary specifications needed for inter-application communications.

Requiring Microsoft to publish these specifications will allow consumers to choose productivity applications from multiple vendors and still have the benefits of an integrated application suite. A spreadsheet from one vendor could be combined with a drawing program from another and a presentation program from a third. Consumers could then replace one program without having to purchase another complete suite and discard applications. This will increase incentives for ISVs to write applications. Since ISVs will no longer have to design an entire suite of software, a small ISV will be able to concentrate its resources on developing a more innovative product for a single niche and will be able to compete more effectively with larger ISVs.

VII. Provide a Way to Run Internet Explorer and Other Microsoft Internet Applications on Any Other Operating System.

The Court should reject any proposed settlement or Final Judgment that does not provide a way to make native ports of Internet Explorer and other Microsoft Internet applications available on any other operating system. This is another direct and certain way to address the applications barrier to entry.

For many consumers, Internet Explorer is becoming another indispensable application. Its importance is highlighted by its role in the controversies between Microsoft and IBM and Microsoft and Apple. Internet Explorer is now the dominant application for access to the World Wide Web. If there is to be real competition in operating systems and other platform software, the dominance of Microsoft Internet applications must not be allowed to favor Windows over other competitors.

Cross-platform ports of Internet Explorer and other Microsoft Internet applications will ensure that consumers and businesses are free to choose alternative operating systems based on their distinct features and benefits.

There are two major ways for the Court to ensure the availability of Internet Explorer and other Microsoft Internet applications on all other operating systems.

As with Office, the first approach is to order Microsoft to offer mandatory ports of its Internet Explorer to other operating systems. All the considerations and provisions that apply to ports of Office should apply to Internet Explorer, except that the ported products should remain free as long as Internet Explorer for Windows is free.

As with Office, another approach would be to order Microsoft to offer licenses to port Internet Explorer to any other operating system that requests one. Again, all the considerations and provisions that apply to licenses to port Office should apply to Internet Explorer, except that the license fees would need to be very limited since Explorer for Windows is a free product.

The remedies proposed by the Plaintiff Litigating States offer a more comprehensive approach. Section 12 of their Remedial Proposal requires that Microsoft offer open source licenses to Explorer source code without royalty. This approach will offer other operating systems and consumers all the benefits that mandatory porting or licenses to port will offer.

Since Microsoft's intent in offering Internet Explorer as a free product was central to its unlawful conduct, the open source remedy may be appropriate to restore competition and deprive Microsoft of the fruits of its unlawful conduct. There is also much less justification for protecting the source code of Explorer than there is for Office or Windows.

Moreover, opening the source code of Internet Explorer will make it more difficult for Microsoft to extend its triple monopoly and create another set of secret *de facto* standards eliminating competition for the architecture for distributed Internet computing and the advanced networking applications. Any Final Judgment should incorporate provisions to reduce the likelihood that Microsoft will continue to create an ever more powerful monoculture on the web and gain control of cyberspace in the same way it gained control of the desktop.

Nevertheless, if the Court declines to adopt the remedy proposed by the Plaintiff Litigating States, mandatory porting of Internet Explorer or mandatory licenses to port it will assist in restoring competition, innovation, and consumer choice in operating systems.

VIII. Provide a Way for Competing Internet Applications to Interoperate with Microsoft Applications.

The Court should reject any proposed settlement or Final Judgment that does not provide a way to run competing Internet applications on any other operating system and interoperate with Microsoft applications.

Microsoft's proprietary Internet interfaces, file formats, media formats, codecs, and extensions are another significant element of the applications barrier to entry. Their only benefit is to exclude competitors. Any Final Judgment should require Microsoft to publish these specifications.

Requiring Microsoft to publish them will allow consumers to migrate to new Internet applications. It will provide ISVs with ample incentives to write new Internet applications and ensure that Microsoft applications are not the only ones ported to competing systems.

Microsoft is also using proprietary specifications for inter-application communications instead of published APIs in its Internet applications.

Any Final Judgment should also require that Microsoft publish the specifications needed for inter-application communications.

Requiring Microsoft to publish these specifications will allow consumers to choose Internet applications from multiple vendors and still have the benefits of integrated Internet applications.

The open source remedy proposed by the Plaintiff Litigating States will offer other operating systems and consumers all the benefits that disclosure of these specifications will offer. Moreover, opening the source code will make it more difficult for Microsoft to create an "integrated" Internet architecture that excluded applications and components from other software developers and deprived consumers of choice.

Nevertheless, if the Court declines to adopt that remedy, mandatory disclosure of these specifications will assist in restoring competition, innovation, and consumer choice in operating systems.

IX. Provide a Way to for Developers and Consumers to Remove and Replace Components of Microsoft Products with Superior or Special Purpose Components.

Microsoft has regularly sacrificed best practices, value added, and innovation to strategies that extend its monopoly. Resources that could be invested in product improvement or breakthrough innovation are consistently diverted to prevent developers from substituting superior components and raise the “switching costs” for users who wish to replace Microsoft products with preferred alternatives. After years of these practices, an extraordinarily high proportion of the value of Microsoft’s intellectual property is in the unpublished interfaces and communication protocols that exclude competitors.

Microsoft’s relentless pursuit is promoted in the guise of “integration.” This purported “integration” neither makes its software run faster than comparable competing software nor work more seamlessly. Indeed, the commingling of code from so many components into the foundations of the operating system is why its entire software monoculture is so vulnerable to instability, security breaches, and viruses. The digital age requires a better foundation.

X. Deprive Microsoft of the Power to Control the Computing Hardware Market

The Court should reject any proposed settlement or Final Judgment that does not deprive Microsoft of the power to control the computing hardware market Microsoft monopoly power has externalities in hardware choices as well as operating systems and applications. The Court found that Microsoft was able to pressure Intel to stop developing platform software because of Intel's dependency on Microsoft support for Intel microprocessors (Findings of Fact, 102). Since

Intel is so dependent on Microsoft, Microsoft has the ability to influence Intel's processor designs. Intel therefore embraces strategies and technologies that favor Windows at the expense of hardware innovations that would benefit superior operating systems. Over the years, the technical dependencies between Windows and Intel processors have increased.

These dependencies assist Microsoft in preserving the applications barrier to entry. Locking Windows and Intel together tends to lock others out of both the operating systems and microprocessor markets. Since the market for personal computers that run Windows is very profitable for Intel, these dependencies are "golden handcuffs" that limit Intel's freedom to design the best processors. Intel's next generation processor architecture is burdened with numerous legacy features that would likely not be included if Microsoft did not insist on them, and the performance of the prototypes has been disappointing.

Consumers have almost no alternatives to Intel-compatible personal computers. This limitation is itself a result of Microsoft's protection of the applications barrier to entry. Microsoft initially supported the Common Hardware Reference Platform (CHRP), an open PowerPC hardware platform that supported a number of alternative operating systems including Macintosh, BeOS, and Solaris. CHRP was an important habitat for other operating systems. It was also a potential path for migration from Windows to these operating systems, since it would have allowed consumers and business to switch from one system to another without having to purchase another computer. Accordingly, it was perhaps the most significant threat to the dominance of the Wintel platform.

Microsoft abandoned its support for CHRP at a critical moment in the platform's development. Apple abruptly withdrew its support shortly after its so-called "normalization" of relations with Microsoft in 1997. Without support from Microsoft and Apple, critical customers

lost confidence in the platform. CHRP has since been dormant. Its successor, the PowerPC Open Platform, is sustained mainly by the interest of Linux developers. Without additional commercial support, this exceptional platform may never be widely available to consumers.

The Court should include in any Final Judgment provisions for porting Windows to other hardware platforms with non-Intel compatible microprocessors.

The Court could require that Microsoft port Windows to specified alternative microprocessors and recompile its software to run on the versions of Windows ported to those microprocessors. This would require the same sorts of provisions to ensure a quality port that mandatory ports of other software would require.

The Court could alternatively order Microsoft to issue source code licenses for the purpose of porting Windows to any microprocessor for which a port is requested. Since the number of alternative microprocessor architectures is limited, this would likely only require issuance of three or four licenses. Microsoft should of course be entitled to receive a royalty on every unit of these products. The royalty should be no greater than the lowest royalty charged to an OEM for Intel-compatible versions of Windows.

XI. Provide Equal Access to the Existing OEM Distribution Channel

OEMs are the most important distribution channel for operating systems (Findings of Fact, 54), middleware, and other software. Few consumers will install an alternative operating system even as a complement to Windows if it requires partitioning a disk drive and reinstalling all Microsoft software or adding another disk drive. Equal access to OEM distribution will level the playing field and restore competition.

In 1998, while the current case was underway, Be attempted to persuade Microsoft drive Be from the operating system market by threatening computer makers who had agreed to bundle Be as a second operating system with prohibitive increases in Windows licensing fees and refusing to allow installation of a boot loader that would allow consumers running Windows to reboot their computers into the Be operating system. The Be technology was sold to Palm for \$11 million.

Effective remedies must ensure that alternative operating systems and other software products that compete with Microsoft's monopoly products have immediate access to this distribution channel. The Court should require in any Final Judgment that Microsoft be prohibited from licensing any operating system, applications, or middleware to an OEM for installation on a computer unless each unit shipped with a Microsoft operating system also includes alternative software products corresponding to the Microsoft products installed on that computer.

Consumers would have the opportunity to experience the benefits of alternative systems, and competitors who have been excluded from coexistence with Microsoft on OEM computers would have new incentives to invest. OEMs could use the choice of which competing products to offer in each category to differentiate their offerings.

This would impose no substantial financial burden on the OEMs. Free distributions of Linux, BeOS, BSD Unix, and other alternative operating systems are available. OEMs could shift responsibility for support for these products to the manufacturers or other interested parties. Consumer demand would develop for the products that offered the most value, and OEMs could then charge for them.

XII. Minimum Term of Any Final Judgment

The Court should reject any proposed settlement or Final Judgment with a term of less than ten years. The AT&T case indicates that, contrary to popular notions, ten years is not so long in a dynamic industry. The recombining of the “Baby Bells” began almost as soon as the Term of the Modified Final Judgment expired. Meanwhile, their control of the “last mile” of connectivity into consumer homes has enabled them to drive Competitive Local Exchange Carriers and residential broadband providers out of the market.

One lesson from this experience is that the “last mile” is a commons that is essential for all competitors, and equal access to that commons may need to continue until it no longer offers any leverage to exclude competitors. Since interoperability remedies of the sort provided in these comments are essential to establishing a commons through which new competitors can enter markets controlled by Microsoft, the Court should ensure that they are maintained for at least a decade, or until competition in platform software is so robust that Microsoft no longer has the ability or incentives to control key interfaces.

Some of Microsoft’s anti-competitive practices originated more than a decade ago. The wave of anti-competitive conduct that led to the filing of this case began six years ago. The magnitude of the damage to related markets suggests that even well-designed, pro-competitive remedies will require a decade to restore competition and reverse the gains resulting from Microsoft’s unlawful conduct.

XIII. Provisions for Enforcement and Consequences for Violation

The Court should reject any proposed settlement or Final Judgment that does not have strong provisions for enforcement and serious consequences for violation of disclosure requirements and other mandates. The Court should appoint a Special Master to monitor and enforce Microsoft’s compliance with the Final Judgment. The Court should consider the voice

of the Plaintiff Litigating States, competitors, and consumer organizations in selecting the Special Master. There should be provisions for selection of a replacement if necessary and a way to prevent Microsoft from corrupting the selection process in the event of political changes.

The Special Master must have the authority and resources to thoroughly monitor and enforce Microsoft's compliance with the terms of this Final Judgment. Most important, the Special Master will need full access to all of Microsoft's source code for the purpose of verifying the completeness and accuracy of its required disclosures.

Access to source code in a secure facility proposed in the remedial proposal of the Plaintiff Litigating States does not adequately enable competitors to verify the completeness and accuracy of disclosure.

The settlement must also provide an effective "crown jewel" provision that will deprive Microsoft of both the tools and spoils of its illegal monopoly. There must be substantial penalties for non-compliance. For the same reasons that protection of the source code during verification is so great a concern for Microsoft, placing the source code in the public domain would be the best "crown jewel" provision.

IV. Conclusion

The Court should reject the proposed settlement and schedule public proceedings. It must

The Court should reject the proposed settlement and schedule public proceedings. It must conduct its own inquiry into both the ends that proper remedies must achieve and the best means to achieve them.

These proceedings should include a significant opportunity for consumers to participate, including the opportunity to propose remedies, present evidence, and to argue for correcting the effect of illegal monopoly. The remedies recommended in these comments should be given serious consideration in those proceedings. Even with the inclusion of these remedies in a settlement or Final Judgment, competing operating systems and competing software face uphill battles against the fruits of Microsoft's years of unlawful conduct.

Competing products will still be disadvantaged by the large investment in training that companies and consumers have on Microsoft products and the great degree of familiarity information technology professionals have with those products. Nevertheless, these remedies offer the best chance to restore competition, innovation, and consumer choice.

The scheduled proceedings on the Remedial Proposal submitted by the Plaintiff States should complement rather than replace public proceedings under the Tunney Act. The Court should also propose that the Plaintiff Litigating States incorporate these recommendations into a Revised Proposed Final Judgment. Although the remedies proposed by these states are important and should be included in any Final Judgment, their proposed remedies have been shaped more by the debate between Microsoft and its competitors than by a consumer voice.

The absence of a strong consumer presence is reflected in the omission of some of the most basic remedies of importance to consumers. The absence of these remedies create the likelihood that the development of the information economy and culture promised by the potential of computer technology will remain stymied and undeveloped much as the telephone communicating system crept along at a snails pace for the nearly one hundred years of the Bell systems monopoly.

Opening up the Microsoft monopoly with serious remedies that include the consumer interest in the final market place equation will make possible the next leap in communication technology, and with it the significant economic development, on the brink of which society now stands. These new developments are to the Internet as the Internet is to the telephone. Failure to include these consumer-oriented remedies threatens society with economic downturns and cultural stagnation. We urge the court not to accept the economically and culturally crippling proposed final judgment.

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Chair

Consumer for Computing Choice

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Co-Chair

Open Platform Working Group

Michael Vlahos

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APPENDIXES

A. Motion for Hearing on The Issues Presented #

1. This has been a common sense presentation #

2. Expert testimony will support it #

XIII. Interests of the Parties Submitting Comments #

A. Consumers for Computing Choice #

B. Open Platform Working Group #

B. Offer of Proof #

A. Witnesses #

B. Issues #

**IN THE UNITED STATES DISTRICT OF COLUMBIA
FOR THE DISTRICT OF COLUMBIA**

THE UNITED STATES OF AMERICA
Plaintiff

vs.

Civil Action No. 98-1232 (CKK)

MICROSOFT CORPORATION
Defendant

STATE OF NEW YORK ex rel.
Plaintiffs,

vs.

MICROSOFT CORPORATION
Defendant

Motion for Evidentiary Hearing

Defendant, Microsoft Corporation by the undersigned counsel respectfully moves this honorable court for an evidentiary hearing in the above captioned matter.

As grounds for the motion, which are more fully determined in the accompanying memorandum of points and authority defendant, asserts:

1. Defendant has new evidence previously not considered by the court
2. The failure of the court to hear and consider this new evidence would not only constitute a denial of due process and or would be impermissibly prejudicial to the defendant and to other parties to this case.

CONSUMERS FOR COMPUTING CHOICE

Executive Board

James S. Turner, Chair
Consumer Interest Lawyer
Swankin & Turner

Charles D. Brown
Consumer Interest Lawyer
Former Attorney General
State of West Virginia

Jeri Smith-Fornara
Arizona Consumer Council

Tom Andrews
Former United States Representative
State of Maine
President
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