

This paper is the property of Standards Engineering Society. It was submitted to the World Standards Day paper competition for 2000, and won first place. It is reprinted here with permission.

Microsoft Anti-Trust Litigation - The Case for Standards

Ken Krechmer
International Center for Standards Research
University of Colorado at Boulder
krechmer@csrstds.com

and Elaine Baskin
Communications Standards Review

Abstract

An initial decision in the Microsoft anti-trust litigation was reached April 3, 2000. The legal decision is to split the company into two parts, not dissimilar to the way the AT&T monopoly was broken up in 1984. However, such action may not be necessary or desirable to control this monopoly. Microsoft maintains their very successful operating system monopoly through the use of proprietary specifications as well as aggressive marketing. Open standards offer an alternative means to allow market forces to redress any Microsoft abuses. The use of proprietary specifications were developed in the 20th century to maintain monopolies. Now open standards may be used to maintain both competition and competitive advantage, which minimizes the potential for monopoly abuse.

Introduction

The Microsoft operating system (Windows™), applications (Explorer™, Word™, PowerPoint™, Excel™), and many other Microsoft drivers and modules are the software programs running on a majority of existing personal computer systems. The interaction of these programs with each other and with programs from other sources is vital for most current business activity. Microsoft software functions to communicate information: between applications, between the operating system and the applications, and between Microsoft software systems and networks. The ability of these programs to interwork is completely based on evolving Microsoft proprietary specifications, or, as they are considered by most Microsoft users, "standards."

On April 3, 2000, the United States District Court for the District of Columbia decided to split Microsoft into an operating system company and an applications company to redress the effects of Microsoft's market dominance [1]. The decision of the US District Court in paragraph 3.b Conclusions of Law [2] addresses the need to open the Microsoft controlled interfaces to competitor's use, but does not order the creation of open standards [3]. This is a significant omission that hopefully will be corrected during the legal appeals that are in process. The answers to four questions may explain why this omission is so significant:

1. Why is the US Government antagonistic to Microsoft's success?

2. What could Microsoft have done to avoid legal action?
3. How should the Microsoft markets be segmented?
4. What government action is best?

Early Monopolies

Prior to the 18th century, monopolies such as toll roads and canals, were bestowed by royalty in return for cash payments [4]. These monopolies for passage (including railroads) gain market control by using a specific mountain pass, valley, or dry river bed (i.e., advantageous geographic feature) over alternative routes.

In the 19th and early 20th century, a new type of monopoly organization developed. Companies emerged in control of new technologies that required uniform and wide-spread deployment: water supply, lighting and cooking gas, electric and telephone companies. These utility companies, which developed before the value of open standards was understood, maintained uniformity over a large system by unified control under a single organization. Such a single organization was by definition a monopoly [5]. US society takes a dim view of abusive monopoly behavior and considers it a crime via a number of different legal statutes. These US legal statutes developed from a 17th century custom in English jurisprudence regarding property "affected with a public interest" [6]. A utility company, "affected with a public interest," provides uniform deployment of the utility service and yet allows government control of the potential for monopoly abuse.

Other examples of government conferred monopolies include the concession to provide refreshments at a government-owned park, the market control made possible by a government-issued patent, or government-administered easements to give access for utility company connections.

Richard Ely in an article titled, *The Future of Corporations*, *Harper's New Monthly Magazine*, July, 1887, coined the phrase, "natural monopoly." In this work, R. Ely refers to the earlier work of T.H. Farrer, *The State in its Relation to Trade*, 1883, for a description of the five characteristics of monopolies (original language maintained):

1. What they supply is a necessary.
2. They occupy peculiarly favored spots or lines of land.
3. The article or convenience they supply is used at the place where, and in connection with the plant or machinery by which, it is supplied.
4. This article or convenience can in general be largely, if not indefinitely, increased without proportionate increase in plant and capital.
5. Certainty and harmonious arrangement, which can only be attained by unity, are paramount considerations.

This list explains that a monopoly must first offer a needed product or service. Secondly, it describes a monopoly as having a favorable geographic component. While the right to use such geographic features was conferred by the government, once the controlling company developed the route, the government usually could not offer the same geographic advantage to others. As the quotation date suggests, such favored geography was an intrinsic component of many 18th and 19th century natural monopolies.

The 19th century monopolies evidence a subtle difference from the earlier natural monopolies which maintained their market control based on advantageous geography. The emerging 19th century monopoly relied less on favorable geographic features and more on the rights conferred by government. The third point of T.H. Farrer, advantage based on location of supply and use, also addresses these monopolies. The early water works or gas works has a geographic advantage based on the place where the water or gas is obtained from natural sources (a natural feature of the land) but the rest of the water or gas system is somewhat independent of natural geographic advantage. However, water or gas or systems with multiple

sources of supply, and possibly multiple owners, minimize the monopoly control that any one point of natural supply exerts. In electrical and telephone systems, which expanded after these five points were written, the source of supply is man-made, thus the third point is less applicable to these systems.

Utility companies, controlled as well as conferred by government, show the transition from natural monopolies based on unique features of the land to conferred monopolies where only government action created the monopoly. The 19th century telegraph, water works, gas, electric, and telephone companies each derived successively more of their intrinsic market control by the more subtle mechanism explained in point five: "Certainty and harmonious arrangement which can only be attained by unity..."The unity referred to is the single point of control by one organization, e.g., a utility company, to deliver a uniform commodity service to the growing city populations. In practice such unity control is implemented with what would be termed today "proprietary compatibility specifications."Proprietary compatibility specifications define the pipe sizes and threads or electrical characteristics necessary to connect competitive systems or products to the dominant water, gas, electrical and telephone systems.

Monopolies have thus evolved from those based on advantageous geographic placement conferred by government, to those based only on government dispensation, to those conferred and controlled by government, e.g., utility companies, and then to those based on "certain and harmonious arrangement" (compatibility) as a way of providing connection to their service. This shift from geography-based natural monopolies to compatibility-based monopolies presages the beginnings of the information age.

Compatibility Monopolies

Sometimes an emerging new technology is important enough to create a paradigm shift [7]. The companies that find themselves on the cusp of such a new technology change have a rare opportunity to grow to great commercial success. In the 20th century, companies such as Standard Oil, IBM and Microsoft have achieved great commercial success. Combining the luck of being on the cusp of an emerging new technology with the skill of their execution, they have achieved a monopoly position in major new markets - oil distribution, main frame computers and software, and personal computer software, respectively. As it happens, their great commercial success also created the potential for market abuses such as price gouging, selective selling to favored customers or distributors, using monopoly control to force acceptance of other products, and restraint of the trade of competitors. These monopolies are a new form of monopoly not based on advantageous location or conferred by government. The only government protection they receive is of their patents and copyrights. These companies maintained their industry domination through their efforts to control what uses (Standard Oil) [8] or connects to (IBM and Microsoft) the systems they provide. These three monopolies mark the trend to successively gain more market control based on the information needed to make connection to their systems - information that describes how to achieve compatibility with the dominant supplier's systems.

The concept of a monopoly and its implications on fair trade has considerable historical precedent. During the 19th century, specific railroads, oil companies, water and gas companies, telegraph companies, grain elevators, and insurance companies have been identified as monopolies and penalized for their abusive actions. Often such companies were shown to have abused their monopoly position by penalizing their customers. However in the 20th century, certain monopolies focused on providing the best product and price to their customers. Microsoft did just that, and judging from their economic success, they accomplished this extremely well.

Why is the US Government antagonistic to Microsoft's success?

While market domination is itself no crime, market domination most often leads to market abuse - an example of the corrupting effects of power. The transition of a company from a growing provider of new

information technology to a monopoly provider of old information technology now occurs very rapidly. This quick transition leaves little time for the aggressive young company to learn to adopt a new and less aggressive role. Transitioning from a high growth company in an emerging industry to a company focused on a mature industry represents a complete cultural change. Once a successful company achieves dominance in a market, and in a totally new information industry it can happen very rapidly, there are few good role models available. Any market dominant company continuing the aggressive tactics that led to market dominance risks legal action under US current laws. But that is what such companies have trained themselves to do.

As the economist J. A. Schumpeter explains, all economic change is created by invention or innovation [9]. Each invention is created by technology. The development of the railroad or the electrical industries as the understanding of powered transportation and electrical technologies emerged are examples of paradigm-shifting technology. Schumpeter coins the term "creative destruction" to describe the economically desirable changes wrought by new inventions and innovations. However, when creative destruction develops into market domination, a different force emerges which could be called "destructive creation." Destructive creation is the dominant supplier's use of tactics to minimize change in the market place and thereby favor the dominant supplier's position.

Figure 1 shows the monopoly cycle as two periods, first one of change, then one of stability. The stages of emergence and expansion that characterize the market's acceptance of a new technology are stages of considerable change. Together these are the period of creative destruction when the changes brought about by the new technology obsolete previous technologies. Examples of periods of creative destruction would include canal transportation overtaking river transportation, railroad transportation overtaking canals and highway transportation overtaking rail. Creative destruction well describes the changes that occur when these new transportation systems, based on new technologies, emerged. The new transportation systems substantially increased total economic growth but at the cost of changing the type of work needed, even the type and location of the workers.

Stage:	Emergence	Expansion	Market domination	Market abuse
Effect:	Change Creative Destruction		Stability Destructive Creation	

Figure 1. The monopoly cycle.

On the other hand, the stages of market domination and market abuse, together a period of enforced stability, deserve the term destructive creation. Here the monopoly supplier may use its market power to cheat its customers with costly product or service of inferior quality, capriciously control its selling channels, frighten its competitors, dominate its customers, and attempt to manipulate the government to accept or even approve its actions. These actions stymie new invention and innovation and result in reduced overall economic growth.

Now that technological change is occurring at a faster pace, the resolution of market abuse may sometimes be brought about by the obsolescence of the technology of the dominant supplier by new technologies. But it is unwise to ignore the power of the dominant supplier to harness destructive creation to artificially maintain their dominant market position.. The legal decision against Microsoft shows that the US government finds economic change desirable and the enforced stability Microsoft has engineered to be self serving and economically undesirable.

What could Microsoft have done to avoid legal action?

The US versus Microsoft is the largest anti-trust action since the break-up of AT&T in 1984. The break-up

of AT&T, while desirable for many large organizations, and the cause of considerable economic growth, has made telephone communications more complex and expensive for many smaller users. Small telephony users are disadvantaged because the unifying value of the AT&T monopoly was destroyed and replaced by an artificially constructed set of individual telephony suppliers. This created competition, but also removed the single supplier uniformity that provided simplified telephony operation for many users.

Prior to the divestiture of AT&T, uniform US telephone communications was provided by this single dominant communications provider. However, communications uniformity may also be achieved through the use of open technical standards. The Part 68 Regulations of the Federal Communications Commission (FCC) offer an excellent example of the creation of a standard [10] to open a market to new competition. This FCC-administered requirement for a set of communications standards has been responsible for the creation of many new companies and multiple new markets. The creation of Part 68 allowed the development of new markets including modems, PBXs, answering machines and telephones which are each multi-billion dollar vibrant industries to this day. Yet Part 68 regulations never prevented public telephone users from maintaining a single supplier, if that was desired. Competition was allowed, rather than artificially created, and market forces determined which competitors grew and prospered.

As technology has expanded, the ability of a company to control the definition of interfaces to prevent other companies from being compatible has increased dramatically. Proprietary specifications play a vital role in the continuation of Microsoft's monopoly power [11]. With application software programming interfaces, even allowing competitors access to Microsoft proprietary documentation, as suggested in paragraph 3.b of the Conclusions of Law, does not prevent Microsoft from making future changes that negatively affect the operation of competitive software or hardware. Conversely, competitors to Microsoft could prevent Microsoft from making necessary software changes to improve Microsoft software by showing that such changes would cause incompatibilities. The idea in paragraph 3.b that open access to Microsoft interfaces can be accomplished at the implementation level (computer program source code) is incorrect. However, eliminating Microsoft's control of its proprietary specifications by creating open technical standards does offer a solution to the perceived market abuse without reducing the economic or useful value of what Microsoft has created.

Consensus-based open standards maintained by independent organizations with similar standards for independent testing of compatibility have a long, successful history of supporting very competitive new markets. Examples of the many successful information and communications markets created by open standardization programs since the FCC Part 68 regulations in 1975 include: time sharing, packet networks (X.25), cellular telephony, and of course, the Internet.

Today any information technology company with a monopoly market position that wishes to continue to grow, expand and develop their business should recognize the importance of converting proprietary compatibility specifications into open standards before the government raises issues of market abuse. Microsoft has been willing to relinquish control of some interfaces (e.g., Interactive Messaging, XML, Universal Plug and Play, etc.) to expand their markets. But Microsoft has been unwilling to expand their operating system markets by supporting open operating system standards. Currently Microsoft uses capital investments in other companies as their main approach to enter new operating system markets. Yet open operating system interfaces might be a more effective way for Microsoft to expand the use of their software in new operating system markets such as Internet appliances and set top boxes.

How to Segment the Microsoft Markets?

Open, consensus-based standardization may be a more useful mechanism for the US government to address the problems caused by information monopolies. Using the successful pattern of open standards development, multiple committees of industry technical experts, including Microsoft experts, gathered under

the American National Standards Institute (ANSI) rules of open standardization could create the standard interfaces needed to compete with Microsoft. Such standard interfaces might include the Windows operating system and application programming interfaces. However, the ANSI committees would define the necessary interfaces to be standardized, develop the open standards for these interfaces, and then develop the procedures and tests to verify that implementations of these interfaces are in fact open. The action of the courts would be to assure the speedy development of the necessary ANSI standards and to require that these standards are supported in Microsoft products. It is likely that this standards development would be ongoing to support new types of applications and operating systems in the future.

Defining open standards for the interfaces between Microsoft applications and operating systems eliminates the onerous requirement for Microsoft to provide to its competition the complete details of its software products. William Neukom, Microsoft Executive Vice President for Law and Corporate Affairs, responded to the requirements in paragraph 3.b of the ruling, "This ruling would force Microsoft to disclose the inner workings of our software to our direct competitors. That is unfair confiscation of our intellectual property, and it goes far beyond any issue in this case" [\[12\]](#).

With such open standards, users would have the ability to purchase everything from Microsoft if they wished, and competitors would have the ability to connect their products as needed to Microsoft software for competitive advantage. And users that desired the features and function available from Microsoft's competitors could take advantage of software from multiple software companies.

What Government Action is Best?

In the 21st century, the greater understanding of open technical standards allows more flexible ways to segment markets to engender competition. After market abuse is identified, resolution may now take multiple forms:

1. The rise of a competitive product or service.
2. Government intervention
 - a. Control of the organization, e.g., utilities
 2. Divestiture, e.g., AT&T, splitting the company into parts
 3. The requirement of open standards, e.g., registered telephone jacks

Certainly the rise of a competitive product or service which obsoletes the previous dominant monopoly is a powerful means to minimize market abuse. Even natural monopolies based on geographic advantage are not immune to the effects of changing technology. In the last 300 hundred years, canal transportation bypassed rivers, railroads bypassed canals, highways bypassed railroads and now even planes bypass highways for some products. However, the pace of these technology changes was slow.

Government intervention can take the three basic forms noted. Considering the court's decision, it must appear far easier to split companies like AT&T and Microsoft into artificial sub-companies than to identify, define, establish tests for and require open technical standards. Yet direct government intervention in the plan and pace of technical change is rarely desirable. Requirements for open standards represent a newer - and therefore less understood - indirect means to open information and communications monopolies that utilize proprietary compatibility specifications to competition.

Apparently the US District Court does not understand the technical difference between a software implementation and an interface specification. Such confusion may stem from misunderstanding the differences between similarity standards, which specify an implementation, and compatibility standards, which define an interface [\[13\]](#). Properly written compatibility standards do not force all implementations to be similar. Even mechanically fixed, open compatibility standards such as for Edison light bulb sockets support a vast range of different manufacturers of light bulbs with an amazing and growing range of

capabilities. Open compatibility standards define interfaces, not what is attached. And open standard interfaces are a fairer approach than forcing Microsoft to make public its source code.

Standards for the interfaces between software programs offer much more flexibility than what is possible via Edison light-bulb socket standards. The interfaces between software programs can be specified to include a means to identify proprietary features available across the interface without affecting the compatibility of standard operation. As such proprietary interfaces become accepted by the market, they can be formally standardized. In this manner, companies, including Microsoft, who offer unpatented but innovative and desirable technical solutions, may control the use of their innovation for a period of time, without creating basic incompatibility [14]. This allows all innovative companies to profit from their innovations and increases the incentive of all companies to continue to innovate no matter what their size or market position.

This paper has shown that open standards are a necessary part of any governmental action to resolve the Microsoft monopoly abuses. Whether they are a sufficient part depends on the US legal system's understanding of and trust in the amazing power of open standards. Without such understanding and trust, a split-up of Microsoft may be seen as the only practical alternative.

Summary

Information-based monopolies now maintain their markets by controlling the interfaces they have promoted, not through geographic formation or government dispensation. The creation of utilities or forced divestiture as used in the 19th and 20th century is no longer necessary to control market abuse by dominant information companies. The answers to the four questions posed suggest that a split-up of Microsoft is neither required nor the ideal approach to open the Microsoft-controlled markets to competition. An open interface standard creates independent processes on either side of the interface. With the current knowledge of open standardization, it is not necessary to create independent companies to create an independent interface standard.

The creation of open standard interfaces in place of Microsoft proprietary specifications appears to offer a more flexible solution for all users and a path to resolve the identified Microsoft market abuse without retribution, loss of economic value or customer hardship. Technical standards developed in open forum allow free market forces to identify the best technology for our future and who provides it. For the 21st century information and communications companies, open compatibility standards may be the best way to promote innovative change and avoid monopoly manipulated stability.

Footnotes

[1] United States District Court for the District of Columbia Civil Action No. 98-1232 (TPJ). The Court found that Microsoft has violated paragraphs 1 and 2 of the Sherman Act, and various state statutes. [Return to text](#)

[2] Conclusions of Law, excerpt of paragraph 3.b: Disclosure of APIs, Communications Interfaces and Technical Information. Microsoft shall disclose to ISVs, IHVs, and OEMs in a Timely Manner, in whatever media Microsoft disseminates such information to its own personnel, all APIs, Technical Information and Communications Interfaces that Microsoft employs to enable -

- i. Microsoft applications to interoperate with Microsoft Platform Software installed on the same Personal Computer, or
2. a Microsoft Middleware Product to interoperate with Windows Operating System software (or Middleware distributed with such Operating System) installed on the same Personal Computer, or iii.

any Microsoft software installed on one computer (including but not limited to server Operating Systems and operating systems for hand held devices) to interoperate with a Windows Operating System (or Middleware distributed with such Operating System) installed on a Personal Computer. To facilitate compliance, and monitoring of compliance, with the foregoing, Microsoft shall create a secure facility where qualified representatives of OEMs, ISVs, and IHVs shall be permitted to study, interrogate and interact with relevant and necessary portions of the source code and any related documentation of Microsoft Platform Software for the sole purpose of enabling their products to interoperate effectively with Microsoft Platform Software (including exercising any of the options in section 3.a.iii). [Return to text](#)

[3] The basic concept of open standards supports openness, consensus and due process. American National Standards Institute (ANSI), "ANSI's Vision," http://web.ansi.org/public/ansi_info/mission.pdf. [Return to text](#)

[4] In England this practice was stopped by Parliament with its 1624 Statute of Monopolies that took away the power of the Crown to grant monopolies including patents. D. C. North and R. P. Thomas, *The Rise of the Western World*, Cambridge University Press, 1973. [Return to text](#)

[5] I. R. Barnes, *The Economics of Public Utility Regulation*, F.S. Crofts, 1942. [Return to text](#)

[6] Lord Hale, *De Portibus Maris*, published in 1776. This was first cited in the case of Munn (a grain elevator monopoly) v. Illinois in 1876. [Return to text](#)

[7] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 1962. [Return to text](#)

[8] J. C. Welsh, *The Standard Oil Company*, 1883, Institution of Civil Engineers archives. [Return to text](#)

[9] Joseph A. Schumpeter, *Business Cycles*, 1939. [Return to text](#)

[10] The FCC mandated the development of Part 68 of the Federal Code of Regulations, Title 47 for the requirements of the electrical interface, called a registered jack (RJ), between the public telephone network and independent suppliers equipment in 1975. John A. C. Bingham, *Theory and Practice of Modem Design*, Wiley-Interscience Publication, 1988. [Return to text](#)

[11] Microsoft warned both the European Association for Standardizing Information and Communications Systems (ECMA) and ISO that Windows Applications Programming Interface (WAPI) standardization was a potential infringement of their IPR and threatened suit. C. Cargill, Sun and the Standardization Wars, *StandardView* 5(4), 1997. [Return to text](#)

[12] George Leopold and Brian Fuller, Industry Mulls API Impact of Microsoft Divestiture, *Electronic Engineering Times*, June 12, 2000. [Return to text](#)

[13] The distinct differences between similarity and compatibility standards are explored in The Fundamental Nature of Standards: Technical Perspective, K. Krechmer, *IEEE Communications Magazine*, June, 2000. [Return to text](#)

[14] Ibid. This paper also explores the means to support proprietary features across standard interfaces. [Return to text](#)

Ken Krechmer
Communications Standards Review
757 Greer Road

Palo Alto, California 94303-3024 USA

Voice: +1 650 856-8836

e-mail: krechmer@csrstds.com

[Return to the directory of Ken's lectures, published articles and book reviews](#)

[Return to CSR Home Page](#)

This page was last updated October 19, 2000.