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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

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| UNITED STATES OF AMERICA,,<br><br>Plaintiff,<br><br>v.<br><br>MICROSOFT CORPORATION,,<br><br>Defendant. | Civil Action No. 98-1232 (CKK) |
| STATE OF NEW YORK *ex. rel.*<br>Attorney General ELIOT SPITZER, *et al.*,<br><br>Plaintiffs,<br><br>v.<br><br>MICROSOFT CORPORATION,<br><br>Defendant. | Civil Action No. 98-1233 (CKK) |

**COMMENTS OF RED HAT, INC. TO REVISED PROPOSED FINAL JUDGMENT AND COMPETITIVE IMPACT STATEMENT IN *UNITED STATES V. MICROSOFT CORP.*, CIVIL NO. 98-1232, IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA**

## I. INTRODUCTION

Pursuant to the Antitrust Procedures and Penalties Act, 15 U.S.C. § 16, Red Hat, Inc. ("Red Hat") files comments to the revised Proposed Final Judgment, filed November 6, 2001, and the Competitive Impact Statement, filed November 15, 2001, in *United States v. Microsoft Corp.*, Civil No. 98-1232, in the United States District Court for the District of Columbia. Red Hat files these comments because the Proposed Final Judgment will not remedy the anti-competitive effects of Microsoft's antitrust violations that were upheld by the United States Court of Appeals for the District of Columbia Circuit in its June 23, 2001 decision. As a result, the market for PC-compatible operating systems -- in which Microsoft unlawfully maintained its monopoly -- will not return to a competitive environment, and the mandate of the District of Columbia Court of Appeals will be thwarted.[1]

## II. BACKGROUND

It is no exaggeration to say that Linux is the operating system that provides the most serious and fastest growing competition to the Microsoft operating system. Linux is the PC-compatible open source operating system based on the kernel developed by Mr. Linus Torvalds in the early 1990s, and in the short amount of time that it has been in the marketplace, the Linux operating system has become a viable competitor to other operating systems. Red Hat, which began in 1994, offers the Red Hat version of the Linux operating system with support and software applications and is the largest distributor of open source Linux. In order for the Proposed Final Judgment to have an

[1] The Litigating States have filed their own Proposed Final Judgment and, to the extent it contains additional modifications to DOJ's revised proposed Final Judgment, Red Hat supports those modifications.



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effect in restoring the competitive nature of the PC-compatible operating system market, Red Hat believes that each and every provision must be viewed with the overall perspective of whether the provision provides a level playing field for companies such as Red Hat, which offer direct competition in the injured market, or whether the provision directly or indirectly will enable Microsoft to perpetuate the monopoly it has been found to have maintained illegally. In order to provide a background for these comments to the Proposed Final Judgment, a brief overview of open source, and Red Hat Linux follows.

Open source and free software is distinct from traditional (proprietary) software in that it is produced by a generally voluntary, collaborative process, and accompanied by a license that grants users the right to:

1) have the source code,
2) freely copy the software,
3) modify and make derivative works of the software, and
4) transfer or distribute the software in its original form or as a derivative work, *without paying copyright license fees.*

Many open source and free software licenses also embody the concept known as *copyleft*. Simply put, this is the condition that all versions of the product, including derivative works, be distributed along with, and subject to, the conditions *and rights* in the license under which they were received. This concept is central to the ability of a licensor to ensure that its product *remains* open source or free software.

The underlying principle is that improvements to a product are given back to the open source and free software community. In this way, open source and free software is continually improved, with the modifications being made available to all. Without the ability to impose this condition on further distribution, a copy, or a derivative work made pursuant to the authorization granted in the license, could be distributed without the right



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to copy, modify, distribute or have the source code -- in effect it would be transformed into a proprietary work. It would cease to be "free."

The benefits of open source and free software are numerous. In practical and commercial terms, open source and free software is stable, high quality software, which users are free to tailor to their own purposes. As the source code is available to all, a user is free to remedy any bugs it may find, maintain the software itself, or hire a third party to do so. The availability of the source code also allows the creation of complementary and interoperable programs by anyone and everyone, with no need to reverse engineer the product. As an element in the competitive environment, open source software provides an almost pure form of competition in the software (and, of course, operating system) competitive environment. Improvements are quickly available and users are able to make product-quality based choices, unfettered by many of the considerations that occur in other competitive markets. Moreover, because of the size of the community that participates in the open source arena, products are quickly debugged, refined and improved; greatly benefiting the ultimate end user.

From a company with only $482,000 in revenue in 1995, Red Hat has grown to over $100 million in revenue in 2001. The vast majority of Red Hat's revenues are derived from the services it offers around its well-known Linux distribution, not from license fees or royalties. Despite its rapid growth, however, until last year Red Hat Linux was not considered an effective competitor with either Sun Microsystems or Microsoft in the server market. With increasing success, Red Hat has now penetrated that market, demonstrating that it can be an effective competitor where no illegal monopoly exists. The same cannot be said for the desktop operating system market, the subject of many of



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the claims and findings against Microsoft in this matter. Because of Microsoft's stranglehold on that market, with over a 94% marketshare -- a stranglehold unlawfully maintained -- Red Hat has elected not to attempt to compete until a level playing field can be established. Any efforts by Red Hat toward competing would be utterly fruitless and an unjustified use of corporate resources.

Microsoft has made no secret of the fact that it considers companies such as Red Hat to be potential competitive threats in the marketplace. According to Microsoft's own executives, Microsoft has contacted "U.S. lawmakers" in an effort to curtail the spread of the Linux operating system. *Microsoft Executive says Linux Threatens Innovation*, Feb. 14, 2001, Bloomberg News, at http://news.cnet.com/investor/news/newsitem/0-9900-1028-4825719-RHAT.html. (Ex. A attached hereto.) Microsoft's CEO, Steve Ballmer has described Linux as a "cancer that attaches itself in an intellectual property sense to everything it touches." *Microsoft CEO takes lunch break with the Sun-Times*, Chicago Sun Times, June 1, 2001, at http://www.suntimes.com/output/tech/cst-fin-micro01.html (Ex. B attached hereto.); *see also* Joe Wilcox & Stephen Shankland, *Why Microsoft is wary of open source*, CNET News.com, June 18, 2001, at http://news.com.com/2100-1001-268520.html (Ex. C attached hereto.); Stephen Shankland, *Microsoft license spurns open source*, CNET News.com, June 22, 2001, at http://news.com.com/2100-1001-268889.html (Ex. D attached hereto.); Mike Ricciuti, *Microsoft memo touts Linux*, CNET News.com, Nov. 5, 1998, at http://news.com.com/2100-1001-217563.html (Ex. E attached hereto.); Joe Wilcox & David Becker, *Microsoft sues Linux start-up over name*, CNET News.com, Dec. 20, 2001, at http://news.com.com/2100-1001-277314.html (Ex. F attached hereto.). From these comments, it is clear, that, unless the Proposed Final



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Judgment protects the ability of non-Microsoft operating systems such as Red Hat Linux to gain access to, and compete for, software developers and users, and to compete, the remedies aspect of this lawsuit will be a failure. Therefore, in order for the Department of Justice to effect a remedy scheme that will address the findings of the Court of Appeals, the Department of Justice must ensure the ability of companies such as Red Hat to compete. A review of the Proposed Final Judgment, however, shows little to no attention paid to the very companies that directly compete in the market in which Microsoft unlawfully has maintained its monopoly. Unfortunately, this is despite the clear intent of the Competitive Impact Statement, in which the Department of Justice states:

> Appropriate injunctive relief in an antitrust case should: (1) end the unlawful conduct; (2) "avoid a recurrence of the violation" and others like it; and (3) undo its anticompetitive consequences. *See Nat'l Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679, 697 (1978); *United States v. E.I du Pont de Nemours & Co.*, 366 U.S. 316, 326 (1961); *Int'l Salt Co. v. United States*, 332 U.S. 392, 401 (1947); *United States v/ Microsoft Corp.*, 253 F.3d 34, 103, 107 (D.C. Cir. 2001) Restoring competition is the "key to the whole question of an antitrust remedy," *du Pont*, 366 U.S. at 326. Competition was injured in this case principally because Microsoft's illegal conduct maintained the applications barrier to entry into the personal computer operating system market by thwarting the success of middleware that would have assisted competing operating systems in gaining access to applications and other needed complements. Thus, the key to the proper remedy in this case is to end Microsoft's restrictions on potentially threatening middleware, prevent it from hampering similar nascent threats in the future and restore the competitive conditions created by similar middleware threats. The Proposed Final Judgment imposes a series of prohibitions on Microsoft's conduct that are designed to accomplish these critical goals of an antitrust remedy.

Competitive Impact Statement filed in *U.S. v. Microsoft* (D.D.C. Nov. 15, 2001) at 9.

It is with consideration being given to the findings of the Court of Appeals and the realistic impact of the Proposed Final Judgment that Red Hat files these comments.



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## III. COMMENTS ON INTELLECTUAL PROPERTY ISSUES ASSOCIATED WITH THE FINAL JUDGMENT

### A. The Proposed Final Judgment Would Neither Remedy Microsoft's Monopolization of, Nor Restore Competitive Conditions to, the Market for PC-Compatible Operating Systems, Because Microsoft Would Remain Free to Shut Down Competitive Operating Systems and Middleware Through Assertion of Microsoft's Intellectual Property Portfolio

For intellectual property reasons, the Proposed Final Judgment would fail to remedy Microsoft's monopolization of the operating systems market and fail to accomplish the goal to restore competitive conditions to the market. It would fail because it would permit Microsoft to block software and hardware developers, users, and vendors from developing, using, distributing, or promoting competitive operating systems by threatening or bringing suits for infringement of Microsoft's extensive intellectual property portfolio. To provide an effective remedy and accomplish that goal, the narrow scope of licenses to Microsoft's intellectual property rights required by the Proposed Final Judgment must, at a minimum, be expanded to allow those persons to engage in that competitive conduct without the threat of an infringement suit by Microsoft.

More specifically, the Proposed Final Judgment would prohibit Microsoft from *retaliating* against software and hardware developers, users, and vendors if they were to develop, use, distribute, or promote operating systems or middleware that competes with Microsoft's Windows operating system or middleware. But giving with its right hand and taking with its left, the Proposed Final Judgment would *exempt from prohibited retaliation* -- and expressly allow -- Microsoft to sue those persons for infringement of Microsoft's intellectual property rights if they engage in that conduct.

Two primary effects would flow from this exemption. First, Microsoft would remain free to assert its intellectual property rights to stop developers and vendors of competitive operating systems and middleware from developing, using, distributing, or



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promoting their software. In that event, the downstream software and hardware developers, users, and vendors who want to use and work with competitive operating systems and middleware would *not* have any competitive operating systems or middleware to use, distribute, or promote. Second, Microsoft would remain free to assert the same intellectual property rights to stop those downstream developers, users, and vendors from using, distributing, or promoting such competitive operating systems and middleware.

If no competitive operating systems and middleware were available or if the downstream developers, users, and vendors could not use, distribute, or promote competitive operating systems or middleware because Microsoft threatens or brings intellectual property infringement suits, the Proposed Final Judgment cannot accomplish its purpose: to remedy Microsoft's unlawfully maintenance of its monopoly and restore competitive conditions to the market Microsoft in which Microsoft's monopoly was unlawfully maintained.

The antitrust remedy should at least remove this exemption and define retaliation to include threatening or bringing suit for infringement of Microsoft's intellectual property portfolio. Such a remedy would be proper and consistent with both Supreme Court and Justice Department precedent.

### 1. Microsoft Illegally Maintained a Monopoly in the Market for Intel-Compatible Operating Systems

The district court held, and the court of appeals affirmed, that Microsoft had illegally "maintained a monopoly in the market for Intel-compatible PC operating systems in violation of [Sherman Act] § 2." *United States v. Microsoft Corp.*, 253 F.3d 34, 45, 50 (D.C. Cir. 2001). The remedy in this case should at the very least restore competition to that market, because that was the only district court holding that the court



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of appeals affirmed. *See id.* at 46. Unless the remedy restores competition within that market, the courts' holdings, and the Justice Department's and States' efforts in proving that antitrust violation, will be nullities.

### 2. The Purpose of an Antitrust Remedy Is to Terminate the Monopoly and Restore Competition to the Monopolized Market

Controlling case law and the Justice Department both recognize that the purpose of the remedy in a Section 2 case is to end the monopoly and restore competition to the market that the defendant monopolized. As the Supreme Court explained, and as the Court of Appeals recognized in *Microsoft*, in a monopolization case "it is the duty of the court to prescribe relief which will terminate the illegal monopoly, deny to the defendant the fruits of its statutory violation, and ensure that there remain no practices likely to result in monopolization in the future." *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 250 (1968); *see Microsoft*, 346 F.3d at 103 (quoting *United Shoe*). Indeed, the goal of relief is to make sure that competition results, not just to end a lawsuit. As the Supreme Court instructed:

> In an equity suit, the end to be served is not punishment of past transgression, nor is it merely to end specific illegal practices. A public interest served by such civil suits is that they effectively pry open to competition a market that has been closed by defendants' illegal restraints. If this proposed Final Judgment accomplishes less than that, the Government has won a lawsuit and lost a cause.

*International Salt Co. v. United States*, 332 U.S. 392, 401 (1947).

In accordance, the Justice Department explained that its purpose in entering into the Proposed Final Judgment was to "restore competitive conditions to the market." Competitive Impact Statement at 2. Likewise, the Justice Department told the public in its press release that the "settlement will bring effective relief to the market and ensure that consumers will have more choices in meeting their computer needs." Press Release,



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U.S. Justice Department, *Department of Justice and Microsoft Corporation Reach Effective Settlement on Antitrust Lawsuit*, Nov. 2, 2001, at http://www.usdoj.gov/opa/pr/2001/November/01_at_569.htm (Ex. G attached hereto.).

### 3. Intellectual Property Restrictions Would Prevent the Proposed Final Judgment From Restoring Competitive Conditions to the Monopolized Market for Operating Systems

#### a. The Proposed Final Judgment Would Ban Microsoft from Retaliating Against Certain Groups if They Work with Operating Systems or Middleware that Compete with Microsoft's Windows or Middleware

The Proposed Final Judgment would protect certain groups of software or hardware developers, users, and vendors (OEMs, ISVs, and IHVs)[2] from undefined "retaliation" by Microsoft if the groups were to work with operating systems or middleware that compete with Microsoft's Windows or middleware. It would provide that Microsoft shall not "retaliate" against those groups if they engage in certain conduct with any "software that competes with Microsoft Platform Software," which the Proposed Final Judgment defines to include Microsoft's Windows operating system "and/or a Microsoft Middleware Product."[3] For example, the Proposed Final Judgment would provide that Microsoft "shall not retaliate" against an:

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[2] Under the Proposed Final Judgment: OEM is an "original equipment manufacturer of Personal Computers that is a licensee of a Windows Operating System Product"; ISV is an "entity other than Microsoft that is engaged in the development or marketing of software products"; and IHV is an "independent hardware vendor that develops hardware to be included in or used with a Personal Computer running a Windows Operating System Product." *See* Proposed Final Judgment, Sections VI.O, I, H.

[3] "Microsoft Platform Software" is defined as including "a Windows Operating System Product" (either alone or with a middleware product), which in turn is defined as "the software code . . . distributed commercially by Microsoft for use with Personal Computers as Windows 2000 Professional . . . ." Proposed Final Judgment, Section VI.L, U. An Operating System is defined as "the software code that, *inter alia*, (i) controls the allocation and usage of hardware resources . . . of a Personal Computer, (ii) provides a platform for developing applications by exposing functionality to ISVs through APIs, and (iii) supplies a user interface that enables users to access functionality of the operating system and in which they can run applications." *Id.*, Section VI.P.



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I. OEM for "developing, distributing, promoting, using, selling, or licensing any software that competes with" Microsoft's Windows operating system or middleware. Proposed Final Judgment Section III.A.1.

II. ISV or IHV for "developing, using, distributing, promoting or supporting any software that competes with" Microsoft's Windows operating system or middleware. Proposed Final Judgment Section III.F.1.a.

**b. The Ban on Retaliation Would Not Ban Infringement Suits**

While the term "retaliate" is undefined, the Proposed Final Judgment contradictorily exempts from the scope of prohibited retaliation -- and therefore expressly permits -- suits for infringement of Microsoft's intellectual property rights. More specifically, the provisions banning retaliation against OEMs, ISVs, and IHVs are followed by an exemption:

> Nothing in this provision shall prohibit Microsoft from enforcing . . . any intellectual property right that is not inconsistent with this Final Judgment.

Proposed Final Judgment Section III.A; *see* Section III.F.3. While the term "inconsistent" also is undefined, it is clear from a later section that a suit to enforce intellectual property rights against conduct that is protected from Microsoft's retaliation nevertheless is "not inconsistent with" the Proposed Final Judgment.

The later section, Section III.I, provides that Microsoft must offer to license its intellectual property rights to the groups if those rights are required to exercise an option expressly provided under the Proposed Final Judgment. If it stopped there, the provision would be fine. But an exemption to that license provision emphasizes that the required license is very narrow, and that Microsoft could still bring infringement suits if the groups engage in the very conduct that is protected from Microsoft's retaliation:



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> I. Microsoft shall offer to license to ISVs, IHVs, . . . and OEMs any intellectual property rights owned or licensable by Microsoft that are required to exercise any of the options or alternatives expressly provided to them under this Final Judgment, provided that
>
> * * *
>
> 2. the scope of any such license (and the intellectual property rights licensed thereunder) need be no broader than is necessary to ensure that an ISV, IHV, . . . or OEM is able to exercise the options or alternatives expressly provided under this Final Judgment (*e.g.*, an ISV's, IHV's . . . and OEM's option to promote Non-Microsoft Middleware *shall not confer any rights to any Microsoft intellectual property rights infringed* by that Non-Microsoft Middleware);
>
> * * *
>
> Beyond the express terms of any license granted by Microsoft pursuant to this section, this Final Judgment does not, directly or by implication, estoppel or otherwise, confer any rights, licenses, covenants or immunities with regard to any Microsoft intellectual property to anyone.

Proposed Final Judgment, Section III.I (emphasis added). In accordance, the Justice Department's November 15, 2001 Competitive Impact Statement explains that a purpose of this provision is to "[permit] Microsoft to take legitimate steps to prevent unauthorized use of its intellectual property." Competitive Impact Statement at 49.

"Unauthorized use" would include infringement. A patent, for example, provides the patent owner the exclusive rights to make, use, sell, and offer to sell the patented subject matter. 35 U.S.C. § 271(a). Those exclusive rights cover developing, distributing, promoting, using, and selling. Thus, while earlier sections of the Proposed Final Judgment say Microsoft could not "retaliate" against that conduct (Proposed Final Judgment Sections III.A.1, III.F.1.a), this later section contradictorily provides that Microsoft *could retaliate* against the conduct -- by lawsuits (Proposed Final Judgment Section III.I.2).



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To illustrate the problem, apply the specific example quoted above, from Section III.I.2 of the Proposed Final Judgment, to an ISV that promotes an operating system that competes with Windows, and assume that Microsoft has patents that arguably cover that competitive operating system. Under the Proposed Final Judgment, Microsoft would be prohibited from "retaliat[ing]" if the ISV were "promoting" the competitive operating system, such as by offering it for sale. Proposed Final Judgment Section III.F.1.a. But the exemption provides that the option to promote the software without retaliation "shall not confer any rights to any Microsoft intellectual property rights [*e.g.*, patents] infringed by that" competitive operating system. Proposed Final Judgment Section III.I.2. Thus, Microsoft could sue the ISV for infringing its patents by promoting the competitive software.

Consequently, the Proposed Final Judgment would prohibit Microsoft from "retaliating" against an ISV or IHV for "developing, using, distributing, [or] promoting" the competitive operating system -- but Microsoft *could sue* the ISV or IHV for patent infringement for the same acts: making (developing), using, selling (distributing), or offering to sell (promoting) that system. Likewise, it would prohibit Microsoft from "retaliating" against an OEM for "developing, distributing, promoting, using, or selling" a competitive operating system -- but Microsoft nonetheless *could sue* the OEM for patent infringement for that conduct.

Thus, while Microsoft could not "retaliate," it could sue for infringement, thereby completely eviscerating the ban on retaliation.



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### B. Infringement Suits by Microsoft Based on Its Massive Intellectual Property Portfolio Could Stop Competitive Operating Systems or Middleware

These intellectual property exemptions could permit Microsoft to completely prevent any competition from other operating systems or middleware, both at the development level and downstream throughout the development and distribution chain.

ISVs, *i.e.*, non-Microsoft entities that develop or market software products, would include developers and vendors of competitive operating systems. *See* Proposed Final Judgment Section VI.I.[4] A patent suit against such a developer or vendor for infringement of Microsoft's patents covering competitive operating systems could result in an injunction against making, using, selling, or offering to sell the competitive system, as well as damages (which could be trebled) and attorney fees for any sales. *See* 35 U.S.C. §§ 283-285. If that occurred, downstream ISVs, IHVs, and OEMs would not have any competitive operating systems with which they could work.

ISVs also would include downstream developers and vendors of middleware or applications software. A patent suit against them for infringement of Microsoft's patents would prevent them from, *e.g.*, using a competitive operating systems to develop their software. Downstream IHVs and OEMs would include developers and vendors of personal computers. A patent suit against them for infringement of those Microsoft patents would prevent them from, *e.g.*, making or selling any computers using competitive operating systems.

The same would apply to competitive middleware. A patent suit against an ISV that develops competitive middleware would preclude the availability of competitive middleware. A patent suit against downstream developers or vendors of applications software would preclude them from using competitive middleware to develop their

[4] *See, also*, discussion in Parts IV.B. and V, *infra*, concerning the definition of ISVs.



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software. And a patent suit against downstream IHVs and OEMs would preclude them from making or selling computers using competitive middleware.

Microsoft has amassed a large portfolio of numerous patents and other intellectual property that potentially covers competitive operating systems and middleware. While any infringement analysis must be specific to a particular software, it is clear that Microsoft has numerous patents that potentially could be asserted against that competitive software. The chart attached as Exhibit H lists over 1400 patents owned by Microsoft in December 2001 that are in Patent and Trademark Office classes that include operating systems and middleware software. Additional Microsoft patents covering operating systems and middleware may be in other classes.

If Microsoft were to bring suit on multiple patents, the accused infringer would have to win against every patent to avoid an injunction and damages. The odds of losing are so great that only the most well financed competitive operating system or middleware developer or vendor could consider fighting that battle. The result would be the same downstream. If the competitive operating system or middleware developer or vendor indemnified its downstream customers (ISVs, IHVs, OEMs, and ultimate consumers), it would face the same problem. If it did not indemnify the downstream customers, those customers would face the problem directly. As a result, a threat of suit by Microsoft could be enough to stop the making, using, selling, or offering to sell competitive operating systems and middleware at all levels in the development-distribution chain.

### 1. Microsoft Intends to Enforce Its Intellectual Property

Microsoft clearly declared its intent to enforce its intellectual property rights against competitors by including the exemption for infringement suits in Section III.I of the Proposed Final Judgment and by arguing that the non-settling states were seeking to confiscate its intellectual property. *See,* Defendant Microsoft Corporation's Remedial



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Proposal at 2. (Dec. 12, 2001) ("Microsoft Remedial Proposal"). Similarly, Craig Mundie, Microsoft's Senior Vice President of Advanced Strategies, reportedly told the audience at an Open Source convention last July:

> Well, at the end of the day, if you have a patent, you enforce the patent if it's valuable to you. And so I think that Microsoft and other people who have patents will ultimately decide to enforce those patents.

*Shared Source v. Open Source: Panel Discussion*, O'Reilly Network, Aug. 9, 2001, at http://linux.oreillynet.com/pub/a/linux/2001/08/09/oscon_panel.html (Ex. I attached hereto.). The threat of Microsoft's patent enforcement has caused concern among the open-source community, as reported last August. Galli, Peter, "Microsoft Patents a Threat to Open Source," eWEEK, Aug. 28, 2001, at http://techupdate.zdnet.com/techupdate/stories/main/0,14179,2808548,00.html ("Members of the open-source community are becoming increasingly concerned by ongoing moves from Microsoft Corp. to acquire a range of software patents that the company can potentially use down the line to attack and try to restrict the development and distribution of open-source software.") (Ex. J attached hereto.).

### 2. The Intellectual Property Problem Can Be Fixed by Defining Retaliation to Include Infringement Suits and Eliminating the Exemptions

The Proposed Final Judgment should define "retaliate" in Section VI of the Proposed Final Judgment. While the term should remain broad to bar any type of retaliation, it can specifically include bringing infringement suits:

> "Retaliate" means any type of retaliation and is intended to be construed broadly. It specifically includes threatening or bringing a suit for infringement of any intellectual property rights owned or licensable by Microsoft.



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In addition, the exemption sections should be modified to prevent infringement suits against the protected groups for engaging in conduct that the Proposed Final Judgment would prohibit Microsoft from retaliating against:

For OEMs, Section III.A should be modified as follows -- after the sentence "Nothing in this provision shall prohibit Microsoft from enforcing any provision of any license with any OEM or any intellectual property right that is not inconsistent with this Final Judgment," add the following:

> Acts that would be inconsistent with this Final Judgment include, but are not limited to, threatening or bringing suit for infringement of any intellectual property rights that would restrict the OEM from developing, distributing, promoting, using, selling, or licensing any software that competes with Microsoft Platform Software or any product or service that distributes or promotes any Non-Microsoft Middleware.

For ISVs and IHVs, Section III.F.3 should be modified as follows -- after the sentence "Nothing in this section shall prohibit Microsoft from enforcing any provision of any agreement with any ISV or IHV, or any intellectual property right, that is not inconsistent with this Final Judgment," add the following:

> Acts that would be inconsistent with this Final Judgment include, but are not limited to, threatening or bringing suit for infringement of any intellectual property rights that would restrict the ISV or IHV from developing, using, distributing, promoting, or supporting any software that competes with Microsoft Platform Software or any software that runs on any software that competes with Microsoft Platform Software, or exercising any of the options or alternatives provided for under this Final Judgment.

Also, Section III.I.2. should be deleted and replaced as follows --

> the scope of any such license (and the intellectual property rights licensed thereunder) need be no broader than is necessary to ensure that an ISV, IHV, IAP, ICP or OEM is able to exercise the options or alternatives expressly provided under this Final Judgment, and to engage in conduct against which this Final Judgment prohibits Microsoft from retaliating;

To enable those third parties to obtain those licenses, Section VIII of the Proposed Final Judgment should be modified as follows:



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Nothing in this Final Judgment is intended to confer upon any other persons any rights or remedies of any nature whatsoever hereunder or by reason of this Final Judgment, except as provided in Section III.I.

### 3. The Proposed Relief Requiring Licensing of Microsoft's Intellectual Property Is Proper and Consistent with Precedent

The proposed modifications would require Microsoft to license certain of its intellectual property: that which potentially covers competitive operating systems, middleware, or other software or hardware and is necessary to ensure that the protected groups are free to engage in the conduct against which the Proposed Final Judgment would prohibit Microsoft from retaliating. Compulsory licensing of intellectual property to remedy monopolization is consistent with Supreme Court and Justice Department precedent, including the Proposed Final Judgment as it now stands, even though abuse of intellectual property rights was not found to be predatory conduct.

To achieve the goal of restoring competitive conditions to the marketplace discussed above, the court has "'large discretion' to fit the decree to the special needs of the individual case." *Ford Motor Co. v. United States*, 405 U.S. 562, 573 (1972) (quoting *International Salt Co. v. United States*, 332 U.S. 392, 401 (1947)). That discretion includes prohibiting acts that may otherwise be valid, if necessary to correct the effects of the violation. "Equity has power to eradicate the evils of a condemned scheme by prohibition of the use of admittedly valid parts of an invalid whole." *United States v. Bausch & Lomb Optical Co.*, 321 U.S. 707, 814 (1944). As the Court similarly instructed in *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 148 (1948), to achieve effective relief a court can include restrictions on otherwise lawful conduct: "[E]quity has the power to uproot all parts of an illegal scheme -- the valid as well as the invalid -- in order to rid the trade or commerce of all taint of the conspiracy."



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Compulsory licensing of patents was ordered to remedy monopolization in, for example, *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295 (D. Mass. 1953), *aff'd,* 347 U.S. 521 (1954), even though enforcement of the patents was not an alleged predatory act. The court concluded that the defendant had not improperly asserted its patents, but they were a barrier to entry into the monopolized market. *See* 110 F. Supp. at 297, 332-33. In determining the remedy, the court's goals were not only to eliminate specific predatory practices that had caused or would cause monopolization, but also "to restore workable competition in the market." *Id.* at 346-47. The court explained that licensing of patents was proper as part of the remedy to reduce the effects of the defendant's monopolization caused by non-patent predatory business practices:

> Defendant is not being punished for abusive practices respecting patents, for it engaged in none . . . . It is being required to reduce the monopoly power it has, not as a result of patents, but as a result of business practices. And compulsory licensing, on a reasonable royalty basis, is in effect a partial dissolution, on a non-confiscatory basis.

*Id.* at 351. Fifteen years later, the Supreme Court again concluded that the relief granted was within the proper scope of relief for an antitrust violation. *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 251 (1968).

Similarly, the Justice Department has required compulsory licensing of intellectual property as part of the remedy in proposed final judgments in antitrust cases. One of the latest examples, and perhaps the most pertinent, is this Proposed Final Judgment's requirement that "Microsoft shall offer to license to ISVs, IHVs, . . . and OEMs any intellectual property rights owned or licensable by Microsoft that are required to exercise any of the options or alternatives expressly provided to them under this Final Judgment . . . ." (Proposed Final Judgment Section III.I.) Indeed, the Competitive Impact Statement provides that some of those provisions "are designed specifically to prevent Microsoft from using its intellectual property rights to frustrate the intended effectiveness of the Proposed Final Judgment's disclosure provisions." Competitive



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Impact Statement at 49. The exemption from retaliation by infringement suits, however, allows that frustration.

The issue, therefore, is *not* whether the remedy can properly include compulsory licensing of Microsoft's intellectual property. Instead, the issue is the scope of the licensing required. As shown above, the scope of the proposed modifications to the intellectual property provisions is reasonable and required to remedy the monopolization and restore competition to the market.

The proposed modifications would not "result in . . . wholesale confiscation of Microsoft's intellectual property," a criticism that Microsoft wrongly asserted against the non-settling states' proposed remedy. Microsoft Remedial Proposal at 2. It would require only licensing that is necessary to prevent frustration of the anti-retaliation provisions. Moreover, the licenses could include royalties or other consideration on a reasonable and non-discriminatory basis, as provided in Section III.I.1.

Nor would the proposed modifications be a significant disincentive to innovation by Microsoft. Since the Proposed Final Judgment would expire in five years (*see* Proposed Final Judgment, Section V), the obligation to license would exist only for that limited time period. Any future innovation by Microsoft also would be free of this obligation after those five years. Any arguable effect on Microsoft's incentives to innovate during those five years would be limited and only to the extent necessary to provide effective relief from Microsoft's monopolization.

In opposing the non-settling states' proposed relief, Microsoft pointed to the Court of Appeals' comment that the relief in this case "'should be tailored to fit the wrong creating the occasion for the remedy.'" Microsoft Remedial Proposal at 5 (quoting *Microsoft*, 253 F.3d at 107). Microsoft also relied upon this Court's statement that the "'scope of any proposed remedy must be carefully crafted so as to ensure that the enjoin[ed] conduct falls within the penumbra of behavior which was found to be



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anticompetitive.'" Microsoft Remedial Proposal at 6 (quoting Sept. 8, 2001 Tr. at 8). Removing the infringement suit exemption and defining retaliation to include threatening or bringing suit for infringement of Microsoft's intellectual property portfolio would fall well within that scope.

### C. Conclusion Regarding Intellectual Property

The scope of the required intellectual property licensing under the Proposed Final Judgment is far too narrow to remedy the monopolization of, and restore competitive conditions to, the market the courts held Microsoft monopolized -- Intel-compatible operating systems. The modifications to the scope proposed above would be no broader than that which is necessary to allow the groups protected under the Proposed Final Judgment to engage in the specific conduct that the Proposed Final Judgment allows them to engage in without fear of retaliation from Microsoft.

As shown above, unless the scope of the licensing is expanded, and the exemptions for infringement suits removed, "the Government has won a lawsuit and lost a cause." *International Salt*, 332 U.S. at 401.

## IV. COMMENTS TO SECTION III -- PROHIBITED CONDUCT

A focus of any final judgment in this litigation must be to put in place safeguards and protections against future actions by Microsoft that may not fit the known pattern, but that will obtain a familiar result -- unlawful continuation of the Microsoft monopoly. An important aspect of this focus is to make sure that the participants in the marketplace are given a chance at viability in a competitive marketplace. As worded, Section III does not provide the safeguards and protections that are necessary. Prohibiting actual retaliatory conduct by Microsoft is simply insufficient to obtain the goals of the final judgment.



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### A. Section III.A

The Department of Justice set forth a clear intent for the impact of Section III.A. As stated in the Competitive Impact Statement, the perceived effect of Section III.A is to "ensure[ ] that OEMs have the contractual and economic freedom to make decisions about distributing and supporting non-Microsoft software products that have the potential to weaken Microsoft's personal computer operating system monopoly without fear of coercion or retaliation by Microsoft." Competitive Impact Statement at 9. Unfortunately, Section III.A fails to protect the ability of OEMs to make business choices in a non-coercive atmosphere, for reasons in addition to those discussed above concerning intellectual property.

The conduct that is prohibited in Section III.A is *actual* retaliatory action by Microsoft against OEMs for, *inter alia*, dual booting personal computers with other operating systems. More specifically, Section III.A provides that "Microsoft shall not retaliate against an OEM by altering Microsoft's commercial relations with that OEM, or by withholding newly introduced forms of non-monetary Consideration (including but not limited to new versions of existing forms of non-monetary Consideration) from that OEM, because it is known to Microsoft that the OEM is or is contemplating . . . ." Proposed Final Judgment, Section III.A. As worded, the only point at which injunctive relief is available is after an OEM can show actual retaliation.

The problem with prohibiting only action "after the fact," is that it provides for enforcement only after Microsoft has taken negative action against an OEM. It is no secret that Microsoft is an important business partner to may OEMs and even the *potential* or *implication* of the change in an OEMs business relationship with an OEM can be sufficient to prevent action. Section III.A does not remove the business threat that will prevent OEMs from "crossing" Microsoft. Therefore, the parameters of the prohibitions on Microsoft's conduct need to be extended so that enforcement is not



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triggered only after an OEM has been harmed. By then, it may be too late and an OEM may find itself competitively or financially crippled by an impairment in its relationship with Microsoft. Moreover, by the time the retaliation is remedied, the OEM may even be out of the market. Ideally, Microsoft must be prohibited from maintaining the intimidating business environment that it has created -- an environment that inhibits OEMs from the free exercise of competitive decision making. The language of the Proposed Final Judgment ignores what the Competitive Impact Statement and the Court of Appeals have acknowledged.

Thus, the actions prohibited under Section III.A must encompass a range of activities and not just after the fact retaliation in order to ensure that Microsoft does not continue to maintain unlawfully its monopoly. A possible modification of Section III.A is as follows:

> A. Microsoft shall not retaliate against an OEM by threatening to or altering Microsoft's commercial relations with that OEM, or by threatening to or withholding newly introduced forms of non-monetary Consideration (including but not limited to new versions of existing forms of non-monetary Consideration) from that OEM, because it is known to Microsoft that the OEM is or is contemplating: . . . .

### B. Section III.D

An underlying premise of the Proposed Final Judgment is that if middleware software developers are able to develop and market middleware that can be used on either Microsoft or non-Microsoft operating systems or "that would have assisted competing operating systems in gaining access to applications and other needed complements" (Competitive Impact Statement at 9), then the competitive harm to the operating system market caused by Microsoft's unlawful maintenance of its monopoly will be remedied.

With respect to Section III.D, the Competitive Impact Statement indicates an intent by the Department of Justice to:



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> ensure[ ] that developers of competing middleware -- software that over time could begin to erode Microsoft's Operating System monopoly -- will have full access to the same interfaces and related information as Microsoft Middleware has to interoperate with Windows Operating Products. Microsoft will not be able to hamper the development or operation of potentially threatening software by withholding interface information or permitting its own products to use hidden or undisclosed interfaces.

Competitive Impact Statement at 12.

The Proposed Final Judgment makes an effort to provide the interface and related technical information "transparency" to the entities that the Department of Justice believes will need access to Microsoft software in order to develop software compatible with Microsoft *and* non-Microsoft operating systems. While the named entities include ISVs, however, they do not specifically include entities that provide non-Microsoft Operating Systems. An argument can be made that the definition for "ISVs" appears to be broad enough to include providers of non-Microsoft operating systems because under the definition "'ISV'" means an entity other than Microsoft engaged in the development or marketing of software products." Proposed Final Judgment, Section VI.I. The question and possible loophole remains, however, that Microsoft might argue that the transparency extends only to entities that develop middleware, but not to entities such as Red Hat -- entities that provide non-Microsoft operating systems. In order to ensure that the protections are as inclusive as possible, the definition of "Independent Software Vendor" can be supplemented to include *specifically* entities that compete in the operating system market. Thus, under the Section VI -- Definitions -- "ISV" would be modified to mean an entity other than Microsoft that is engaged in the development, marketing or providing of software products or services, *including Operating System Providers.*



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### C. Section III.F

According to the Competitive Impact Statement, Section III.F "redresses conduct by Microsoft specifically found unlawful by the District Court and the Court of Appeals." By addressing only actual retaliatory conduct, however, Section III.F suffers from the same infirmity as Section III.A, and may provide injunctive relief only after Microsoft has taken action that will harm a business entity. Microsoft must not be prohibited only from actual retaliation, but must also be prohibited from intimidating, threatening to withhold business from, coercing or retaliating against any ISV or IHV because of activities that will further competing middleware or operating systems. *See* comment on Section III.A, *supra*.

### D. Section III.J

As worded, Section III.J provides exceptions to Microsoft's disclosure obligations that have a serious potential to defeat the intent of the Proposed Final Judgment. The Competitive Impact Statement makes it clear that the exception to Microsoft's disclosure obligations is meant to be a "narrow exception limited to specific end-user implementations of security items such as actual keys, authorization tokens or enforcement criteria, the disclosure of which would compromise the security of a 'particular installation or group of installations' of the listed security features." Competitive Impact Statement at 18. The nature of security, however, requires that Section III.J should be modified so that there is a detailed specification of what Microsoft must provide under the mandates of the Proposed Final Judgment, rather than what it is excluded from providing within the context of security. Because of the potentially wide-ranging negative impact of this Section, Red Hat believes some background on the nature of security is required.



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All security experts agree that there is no such thing as perfect security, and indeed this pessimistic view extends to the field of computer security. In his book "Secrets and Lies: Digital Security in a Networked World", noted security expert Bruce Schneier explains "modern systems have so many components and connections -- some of them not even known by the systems' designers, implementers, or users -- that insecurities always remain. No system is perfect." If no computer system can be made perfectly secure, then any computer system can potentially suffer a security compromise. Moreover, it is not knowable whether the security compromise will be a result of people having access to information about a security weakness (which they can exploit) or people not having access to such information (which allows others to exploit something one might otherwise be able to defend against). Thus, on the one hand, one could argue that divulging any information whatsoever could lead to a security compromise, but on the other hand, that not divulging any information of any kind could also lead to a security compromise. Such is the nature of computer security (indeed, all security).

One of the main issues in the antitrust case against Microsoft is the fact that Microsoft has controlled information about and permission to use system APIs, Documentation, licenses, and Communications Protocols to discriminate against or retaliate against one or more parties (or classes of parties), and has done so strategically to protect, extend, and indeed abuse its monopoly powers. Certainly any valid remedy for this anti-trust case would enjoin Microsoft from such conduct in the future.

While the Proposed Final Judgment attempts to set guidelines under which Microsoft would be required to document, disclose, or license to third parties portions of APIs or Documentation or portions or layers of Communications Protocols, Section III.J(1) carves out a specific exemption: the case where the disclosure of such would compromise the security of anti-piracy, anti-virus, software licensing, digital rights management, encryption or authentication systems, including without limitation, keys,



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authorization tokens or enforcement criteria. While this may sound like a fair and reasonable exemption, it is not because Microsoft could legitimately argue that any requirement to document, disclose, or license anything to third parties could, in theory, result in a security compromise of one or more of these systems. Such is the nature of computer security. Thus, Section III.J(1) grants Microsoft legal protection for the very behavior that this Proposed Final Judgment was designed to remedy.

As noted, the Competitive Impact Statement interprets Section III.J(1) as being an extremely limited exemption, essentially only extending to specific keys and security tokens, not to technologies, interfaces or interoperability. This interpretation, however, is not carried over to the language of the Proposed Final Judgment, which gives almost blanket permission to Microsoft to invoke the exemption. An appropriate modification of Section III.J(1) -- other than removing it entirely-- is as follows:

> No provision of this Final Judgment shall:
>
> 1. Require Microsoft to disclose to any specific end-user implementations of security items such as actual end-user keys, authorization tokens, or enforcement criteria, the disclosure of which would compromise the security of a particular installation or group of installations of the security item. Notwithstanding the foregoing, if any such implementation of a security item requires a specific end-user key, authorization token, enforcement criteria, or analogous information to fully and equitably interoperate with Microsoft Platform Software, Microsoft Middleware, APIs, Communication Protocols, Microsoft applications software, or Microsoft network services (such as e-commerce or internet services), then Microsoft must either (a) disclose such specific end-user key, authorization token, enforcement criteria, or analogous information, (b) provide alternative end-user keys, authorization tokens, enforcement criteria, or analogous information that enable third parties to fully and equitably interoperate with those software, products, or services, or (c) disclose how to make such end-user keys, authorization tokens, enforcement criteria, or analogous information that will fully and equitably interoperate with such software, products, or services; Microsoft must disclose or provide such keys, authorization tokens, enforcement criteria, or analogous information to third parties upon request and in a nondiscriminatory manner. In no event, however, shall Microsoft reserve



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> to itself any functionality for such keys, authorization tokens, enforcement criteria, or analogous information.

### E. Section III.J(2)

Section III.J(2) presents another loophole that Microsoft can manipulate to avoid disclosure of necessary information. Under the provisions of Section III.J(2), Microsoft is permitted to require a certification of the "authenticity and viability" of any business seeking a license of "any API, Documentation or Communications Protocol related to anti-piracy systems, anti-virus technologies, license enforcement mechanisms, authentication/authorization security, or third party intellectual property protection mechanisms of any Microsoft Product." Although the certification is required to be pursuant to "reasonable and objective standards," those standards are established by Microsoft and there is no independent third party approval either of the development or of the implementation of those standards. The Competitive Impact Statements indicates that:

> the requirements of this subsection cannot be used as a pretext for denying disclosure or licensing, but instead are limited to the narrowest scope of what is necessary and reasonable, and are focused on screening out only individuals or firms that should not have access to or use of the specified security-related information either because they have a history of engaging in unlawful conduct related to computer software (*e.g.*, they have been found to have engaged in a series of willful violations of intellectual property rights or of one more violations consisting of conduct such as counterfeiting), do not have any legitimate basis for needing the information, or are using the information in a way that threatens the proper operation and integrity of the systems and mechanisms to which they relate.

Competitive Impact Statement at 19. This will not be the case if there is no safeguard on the development or implementation of the standards. For example, Microsoft may decide to include financial or organizational requirements in order for a (1) an entity to be considered a "business" and (2) an entity to be considered an "authentic and "viable" business. Microsoft may decide to require that, in order for an entity to be a "business,"



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it must operate in the market in a currently "traditional" manner, such as Microsoft operates, but not as many open source companies operate. Will a company need to undertake its own software development? Will a company need to own and license its software? Unless Microsoft is held to certain independent guidelines or policing, this provision may gut the intent of the Proposed Final Judgment.

The potential for abuse with this provision is particular great when considering the open source development community. Most open source software is not developed or owned by a for-profit business entity. It is the result of collaborative development, with software code contributed by its author for the benefit of all. The restrictive language of Section III.J(2) would expressly permit Microsoft to deny access to such open source development projects.

## V. COMMENTS TO VI -- DEFINITIONS

A fair reading of the Proposed Final Judgment supports that the protections extend to the direct participants in the market in which Microsoft was found to have unlawfully maintained its monopoly -- the providers of competing operating systems. The Proposed Final Judgment, however, needs to ensure that the protections extend to all possible readings. It cannot be ignored that the clear finding upheld by the Court of Appeals is that Microsoft unlawfully maintained its monopoly in the PC-compatible operating system market. Thus, if there is any possibility that Microsoft can find a loophole, that possible loophole should be closed. It is in this vein that we recommend that the definitions should be expanded to include providers of competing operating systems -- the participants in the market in which Microsoft unlawfully has maintained its monopoly. Operating System Providers, then, should be specifically included within the "ISV" definition -- as recommended, *supra*. Furthermore, a proposed definition for Operating System Providers follows:



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"OSP" means an operating system provider that provides a non-Microsoft software code that, *inter alia*, (i) controls the allocation and usage of hardware resources (such as the microprocessor and various peripheral devices) of a Personal Computer, (ii) provides a platform for developing applications by exposing functionality to ISVs through APIs, and (iii) supplies a user interface that enables users to access functionality of the operating system and in which they can run applications.

## VI. COMMENTS TO SECTION IV -- COMPLIANCE AND ENFORCEMENT PROCEDURES

### A. Special Master

By not providing for the appointment of a Special Master to ensure enforcement of the Proposed Final Judgment, the Justice Department has left the injunctive relief toothless. There is absolutely nothing in the Proposed Final Judgment that provides a speedy vehicle for the resolution of complaints from an independent third party, such as Red Hat, that Microsoft has violated the Proposed Final Judgment. As suggested by the Litigating States in their proposed final judgment, the appointment of a Special Master could be made pursuant to Rule 53 of the Federal Rules of Civil Procedure.

### B. Section IV.B -- Appointment of a Technical Committee

The Technical Committee ("TC") as constituted and mandated has no real authority or ability to address quickly and thoroughly third-party complaints regarding Microsoft's compliance with the Proposed Final Judgment. Moreover, it is structured as a committee of compromise and not enforcement. One of the members of the TC is to be selected by Microsoft, one of the members is selected by the plaintiffs and the third member is a joint selection. All of the members are to be "experts in software design and programming." This narrowly restricts the scope of the TC to technical interpretations. It takes out of the realm of the TC's expertise issues relating to business practices and acts that may have a competitive impact on the market.



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The TC should be supplemented with or assisted by a Special Master with the authority to order compliance with the Proposed Final Judgment. The Special Master will be able to address complaints relating to business practices as well as complaints relating to software disclosure or use.

### C. Section IV.D -- Voluntary Dispute Resolution

Section D sets forth the actual procedures for the Technical Committee to follow in the event that a third party makes a complaint regarding Microsoft's compliance with the Proposed Final Judgment. The procedures are general and the intent is to resolve complaints, not handle issues of enforcement. The Justice Department states that "[t]his dispute resolution function reflects the recognition that the market will benefit from rapid, consensual resolution of issues, where possible. It complements, but does not supplant, Plaintiffs' other methods of enforcement. If the TC concludes that a complaint is meritorious, the TC will so advise Plaintiffs and Microsoft and propose a remedy." Competitive Impact Statement at 20. Despite this statement, the provision does nothing to ensure a resolution of issues. There is no requirement that Microsoft accept the remedy and no sanctions if Microsoft does not accept the remedy. In effect, there appears to be no ultimate control on Microsoft's conduct except for a separate action or convincing the Justice Department to seek an order to enforce the Proposed Final Judgment. This dispute resolution provision should be removed from the TC. The Special Master should administer the process for resolving third party complaints and have the authority to develop and administer a speedy process for resolving complaints and to order compliance if Microsoft is found to have violated the Proposed Final Judgment.



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Dated: January 28, 2002

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Exhibit

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# Microsoft Executive Says Linux Threatens Innovation (Update1)

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2/14/01 4:57 PM
Source:Bloomberg News

Redmond, Washington, Feb. 14 (Bloomberg) -- Microsoft Corp.'s Windows operating-system chief, Jim Allchin, says that freely distributed software code such as rival Linux could stifle innovation and that legislators need to understand the threat.

The result will be the demise of both intellectual property rights and the incentive to spend on research and development, he said yesterday, after the company previewed its latest version of Windows. Microsoft has told U.S. lawmakers of its concern while discussing protection of intellectual property rights.

Linux is developed in a so-called open-source environment in which the software code generally isn't owned by any one company. That, as well as programs such as music-sharing software from Napster Inc., means the world's largest software maker has to do a better job of talking to policymakers, he said.

"Open source is an intellectual-property destroyer," Allchin said. "I can't imagine something that could be worse than this for the software business and the intellectual-property business."

Microsoft distributes some of its programs without charge to customers, although it generally doesn't release its programming code, and it retains the ownership rights to that code. Linux is the most widely known open-source product, though other programs including the popular Apache system for Web server computers also are developed the same way.

Allchin made his comments several hours before Microsoft confirmed that its

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$135 million investment in software maker Corel Corp. last October is being reviewed by the U.S. Justice Department. Corel said last month it willl drop efforts to develop the Linux operating system, though it will continue to make Linux applications. Corel said it hadn't consulted with Microsoft before making that decision.

Brian Behlendorf, founder of open-source company CollabNet Inc., said most companies that use the open-source development model do retain the rights to some of their intellectual property.

"I think Microsoft is trying to paint the open-source community as being fascist; that all software have has to be free, or none of it can be," said Behlendorf, whose company helps businesses run their own open-source projects.

Allchin said he's concerned that the open-source business model could stifle initiative in the computer industry.

"I'm an American, I believe in the American Way," he said. "I worry if the government encourages open source, and I don't think we've done enough education of policy makers to understand the threat."

Linux Adoption

Some leading computer companies including International Business Machines Corp. and Hewlett-Packard Co. are selling Linux- based products and working on open-source projects, noted Jeremy Allison, a VA Linux Systems Inc. software developer. He's also a leader in a project develop an open-source file and printer server program.

Microsoft only began significant lobbying efforts in the last few years. The Redmond, Washington-based company also talks to lawmakers about issues including the need for more visas for people with computer skills and computer privacy and security.

Linux is the fastest-growing operating system program for running server computers, according to research firm IDC. It accounted for 27 percent of unit shipments of server operating systems in 2000. Microsoft's Windows was the most popular on that basis, with 41 percent.

Despite Linux's success in some markets, Allchin says he isn't concerned about sales competition from the product. Microsoft provides support to change and develop products based on its operating system software that Linux companies don't, he said. Companies that use Linux in their products then must pay someone else for support, he said.

"We can build a better product than Linux," he said. "There is always something enamoring about thinking you can get something for free."

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Exhibit

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# Microsoft CEO takes launch break with the Sun-Times

*June 1, 2001*

It's hard to find a computer that doesn't run a Microsoft product, particularly in Chicago. Microsoft's Chicago-based Midwest district office, which covers Illinois, Indiana and Wisconsin, is the tech giant's biggest moneymaker in the country, with more than 500 customers generating $500 million in revenue annually for Microsoft.

It should come as no surprise, then, that the Seattle-area company sent its No. 2 man, CEO Steve Ballmer, for the official launch of its new Office XP software Thursday at the United Center (yes, Bill Gates went to New York).

Between appointments in a whirlwind visit to Chicago--which included a lunch with 100 local companies and back-to-back-to-back media interviews--Ballmer sat down with Chicago Sun-Times reporter Dave Newbart to discuss the local tech economy, Microsoft's dominance in the market, the federal antitrust case, Microsoft's new licensing requirements and the open-source movement (in effect, free software on the Web, which he called a "cancer").

Q: Boeing recently moved to Chicago. Why doesn't Microsoft relocate here?

A: [laughs] We are quite comfortable with our headquarters in Seattle. Chicago is a great city. I'm from Detroit. I like it here. But we have 20,000 people comfortably ensconced in Seattle.

Q: More seriously, in Chicago we do seem to have an inferiority complex about our place in the tech world. Rankings frequently put us toward the bottom among major cities in terms of our tech presence. How do you view the state of our tech economy?

A: I think there is a lot of great stuff going on in Chicago. There are a lot of innovative users in the Chicago area, which is exciting. We have a lot of great partners. I'll be on stage with a company called Genesis [Consulting], which I'm very excited about. We have a local partner named Calypso [Systems].



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We literally have dozens of partners doing very innovative work with customers here.

I don't know what the national surveys say. Other than Silicon Valley, I think it's hard to point to any one place and say, "*That's* where it's all happening."

Q: Microsoft's market dominance and financial position are stronger than ever, despite the government's antitrust case and the weakening economy. Has the government's case had any impact on the way you do business?

A: There has been no legal ruling put into effect. We have and continue to innovate within the spirit and letter of the law. We continue to do what we have always done, because we think it's 100 percent correct. We add new capabilities to our product, we keep our prices low, we try to offer our customers better and better values. The laws were designed to encourage that and protect that behavior, because it's good for consumers.

Q: Microsoft has expanded to a number of markets, especially with the development of the Xbox and a smart phone. What's next, and is there any area that you *don't* see yourself entering?

A: We have a lot on our plate. We have a big dream about what XML (a markup language for documents containing structured information, such as words and graphics) can do for the world. The way software gets built will change over the years, which we are pursuing with our .Net platform. But we are hardly trying to do everything. I won't sit here and try to rule out that we might do other things in the future, but we have a few clear priorities.

Q: The new Windows XP software, I've seen a trial version, contains a number of free products--media player, a CD burner, an Internet firewall. Could that bundling hurt smaller competitors who make stand-alone software? Isn't this kind of bundling that you offered with Windows and Internet Explorer?

A: Just as with Internet Explorer, our job is to offer customers what they want. We are trying to provide more functionality at the same or better prices every day. [A]ll the new capabilities of Windows XP are open to software developers to add onto, to build value around. I think Windows XP ought to be a real boon to the kinds of innovations that come from smaller companies. The inclusion of Internet Explorer with Windows has been absolutely great ... for innovation in the software industry. Whether it was great for Netscape is a different question.

Q: Independent analyses of your new licensing policy indicate that unless a company upgrades its software every two years, it could face costs from one-third to double what they are paying now to upgrade. What do you think of the criticism that says Microsoft is forcing companies to upgrade to Windows XP by October or face much higher costs later?



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A: We are trying to simplify our licensing practices in many ways. We are clearly providing some incentive to upgrade more regularly. Your better customers get a better price. An analysis we've done, 80 percent of our customers are going to see the same or lesser prices, and 20 percent are going to see very small to somewhat larger increases.

Q: The new software also allows a user to install it only twice. You have recently cracked down on corporate piracy and large-scale pirating operations. Are home users next?

A: Intellectual property should be protected. That's the only way that a newspaper or a software company or record company or artist can get a fair return on their work. Our goal is to try to educate people on what it means to protect intellectual property and pay for it properly. We are trying to help customers understand when they are crossing the line by putting some bumps in the road so they can't do the wrong thing.

Q: Do you view Linux and the open-source movement as a threat to Microsoft?

A: Yeah. It's good competition. It will force us to be innovative. It will force us to justify the prices and value that we deliver. And that's only healthy. The only thing we have a problem with is when the government funds open-source work. Government funding should be for work that is available to everybody. Open source is not available to commercial companies. The way the license is written, if you use any open-source software, you have to make the rest of your software open source. If the government wants to put something in the public domain, it should. Linux is not in the public domain. Linux is a cancer that attaches itself in an intellectual property sense to everything it touches. That's the way that the license works.

Q: You've been on this job [as CEO] almost 18 months. What has it been like replacing Bill Gates?

A: [I]n a weird and strange way I probably feel more pressure now, no reason I should, but I feel a little more pressure, responsibility. The great thing is we get a chance to do two things. Bill gets a chance to put the highest possible percentage of time into our strategy. My particular capability and focus are really about building a management team, the business processes, etc. Bill and I are going to be around for a lot of years, but we are not going to be around forever. In some senses I'll put a little more time and energy into setting us up so the business is a business that doesn't depend on one guy, even a guy who is as talented as Bill Gates.

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# Why Microsoft is wary of open source

By Joe Wilcox and Stephen Shankland
Staff Writers, CNET News.com
June 18, 2001, 11:00 AM PT

**update There's more to Microsoft's recent attacks on the open-source movement than mere rhetoric: Linux's popularity could hinder the software giant in its quest to gain control of a server market that's crucial to its long-term goals.**

Recent public statements by Microsoft executives have cast Linux and the open-source philosophy that underlies it as, at the minimum, bad for competition, and, at worst, a "cancer" to everything it touches.

Behind the war of words, analysts say, is evidence that Microsoft is increasingly concerned about Linux and its growing popularity. The Unix-like operating system "has clearly emerged as the spoiler that will prevent Microsoft from achieving a dominant position" in the worldwide server operating-system market, IDC analyst Al Gillen concludes in a forthcoming report.

While Microsoft's overall operating-system market leadership is by no means in jeopardy, Linux's continued gains make it harder for Microsoft to further its core plan for the future, Microsoft.Net. The plan is a software-as-a-service initiative similar to plans from competitors including Hewlett-Packard, IBM and Sun Microsystems.

One of the cornerstones of .Net is HailStorm, which is built around the company's Passport authentication service.

Microsoft.Net and HailStorm make use of XML (Extensible Markup Language) to pass information between computers based on Windows and computers using other operating systems. However, many .Net components--such as Passport and server-based software including the company's SQL Server database software and BizTalk e-commerce server--only on Windows.

"The infrastructure to operate XML Web services relies on the Windows operating system and the .Net Enterprise Servers," Microsoft's marketing literature states.

Microsoft needs to control the server operating-system market if HailStorm and all the .Net services and subscriptions associated with it are to succeed, analysts say.

"HailStorm itself by definition needs Microsoft-provided or -partnered services, which means Microsoft's or its partners' servers," said Gartner analyst David Smith. "In that sense, Linux is a threat to .Net."

Microsoft is expected to spend hundreds of millions of dollars marketing and developing .Net. Virtually every product from the company ties in to the plan at some point.

While Linux hasn't displaced Windows, it has made serious inroads. Linux accounted for 27 percent of new worldwide operating-system licenses in 2000, and Microsoft captured 41 percent of new licenses, according to IDC.

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Overall, Gartner estimates Linux runs on nearly 9 percent of U.S. servers shipped in the third quarter of 2000, with worldwide projected Linux server sales of nearly $2.5 billion in 2001 and about $9 billion in 2005.

But Linux continues to gain credibility, particularly because of the massive support provided by IBM, which has pledged to spend $1 billion on Linux development.

In attacking Linux and open source, Microsoft finds itself competing "not against another company, but against a grassroots movement," said Paul Dain, director of application development at Emeryville, Calif.-based Wirestone, a technology services company.

"My guess is that they are now under pressure to defend themselves against the criticism from the open-source and free-software communities--whether it's justified or not--as well as companies like IBM that are aggressively marketing Linux," Dain said. "In order to combat that, they have to use strong language to get their point across."

Increasing Linux use makes it more difficult to spread the .Net message. That, in turn, has led to a string of comments from Microsoft executives publicly denouncing Linux and open source. "Linux is a cancer that attaches itself in an intellectual property sense to everything it touches," Chief Executive Steve Ballmer said in an interview with the *Chicago Sun-Times*.

Despite Microsoft's criticism, the company still uses open-source code in some products. Servers for the company's Hotmail e-mail service use FreeBSD for some DNS (domain name server) functions.

"This is a legacy issue that came from Hotmail when we originally got it," said Microsoft spokesman Rick Miller. "We haven't gone out, purchased and put into place FreeBSD. It came when we purchased other companies. We didn't build any of our infrastructure on FreeBSD. We build it on Windows."

In the mid 1980s, Microsoft licensed its TCP/IP (transmission control protocol/Internet protocol) networking stack from another company that used open-source code. "You could say it had its genesis in FreeBSD, but it's now absolutely Windows," Miller said. The code first appeared in Windows NT and also was used in Windows 2000.

**Critical of change**

Microsoft has also criticized the General Public License (GPL) that governs the heart of Linux. Under this license, changes to the Linux core, or kernel, must also be governed by the GPL. The license means that if a company changes the kernel, it must publish the changes and can't keep them proprietary if it plans to distribute the code externally.

Other open-source projects, such as FreeBSD, allow changes that are kept proprietary. That provision was one reason FreeBSD proved appealing to Wind River Systems, the dominant seller of operating systems for non-PC "embedded" computing devices such as network routers.

Microsoft's open-source attacks come at a time when the company has been putting the pricing squeeze on customers. In early May, Microsoft revamped software licensing, raising upgrades between 33 percent and 107 percent, according to Gartner. A large percentage of Microsoft business customers could in fact be compelled to upgrade to Office XP before Oct. 1 or pay a heftier purchase price later on.

The action "will encourage--'force' may be a more accurate term--customers to upgrade much sooner than they had otherwise planned," Gillen noted in the IDC report. "Once the

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**Meta Group** says comments by Microsoft executives about Linux and the open-source movement being a "cancer"--as well as the latest statistics on new licenses for Linux vs. Microsoft Windows--should be viewed with skepticism.

see commentary



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honeymoon period runs out in October 2001, the only way to 'upgrade' from a product that is not considered to be current technology is to buy a brand-new full license.'"

This could make open-source Linux's GPL more attractive to some customers feeling trapped by the price hike, Gillen said. "Offering this form of 'upgrade protection' may motivate some users to seriously consider alternatives to Microsoft technology."

Ray Bailey, information services manager at The Bergquist Company, said a recent meeting with Microsoft changed the technology direction of his company, which manufactures electronic components and other goods.

"Our IS team agreed that, due to Microsoft's changing of the licensing rules and the manner in which they have given us less-than-adequate time to process those changes, we are seriously looking at other platforms," he said. "Linux is a strong contender for our next server because of the low-cost nature of the licensing."

Internally, Microsoft seems somewhat torn on how to approach the open-source movement. While the company denounces the move toward free software, it does recognize at least some of the value of open-source development.

"Microsoft views open source as a competitor, but it's hard to treat it as a competitor," Gartner's Smith said. "So they have to attack basic tenets, mentality, way of life and thought processes."

Since last year, Microsoft has made available to hundreds of its larger customers copies of its closely guarded Windows source code. The company hopes its best customers can help it improve Windows.

Microsoft has been touting plans to broaden Windows source-code access to business partners in an initiative it calls its "shared-source philosophy."

In particular, Microsoft wants to emulate the spirit of cooperation that has spawned groups of volunteer Linux programmers. "Having a sense of community is a good thing. It's one thing we've watched with interest," Craig Mundie, senior vice president of advanced strategies at Microsoft, said in a recent interview. "The more of that we can foster in our community, the better."

**Building a better community**

Microsoft hopes to imbue its programmer network with some of this community spirit, Mundie said. "The Microsoft Developer Network hasn't been one where there was a lot of dialogue between (developers) and with Microsoft developers."

Though Microsoft will be expanding how it engages directly with those who see its source code, the company isn't going to extend the right granted to many members of the open-source community--the power to change the software. People may submit bug fixes, but "customers aren't trying to buy the rights to produce derivatives," Mundie said. "In general, we're going to control that reintegration. We worry a lot about uniformity and avoiding fragmentation."

But how far Microsoft is willing to go with open source appears limited, said Smith, who noted that while attacking Linux, the company promises to support the Unix variant through .Net.

It's "a nice PR story for Microsoft to talk about the possibilities about .Net on Linux," he said. "It is true that Linux can participate in those .Net services, but don't expect Microsoft to provide any incentive or anything else that would make that possible."



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Dain said Microsoft's attacks on Linux and open source may in the long run benefit technology buyers. "Personally, I think the talk on both sides--Microsoft vs. open source--will end up benefiting consumers in the workplace and at home. There definitely is competition in the marketplace, and this battle simply proves the point."

And while Microsoft may have the advantage in the consumer market with Windows, it's still the underdog in the large-scale business server market.

"To many people, including myself, implementing a Microsoft solution is a much more cost-effective way to go than a Sun or other high-end Unix/mainframe solution," Dain said.

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# Microsoft license spurns open source

By Stephen Shankland
Staff Writer, CNET News.com
June 22, 2001, 12:05 PM PT

**Microsoft lawyers have joined the company's campaign against open-source software, restricting how developers may use what it terms "viral software" in connection with Microsoft programming tools.**

The license of the second beta version of Microsoft's Mobile Internet Toolkit--software used so programmers can create server software to connect with handheld computers over the Internet--prohibits customers from using the Microsoft software in conjunction with "potentially viral software." (Read an excerpt here)

In describing this category of software, Microsoft includes the most common licenses used for publishing open-source software, such as the Linux operating system. Licenses specifically excluded by Microsoft include the General Public License, the Lesser General Public License, the Mozilla Public License and the Sun Industry Standards License.

While the provision in Microsoft's license isn't surprising, Fenwick & West intellectual property attorney Dana Hayter said the company could have picked a more neutral term, such as "open software."

"The choice of the term says more about Microsoft's view than the rest of it," Hayter said. "I think it's a pejorative and misleading term. To suggest that open-source software is somehow 'viral' is to confuse harm to your customers' machines and data with harm to Microsoft's profits."

Microsoft representatives weren't immediately available for comment.

The license provision, posted Thursday at Linux Today, is the latest step in an increasingly vocal campaign by Microsoft Chairman Bill Gates, Senior Vice President Craig Mundie and Chief Executive Steve Ballmer to disparage open-source software.

The campaign, in which the executives have compared open-source software to viruses and cancer, comes at a time when some observers believe Microsoft is worried that Linux--the best-known open-source project--will undermine the Microsoft.Net strategy for joining desktop computer users with sophisticated Internet services.

Some open-source fans weren't happy with Microsoft's view of the software world and its use of the term "viral software."

"The GPL is not a virus, it is a vaccine, an inoculation against later abuse of your code by having someone, such as Microsoft, take your hard work, incorporate it into a proprietary product which is then extended and kept closed, marginalizing your project in the process," said one comment at discussion site Slashdot.

The Microsoft license seeks to prevent the possibility that a program that links both to Microsoft and open-source software components could force Microsoft to expose the now-

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secret source code of its software, Hayter said.

"They're saying you cannot use (Microsoft) software in a way that would create in Microsoft any obligations to do anything with (Microsoft's) code, for example to make the source public," Hayter said.

One example of a forbidden move would be to create software that used prepackaged components called libraries from Microsoft as well as a library covered by the GPL, Hayter said. Under the terms of the GPL, software covered by it may be directly incorporated only into other GPL software.

But a legally grayer area is creating software that merely calls upon such libraries rather than incorporating the library code directly. The Free Software Foundation created the LGPL license for precisely such occasions; this license allows links to proprietary software.

One example is the use of a library called "readline" that lets people use arrow keys and perform some other tasks when typing information into a computer, said PostgreSQL database developer Bruce Momjian. Because PostgreSQL is released under a BSD-style license that has different terms than the GPL, GPL code may not be freely mixed within PostgreSQL.

"If we required the readline library, then the entire PostgreSQL software would have to be GPL'd," Momjian said, noting that programs such as the BSD-licensed libedit software offer an alternative. "If you use (readline) in any application, your entire application is GPL."

Regardless of the legalities involved, the provision in the license is significant, Hatyer said. "This demonstrates they're taking open source seriously."

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# Microsoft memo touts Linux

By Mike Ricciuti
Staff Writer, CNET News.com
November 5, 1998, 11:20 AM PT

Microsoft engineers see Linux as a "best-of-breed" Unix that outperforms the company's own Windows NT operating system and is a "credible alternative" to commercially developed servers, according to an internal memo posted to the Web this week.

The admission, contained in the second so-called Halloween memo posted to the Web this week by programmer Eric Raymond, is counter to the company's public statements downplaying the significance of Linux, and its suggestions that Fortune 1,000 companies have little interest in open source software (OSS).

The new memo also contains a single sentence suggesting that the company may investigate the use of patents and copyrights to combat Linux. Microsoft representatives were not immediately available to comment further on the statement.

In a preface to the memo, Raymond states that the document had been leaked to him by a former Microsoft employee. A Microsoft representative today said the document appears to be authentic, and said it is the second in "what could be a series" of similar memos posted to the Web.

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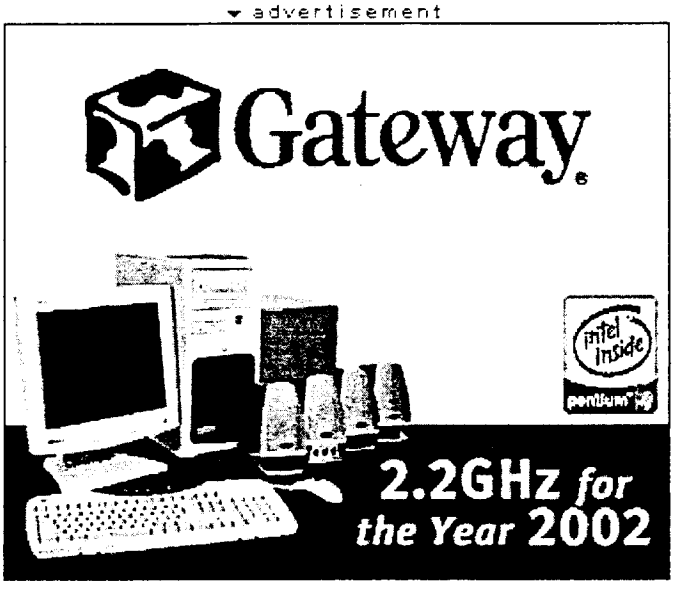


Yesterday, a Microsoft representative downplayed the significance of the initial memo.

According to the new memo, written by Microsoft engineer Vinod Valloppillil, Linux "represents a best-of-breed Unix, that is trusted in mission critical applications, and--due to its open source code--has a long term credibility which exceeds many other competitive OS's."

In what the memo's author considers the "worst case" scenario for Microsoft, Linux will "provide a mechanism for server OEMs to provide integrated, task-specific products and completely bypass Microsoft revenues in this space."

Another new revelation contained in the new memo is that Microsoft considers Linux to be a threat on both server and client systems. "Long term, my simple experiments do indicate that Linux has a chance at the desktop market..," the memo states. The initial memo only cited the server market as a competitive battleground between Linux and Windows NT, now renamed Windows 2000.

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The first memo, posted to the Web over the weekend, showed that Microsoft executives fear that the growing popularity of Linux and other open source software poses a direct threat to the company's revenue stream, and suggests the company could respond by modifying Internet protocols to become proprietary technologies that tie consumers and developers to Microsoft products.

In the new memo, some of the reasons for the company's fears are more clearly defined. The memo states:

- "Most of the primary apps that people require when they move to Linux are already available for free. This includes Web servers, POP clients, mail servers, text editors, etc."

- "An advanced Win32 GUI user would have a short learning cycle to become productive [under Linux]."

- "I previously had [Internet Explorer and Windows NT] on the same box and by comparison the combination of Linux /[Netscape Navigator] ran at least 30 to 40 percent faster when rendering simple HTML + graphics."

- "Linux's (real and perceived) virtues over Windows NT include: Customization. Availability/Reliability. Scalability/Performance. Interoperability."

The author of the memo also writes that he believes consumers "love" Linux.

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# Microsoft sues Linux start-up over name

By Joe Wilcox and David Becker
Staff Writers, CNET News.com
December 20, 2001, 3:50 PM PT

**update Microsoft asked a court on Thursday to stop a Linux start-up from using a name the software giant contends infringes on the Windows trademark.**

The Redmond, Wash.-based software giant filed a motion with the U.S. Court for the Western District of Washington against Lindows, which is developing a version of the Linux operating system that will run popular applications written for Microsoft's Windows OS.

Microsoft contends the company, which plans to formally release its product next year, purposely is trying to confuse Lindows with Windows. The suit asks the court to order the start-up to stop using the Lindows name and also seeks unspecified monetary damages.

"We're not asking the court to stop the company from making their products," said Microsoft spokesman Jon Murchinson. "What we're saying is they should not use a name that could confuse the public and infringe on our valuable trademark."

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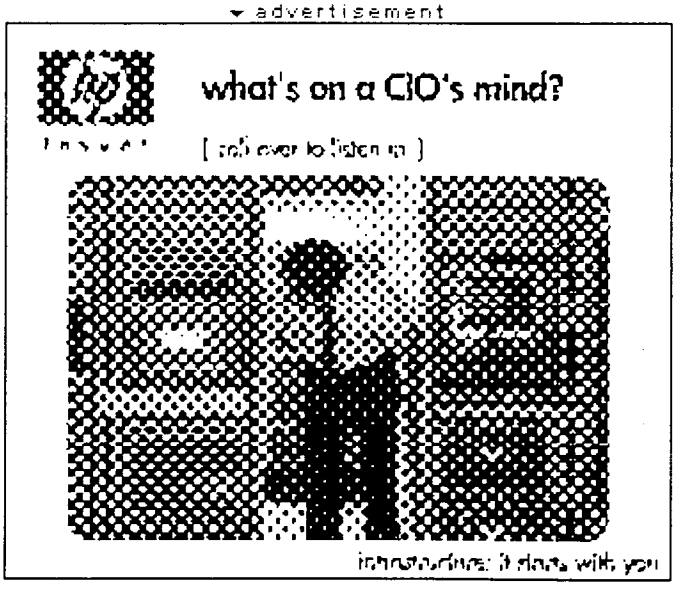


Lindows is based on the Wine project, an open-source effort to mimic the commands that Windows programs use. The San Diego-based Lindows company was launched earlier this year by Michael Robertson, former CEO of digital music site MP3.com.

Robertson characterized the move as another attempt by Microsoft to thwart a viable threat to its Windows empire.

"If they're alleging that people are going to be confusing Microsoft Corp. with Lindows.com, I think there's zero potential of that happening," he said. "If people are confused, just remember that we're *not* the convicted monopolist."

Murchinson said Microsoft considered legal action a last resort.

"Clearly we prefer to work with them to resolve this problem voluntarily. Their product name infringes on our trademark," Murchinson said. "We hope they will work with us to resolve this problem without the need for legal action."

Robertson said he had heard from nobody at Microsoft regarding the name dispute. "They

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just filed lawsuits," he said.

Microsoft has been involved in an increasingly fractious war of words with Linux supporters this year, with Microsoft executives castigating the open-source distribution model behind Linux as a sure road to commercial failure and on blight for software development.

Emmett Stanton, an attorney at Palo Alto, Calif.-based Fenwick & West, said Microsoft has not been overzealous in the past about protecting its trademark, allowing spoof sites and others to go unchallenged.

"They're not the type to sue at the drop of a hat," he said, concluding that there appears to be solid ground for the Lindows complaint. "Superficially, you would have to say there's some potential for confusion, and the defendant may be trying to trade on Microsoft's position in the marketplace."

Robertson said he hoped to have a preview version of Lindows ready for download by next week, with a full version ready early next year. He said the company is targeting small and medium-sized business that might be interested in switching to a less expensive operating system but have invested in Windows applications such as Office.

"We're trying to give consumers a choice, where there's really no choice today," he said.

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## DEPARTMENT OF JUSTICE AND MICROSOFT CORPORATION REACH EFFECTIVE SETTLEMENT ON ANTITRUST LAWSUIT

***Settlement Provides Enforcement Measures To Stop Microsoft'S Unlawful Conduct, Prevent Its Recurrence, And Restore Competition***

WASHINGTON, D.C. – The Department of Justice reached a settlement today with Microsoft Corporation that imposes a broad range of restrictions that will stop Microsoft's unlawful conduct, prevent recurrence of similar conduct in the future and restore competition in the software market, achieving prompt, effective and certain relief for consumers and businesses.

The settlement reached today accomplishes this by:

- creating the opportunity for independent software vendors to develop products that will be competitive with Microsoft's middleware products on a function-by-function basis;
- giving computer manufacturers the flexibility to contract with competing software developers and place their middleware products on Microsoft's operating system;
- preventing retaliation against computer manufacturers, software developers, and other industry participants who choose to develop or use competing middleware products; and
- ensuring full compliance with the proposed Final Judgment and providing for swift resolution of technical disputes.

"A vigorously competitive software industry is vital to our economy and effective antitrust enforcement is crucial to preserving competition in this constantly evolving high-tech arena," said Attorney General John Ashcroft. "This historic settlement will bring effective relief to the market and ensure that consumers will have more choices in meeting their computer needs."

The settlement, which will be filed today in U.S. District Court in the District of Columbia with Judge Colleen Kollar-Kotelly, if approved by the court, would resolve the lawsuit filed by the Department on May 18, 1998.

"This settlement will promote innovation, give consumers more choices, and provide the computer industry as a whole with more certainty in the marketplace," said Charles A. James, Assistant Attorney General for the Antitrust Division. "The goals of the government were to obtain relief that stops Microsoft from engaging in unlawful conduct, prevent any recurrence of that conduct in the future, and restore competition in the software market–we have achieved those goals."



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Today's proposed settlement is modeled on the conduct provisions in the original Final Judgment entered by Judge Jackson, but includes key additions and modifications that take into account the and anticipated changes in the computer industry, including the launch of Microsoft's new Windows XP operating system, and the Court of Appeals decision revising some of the original liability findings.

The proposed Final Judgment includes the following key provisions:

**Broad Scope of Middleware Products**– The proposed Final Judgment applies a broad definition of middleware products which is wide ranging and will cover all the technologies that have the potential to be middleware threats to Microsoft's operating system monopoly. It includes browser, e-mail clients, media players, instant messaging software, and future new middleware developments.

**Disclosure of Middleware Interfaces**– Microsoft will be required to provide software developers with the interfaces used by Microsoft's middleware to interoperate with the operating system. This will allow developers to create competing products that will emulate Microsoft's integrated functions.

**Disclosure of Server Protocols**– The Final Judgment also ensures that other non-Microsoft server software can interoperate with Windows on a PC the same way that Microsoft servers do. This is important because it ensures that Microsoft cannot use its PC operating system monopoly to restrict competition among servers. Server support applications, like middleware, could threaten Microsoft's monopoly.

**Freedom to Install Middleware Software**--Computer manufacturers and consumers will be free to substitute competing middleware software on Microsoft's operating system.

**Ban on Retaliation**--Microsoft will be prohibited from retaliating against computer manufacturers or software developers for supporting or developing certain competing software. This provision will ensure that computer manufacturers and software developers are able to take full advantage of the options granted to them under the proposed Final Judgment without fear of reprisal.

**Uniform Licensing Terms**– Microsoft will be required to license its operating system to key computer manufacturers on uniform terms for five years. This will further strengthen the ban on retaliation.

**Ban on Exclusive Agreements**– Microsoft will be prohibited from entering into agreements requiring the exclusive support or development of certain Microsoft software. This will allow software developers and computer manufacturers to contract with Microsoft and still support and develop rival middleware products.

The proposed Final Judgment also includes key additional provisions related to enforcement:

**Licensing of Intellectual Property**– Microsoft also will be required to license any intellectual property to computer manufacturers and software developers necessary for them to exercise their rights under the proposed Final Judgment, including for example, using the middleware protocols disclosed by Microsoft to interoperate with the operating system. This enforcement measure will ensure that intellectual property rights do not interfere with the rights and obligations under the proposed Final Judgment.

**On-Site Enforcement Monitors**– The proposed settlement also adds an important enforcement provision that provides for a panel of three independent, on-site, full-time computer experts to assist in



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enforcing the proposed Final Judgment. These experts will have full access to all of Microsoft's books, records, systems, and personnel, including source code, and will help resolve disputes about Microsoft's compliance with the disclosure provisions in the Final Judgment.

The core allegation in the lawsuit, upheld by the Court of Appeals in June 2001, was that Microsoft had unlawfully maintained its monopoly in computer-based operating systems by excluding competing software products known as middleware that posed a nascent threat to the Windows operating system.

Specifically, the Court of Appeals found that Microsoft engaged in unlawful exclusionary conduct by using contractual provisions to prohibit computer manufacturers from supporting competing middleware products on Microsoft's operating system; prohibiting consumers and computer manufacturers from removing Microsoft's middleware products from the operating system; and reaching agreements with software developers and third parties to exclude or disadvantage competing middleware products.

The proposed Final Judgment will be published by the Federal Register, along with the Department's Competitive Impact Statement, as required by the Antitrust Procedures and Penalties Act. Any person may submit written comments concerning the proposed consent decree within 60 days of its publication to: Renata Hesse, Trial Attorney, 325 7th Street, N.W., Suite 500, Washington, D.C. 20530, (202-616-0944). At the conclusion of the 60-day comment period, the Court may enter the proposed consent decree upon a finding that it serves the public interest.

The proposed Final Judgment will be in effect for a five year period and may be extended for an additional two-year period if the Court finds that Microsoft has engaged in multiple violations of the proposed Final Judgment.

###

01-569



MTC-00030616_0059

Exhibit

H

| Patent Number | Title | Issue Date |
|---|---|---|
| 6330670 | Digital rights management operating system | 11-Dec-01 |
| 6330589 | System and method for using a client database to manage conversation threads generated from email or news messages | 11-Dec-01 |
| 6330566 | Apparatus and method for optimizing client-state data storage | 11-Dec-01 |
| 6330563 | Architecture for automated data analysis | 11-Dec-01 |
| 6330003 | Transformable graphical regions | 11-Dec-01 |
| 6327705 | Method for creating and maintaining user data | 04-Dec-01 |
| 6327702 | Generating a compiled language program for an interpretive runtime environment | 04-Dec-01 |
| 6327699 | Whole program path profiling | 04-Dec-01 |
| 6327652 | Loading and identifying a digital rights management operating system | 04-Dec-01 |
| 6327617 | Method and system for identifying and obtaining computer software from a remote computer | 04-Dec-01 |
| 6327608 | Server administration tool using remote file browser | 04-Dec-01 |
| 6327589 | Method for searching a file having a format unsupported by a search engine | 04-Dec-01 |
| 6326964 | Method for sorting 3D object geometry among image chunks for rendering in a layered graphics rendering system | 04-Dec-01 |
| 6326953 | Method for converting text corresponding to one keyboard mode to text corresponding to another keyboard mode | 04-Dec-01 |
| 6326947 | Tactile character input in computer-based devices | 04-Dec-01 |
| 6324587 | Method, computer program product, and data structure for publishing a data object over a store and forward transport | 27-Nov-01 |
| 6324571 | Floating single master operation | 27-Nov-01 |
| 6324546 | Automatic logging of application program launches | 27-Nov-01 |
| 6324544 | File object synchronization between a desktop computer and a mobile device | 27-Nov-01 |
| 6324492 | Server stress testing using multiple concurrent client simulation | 27-Nov-01 |
| 6321334 | Administering permissions associated with a security zone in a computer system security model | 20-Nov-01 |
| 6321276 | Recoverable methods and systems for processing input/output requests including virtual memory addresses | 20-Nov-01 |
| 6321275 | Interpreted remote procedure calls | 20-Nov-01 |
| 6321274 | Multiple procedure calls in a single request | 20-Nov-01 |
| 6321243 | Laying out a paragraph by defining all the characters as a single text run by substituting, and then positioning the glyphs | 20-Nov-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6321226 | Flexible keyboard searching | 20-Nov-01 |
| 6321225 | Abstracting cooked variables from raw variables | 20-Nov-01 |
| 6321219 | Dynamic symbolic links for computer file systems | 20-Nov-01 |
| 6320978 | Stereo reconstruction employing a layered approach and layer refinement techniques | 20-Nov-01 |
| 6317880 | Patch source list management | 13-Nov-01 |
| 6317818 | Pre-fetching of pages prior to a hard page fault sequence | 13-Nov-01 |
| 6317774 | Providing predictable scheduling of programs using a repeating precomputed schedule | 13-Nov-01 |
| 6317760 | Extensible ordered information within a web page | 13-Nov-01 |
| 6317748 | Management information to object mapping and correlator | 13-Nov-01 |
| 6314562 | Method and system for anticipatory optimization of computer programs | 06-Nov-01 |
| 6314533 | System and method for forward custom marshaling event filters | 06-Nov-01 |
| 6314417 | Processing multiple database transactions in the same process to reduce process overhead and redundant retrieval from database servers | 06-Nov-01 |
| 6313851 | User friendly remote system interface | 06-Nov-01 |
| 6311323 | Computer programming language statement building and information tool | 30-Oct-01 |
| 6311228 | Method and architecture for simplified communications with HID devices | 30-Oct-01 |
| 6311216 | Method, computer program product, and system for client-side deterministic routing and URL lookup into a distributed cache of URLS | 30-Oct-01 |
| 6311209 | Methods for performing client-hosted application sessions in distributed processing systems | 30-Oct-01 |
| 6308274 | Least privilege via restricted tokens | 23-Oct-01 |
| 6308273 | Method and system of security location discrimination | 23-Oct-01 |
| 6308266 | System and method for enabling different grades of cryptography strength in a product | 23-Oct-01 |
| 6308222 | Transcoding of audio data | 23-Oct-01 |
| 6308173 | Methods and arrangements for controlling resource access in a networked computing environment | 23-Oct-01 |
| 6307566 | Methods and apparatus for performing image rendering and rasterization operations | 23-Oct-01 |
| 6307547 | Method and system for providing enhanced folder racks | 23-Oct-01 |
| 6307538 | EMC enhanced peripheral device | 23-Oct-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6305008 | Automatic statement completion | 16-Oct-01 |
| 6304928 | Compressing/decompressing bitmap by performing exclusive- or operation setting differential encoding of first and previous row therewith outputting run-length encoding of row | 16-Oct-01 |
| 6304918 | Object interface control system | 16-Oct-01 |
| 6304917 | Negotiating optimum parameters in a system of interconnected components | 16-Oct-01 |
| 6304914 | Method and apparatus for pre-compression packaging | 16-Oct-01 |
| 6304879 | Dynamic data cache for object-oriented computing environments | 16-Oct-01 |
| 6304878 | Method and system for improved enumeration of tries | 16-Oct-01 |
| 6304261 | Operating system for handheld computing device having program icon auto hide | 16-Oct-01 |
| 6304258 | Method and system for adding application defined properties and application defined property sheet pages | 16-Oct-01 |
| 6303924 | Image sensing operator input device | 16-Oct-01 |
| 6301616 | Pledge-based resource allocation system | 09-Oct-01 |
| 6301612 | Establishing one computer as a replacement for another computer | 09-Oct-01 |
| 6301601 | Disabling and enabling transaction committal in transactional application components | 09-Oct-01 |
| 6298440 | Method and system for providing multiple entry point code resources | 02-Oct-01 |
| 6298391 | Remote procedure calling with marshaling and unmarshaling of arbitrary non-conformant pointer sizes | 02-Oct-01 |
| 6298373 | Local service provider for pull based intelligent caching system | 02-Oct-01 |
| 6298342 | Electronic database operations for perspective transformations on relational tables using pivot and unpivot columns | 02-Oct-01 |
| 6298321 | Trie compression using substates and utilizing pointers to replace or merge identical, reordered states | 02-Oct-01 |
| 6297837 | Method of maintaining characteristics information about a system component either modified by an application program or a user initiated change | 02-Oct-01 |
| 6295608 | Optimized allocation of data elements among cache lines | 25-Sep-01 |
| 6295556 | Method and system for configuring computers to connect to networks using network connection objects | 25-Sep-01 |
| 6295529 | Method and apparatus for indentifying clauses having predetermined characteristics indicative of usefulness in determining relationships between different texts | 25-Sep-01 |
| 6292934 | Method and system for improving the locality of memory references during execution of a computer program | 18-Sep-01 |
| 6292857 | Method and mechanism for coordinating input of asynchronous data | 18-Sep-01 |
| 6292840 | Voice/audio data communication with negotiated compression scheme and data header compressed in predetermined scheme | 18-Sep-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6292834 | Dynamic bandwidth selection for efficient transmission of multimedia streams in a computer network | 18-Sep-01 |
| 6292822 | Dynamic load balancing among processors in a parallel computer | 18-Sep-01 |
| 6292194 | Image compression method to reduce pixel and texture memory requirements in graphics applications | 18-Sep-01 |
| 6289464 | Receiving wireless information on a mobile device with reduced power consumption | 11-Sep-01 |
| 6289458 | Per property access control mechanism | 11-Sep-01 |
| 6289390 | System and method for performing remote requests with an on-line service network | 11-Sep-01 |
| 6288726 | Method for rendering glyphs using a layout services library | 11-Sep-01 |
| 6288720 | Method and system for adding application defined properties and application defined property sheet pages | 11-Sep-01 |
| 6286131 | Debugging tool for linguistic applications | 04-Sep-01 |
| 6286013 | Method and system for providing a common name space for long and short file names in an operating system | 04-Sep-01 |
| 6285998 | System and method for generating reusable database queries | 04-Sep-01 |
| 6285374 | Blunt input device cursor | 04-Sep-01 |
| 6285363 | Method and system for sharing applications between computer systems | 04-Sep-01 |
| 6282712 | Automatic software installation on heterogeneous networked computer systems | 28-Aug-01 |
| 6282621 | Method and apparatus for reclaiming memory | 28-Aug-01 |
| 6282561 | Method and system for resource management with independent real-time applications on a common set of machines | 28-Aug-01 |
| 6282327 | Maintaining advance widths of existing characters that have been resolution enhanced | 28-Aug-01 |
| 6282294 | System for broadcasting to, and programming, a motor device in a protocol, device, and network independent fashion | 28-Aug-01 |
| 6281881 | System and method of adjusting display characteristics of a displayable data file using an ergonomic computer input device | 28-Aug-01 |
| 6281879 | Timing and velocity control for displaying graphical information | 28-Aug-01 |
| 6279111 | Security model using restricted tokens | 21-Aug-01 |
| 6279032 | Method and system for quorum resource arbitration in a server cluster | 21-Aug-01 |
| 6279016 | Standardized filtering control techniques | 21-Aug-01 |
| 6279007 | Architecture for managing query friendly hierarchical values | 21-Aug-01 |
| 6278989 | Histogram construction using adaptive random sampling with cross-validation for database systems | 21-Aug-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6278462 | Flexible schemes for applying properties to information in a medium | 21-Aug-01 |
| 6278450 | System and method for customizing controls on a toolbar | 21-Aug-01 |
| 6278448 | Composite Web page built from any web content | 21-Aug-01 |
| 6278434 | Non-square scaling of image data to be mapped to pixel sub-components | 21-Aug-01 |
| 6275957 | Using query language for provider and subscriber registrations | 14-Aug-01 |
| 6275938 | Security enhancement for untrusted executable code | 14-Aug-01 |
| 6275912 | Method and system for storing data items to a storage device | 14-Aug-01 |
| 6275868 | Script Engine interface for multiple languages | 14-Aug-01 |
| 6275857 | System and method for freeing shared resources in a computer system | 14-Aug-01 |
| 6275829 | Representing a graphic image on a web page with a thumbnail-sized image | 14-Aug-01 |
| 6275496 | Content provider for pull based intelligent caching system | 14-Aug-01 |
| 6272631 | Protected storage of core data secrets | 07-Aug-01 |
| 6272593 | Dynamic network cache directories | 07-Aug-01 |
| 6272581 | System and method for encapsulating legacy data transport protocols for IEEE 1394 serial bus | 07-Aug-01 |
| 6272545 | System and method for interaction between one or more desktop computers and one or more mobile devices | 07-Aug-01 |
| 6271858 | Incremental update for dynamic/animated textures on three-dimensional models | 07-Aug-01 |
| 6271855 | Interactive construction of 3D models from panoramic images employing hard and soft constraint characterization and decomposing techniques | 07-Aug-01 |
| 6271847 | Inverse texture mapping using weighted pyramid blending and view-dependent weight maps | 07-Aug-01 |
| 6271839 | Method and system for sharing applications between computer systems | 07-Aug-01 |
| 6269477 | Method and system for improving the layout of a program image using clustering | 31-Jul-01 |
| 6269403 | Browser and publisher for multimedia object storage, retrieval and transfer | 31-Jul-01 |
| 6269382 | Systems and methods for migration and recall of data from local and remote storage | 31-Jul-01 |
| 6269377 | System and method for managing locations of software components via a source list | 31-Jul-01 |
| 6268855 | Method and system for sharing applications between computer systems | 31-Jul-01 |
| 6268852 | System and method for facilitating generation and editing of event handlers | 31-Jul-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6266729 | Computer for encapsulating legacy data transport protocol for IEEE 1394 serial bus | 24-Jul-01 |
| 6266665 | Indexing and searching across multiple sorted arrays | 24-Jul-01 |
| 6266658 | Index tuner for given workload | 24-Jul-01 |
| 6266064 | Coherent visibility sorting and occlusion cycle detection for dynamic aggregate geometry | 24-Jul-01 |
| 6266059 | User interface for switching between application modes | 24-Jul-01 |
| 6266054 | Automated removal of narrow, elongated distortions from a digital image | 24-Jul-01 |
| 6266043 | Apparatus and method for automatically positioning a cursor on a control | 24-Jul-01 |
| 6263492 | Run time object layout model with object type that differs from the derived object type in the class structure at design time and the ability to store the optimized run time object layout model | 17-Jul-01 |
| 6263491 | Heavyweight and lightweight instrumentation | 17-Jul-01 |
| 6263379 | Method and system for referring to and binding to objects using identifier objects | 17-Jul-01 |
| 6263367 | Server-determined client refresh periods for dynamic directory services | 17-Jul-01 |
| 6263352 | Automated web site creation using template driven generation of active server page applications | 17-Jul-01 |
| 6263337 | Scalable system for expectation maximization clustering of large databases | 17-Jul-01 |
| 6263334 | Density-based indexing method for efficient execution of high dimensional nearest-neighbor queries on large databases | 17-Jul-01 |
| 6262733 | Method of storing and providing icons according to application program calls and user-prompted system metric changes | 17-Jul-01 |
| 6262730 | Intelligent user assistance facility | 17-Jul-01 |
| 6262712 | Handle sensor with fade-in | 17-Jul-01 |
| 6260148 | Methods and systems for message forwarding and property notifications using electronic subscriptions | 10-Jul-01 |
| 6260043 | Automatic file format converter | 10-Jul-01 |
| 6256780 | Method and system for assembling software components | 03-Jul-01 |
| 6256668 | Method for identifying and obtaining computer software from a network computer using a tag | 03-Jul-01 |
| 6256650 | Method and system for automatically causing editable text to substantially occupy a text frame | 03-Jul-01 |
| 6256642 | Method and system for file system management using a flash-erasable, programmable, read-only memory | 03-Jul-01 |
| 6256634 | Method and system for purging tombstones for deleted data items in a replicated database | 03-Jul-01 |
| 6256623 | Network search access construct for accessing web-based search services | 03-Jul-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6256069 | Generation of progressive video from interlaced video | 03-Jul-01 |
| 6256031 | Integration of physical and virtual namespace | 03-Jul-01 |
| 6256028 | Dynamic site browser | 03-Jul-01 |
| 6256013 | Computer pointing device | 03-Jul-01 |
| 6256009 | Method for automatically and intelligently scrolling handwritten input | 03-Jul-01 |
| 6253374 | Method for validating a signed program prior to execution time or an unsigned program at execution time | 26-Jun-01 |
| 6253324 | Server verification of requesting clients | 26-Jun-01 |
| 6253255 | System and method for batching data between transport and link layers in a protocol stack | 26-Jun-01 |
| 6253241 | Selecting a cost-effective bandwidth for transmitting information to an end user in a computer network | 26-Jun-01 |
| 6253195 | Optimized query tree | 26-Jun-01 |
| 6253194 | System and method for performing database queries using a stack machine | 26-Jun-01 |
| 6252608 | Method and system for improving shadowing in a graphics rendering system | 26-Jun-01 |
| 6252593 | Assisting controls in a windowing environment | 26-Jun-01 |
| 6252589 | Multilingual user interface for an operating system | 26-Jun-01 |
| 6249908 | System and method for representing graphical font data and for converting the font data to font instructions | 19-Jun-01 |
| 6249866 | Encrypting file system and method | 19-Jun-01 |
| 6249826 | System and method for media status notification | 19-Jun-01 |
| 6249822 | Remote procedure call method | 19-Jun-01 |
| 6249792 | On-line dynamic file shrink facility | 19-Jun-01 |
| 6249284 | Directional navigation system in layout managers | 19-Jun-01 |
| 6249274 | Computer input device with inclination sensors | 19-Jun-01 |
| 6247061 | Method and computer program product for scheduling network communication packets originating from different flows having unique service requirements | 12-Jun-01 |
| 6247057 | Network server supporting multiple instance of services to operate concurrently by having endpoint mapping subsystem for mapping virtual network names to virtual endpoint IDs | 12-Jun-01 |
| 6247042 | Method and system for restoring the state of physical memory as the focus changes among application programs in a computer | 12-Jun-01 |
| 6246977 | Information retrieval utilizing semantic representation of text and based on constrained expansion of query words | 12-Jun-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6246412 | Interactive construction and refinement of 3D models from multiple panoramic images | 12-Jun-01 |
| 6246409 | Method and system for connecting to, browsing, and accessing computer network resources | 12-Jun-01 |
| 6246404 | Automatically generating code for integrating context-sensitive help functions into a computer software application | 12-Jun-01 |
| 6243825 | Method and system for transparently failing over a computer name in a server cluster | 05-Jun-01 |
| 6243821 | System and method for managing power consumption in a computer system | 05-Jun-01 |
| 6243766 | Method and system for updating software with smaller patch files | 05-Jun-01 |
| 6243764 | Method and system for aggregating objects | 05-Jun-01 |
| 6243753 | Method, system, and computer program product for creating a raw data channel form an integrating component to a series of kernel mode filters | 05-Jun-01 |
| 6243721 | Method and apparatus for providing automatic layout capabilities for computer forms | 05-Jun-01 |
| 6243701 | System and method for sorting character strings containing accented and unaccented characters | 05-Jun-01 |
| 6243093 | Methods, apparatus and data structures for providing a user interface, which exploits spatial memory in three-dimensions, to objects and which visually groups matching objects | 05-Jun-01 |
| 6243070 | Method and apparatus for detecting and reducing color artifacts in images | 05-Jun-01 |
| 6240472 | Method and system for sharing a communications port | 29-May-01 |
| 6240465 | Method and system for aggregating objects | 29-May-01 |
| 6240456 | System and method for collecting printer administration information | 29-May-01 |
| 6239814 | Method for indicating the existence of a control object | 29-May-01 |
| 6239783 | Weighted mapping of image data samples to pixel sub-components on a display device | 29-May-01 |
| 6237144 | Use of relational databases for software installation | 22-May-01 |
| 6236390 | Methods and apparatus for positioning displayed characters | 22-May-01 |
| 6233731 | Program-interface converter for multiple-platform computer systems | 15-May-01 |
| 6233624 | System and method for layering drivers | 15-May-01 |
| 6233606 | Automatic cache synchronization | 15-May-01 |
| 6233570 | Intelligent user assistance facility for a software program | 15-May-01 |
| 6232976 | Optimizing dynamic/animating textures for use in three-dimensional models | 15-May-01 |
| 6232974 | Decision-theoretic regulation for allocating computational resources among components of multimedia content to improve fidelity | 15-May-01 |



MTC-00030616_0068

| Patent Number | Title | Issue Date |
|---|---|---|
| 6232972 | Method for dynamically displaying controls in a toolbar display based on control usage | 15-May-01 |
| 6232966 | Method and system for generating comic panels | 15-May-01 |
| 6232958 | Input device with multiplexed switches | 15-May-01 |
| 6232957 | Technique for implementing an on-demand tool glass for use in a desktop user interface | 15-May-01 |
| 6230318 | Application programs constructed entirely from autonomous component objects | 08-May-01 |
| 6230312 | Automatic detection of per-unit location constraints | 08-May-01 |
| 6230269 | Distributed authentication system and method | 08-May-01 |
| 6230212 | Method and system for the link tracking of objects | 08-May-01 |
| 6230173 | Method for creating structured documents in a publishing system | 08-May-01 |
| 6230172 | Production of a video stream with synchronized annotations over a computer network | 08-May-01 |
| 6230159 | Method for creating object inheritance | 08-May-01 |
| 6230156 | Electronic mail interface for a network server | 08-May-01 |
| 6229539 | Method for merging items of containers of separate program modules | 08-May-01 |
| 6229537 | Hosting windowed objects in a non-windowing environment | 08-May-01 |
| 6226747 | Method for preventing software piracy during installation from a read only storage medium | 01-May-01 |
| 6226742 | ciphertext message through use of a message authentication code formed through cipher block chaining of the plaintext message | 01-May-01 |
| 6226689 | Method and mechanism for interprocess communication using client and server listening threads | 01-May-01 |
| 6226665 | Application execution environment for a small device with partial program loading by a resident operating system | 01-May-01 |
| 6226635 | Layered query management | 01-May-01 |
| 6226628 | Cross-file pattern-matching compression | 01-May-01 |
| 6226407 | Method and apparatus for analyzing computer screens | 01-May-01 |
| 6226017 | Methods and apparatus for improving read/modify/write operations | 01-May-01 |
| 6225973 | Mapping samples of foreground/background color image data to pixel sub-components | 01-May-01 |
| 6223292 | Authorization systems, methods, and computer program products | 24-Apr-01 |
| 6223212 | Method and system for sharing negotiating capabilities when sharing an application with multiple systems | 24-Apr-01 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6223207 | Input/output completion port queue data structures and methods for using same | 24-Apr-01 |
| 6223171 | What-if index analysis utility for database systems | 24-Apr-01 |
| 6222937 | Method and system for tracking vantage points from which pictures of an object have been taken | 24-Apr-01 |
| 6222182 | Apparatus and method for sampling a phototransistor | 24-Apr-01 |
| 6219782 | Multiple user software debugging system | 17-Apr-01 |
| 6219675 | Distribution of a centralized database | 17-Apr-01 |
| 6219025 | Mapping image data samples to pixel sub-components on a striped display device | 17-Apr-01 |
| 6216177 | Method for transmitting text data for shared application between first and second computer asynchronously upon initiation of a session without solicitation from first computer | 10-Apr-01 |
| 6216175 | Method for upgrading copies of an original file with same update data after normalizing differences between copies created during respective original installations | 10-Apr-01 |
| 6216154 | Methods and apparatus for entering and evaluating time dependence hypotheses and for forecasting based on the time dependence hypotheses entered | 10-Apr-01 |
| 6216141 | System and method for integrating a document into a desktop window on a client computer | 10-Apr-01 |
| 6216134 | Method and system for visualization of clusters and classifications | 10-Apr-01 |
| 6215503 | Image generator and method for resolving non-binary cyclic occlusions with image compositing operations | 10-Apr-01 |
| 6215496 | Sprites with depth | 10-Apr-01 |
| 6212676 | Event architecture for system management in an operating system | 03-Apr-01 |
| 6212617 | Parallel processing method and system using a lazy parallel data type to reduce inter-processor communication | 03-Apr-01 |
| 6212574 | User mode proxy of kernel mode operations in a computer operating system | 03-Apr-01 |
| 6212553 | Method for sending and receiving flags and associated data in e-mail transmissions | 03-Apr-01 |
| 6212541 | System and method for switching between software applications in multi-window operating system | 03-Apr-01 |
| 6212526 | Method for apparatus for efficient mining of classification models from databases | 03-Apr-01 |
| 6212436 | Dynamic inheritance of software object services | 03-Apr-01 |
| 6209093 | Technique for producing a privately authenticatable product copy indicia and for authenticating such an indicia | 27-Mar-01 |
| 6209089 | Correcting for changed client machine hardware using a server-based operating system | 27-Mar-01 |
| 6209088 | Computer hibernation implemented by a computer operating system | 27-Mar-01 |
| 6209041 | Method and computer program product for reducing inter-buffer data transfers between separate processing components | 27-Mar-01 |



MTC-00030616_0070

| Patent Number | Title | Issue Date |
|---|---|---|
| 6209040 | Method and system for interfacing to a type library | 27-Mar-01 |
| 6209011 | Handheld computing device with external notification system | 27-Mar-01 |
| 6208996 | Mobile device having notification database in which only those notifications that are to be presented in a limited predetermined time period | 27-Mar-01 |
| 6208952 | Method and system for delayed registration of protocols | 27-Mar-01 |
| 6208337 | Method and system for adding application defined properties and application defined property sheet pages | 27-Mar-01 |
| 6205561 | Tracking and managing failure-susceptible operations in a computer system | 20-Mar-01 |
| 6205498 | Method and system for message transfer session management | 20-Mar-01 |
| 6205492 | Method and computer program product for interconnecting software drivers in kernel mode | 20-Mar-01 |
| 6202202 | Pointer analysis by type inference for programs with structured memory objects and potentially inconsistent memory object accesses | 13-Mar-01 |
| 6202121 | System and method for improved program launch time | 13-Mar-01 |
| 6202089 | Method for configuring at runtime, identifying and using a plurality of remote procedure call endpoints on a single server process | 13-Mar-01 |
| 6202085 | System and method for incremental change synchronization between multiple copies of data | 13-Mar-01 |
| 6201549 | System and method for drawing and painting with bitmap brushes | 13-Mar-01 |
| 6201540 | Graphical interface components for in-dasn automotive accessories | 13-Mar-01 |
| 6199116 | Method and system for managing data while sharing application programs | 06-Mar-01 |
| 6199107 | Partial file caching and read range resume system and method | 06-Mar-01 |
| 6199082 | Method for delivering separate design and content in a multimedia publishing system | 06-Mar-01 |
| 6199081 | Automatic tagging of documents and exclusion by content | 06-Mar-01 |
| 6199061 | Method and apparatus for providing dynamic help topic titles to a user | 06-Mar-01 |
| 6198852 | View synthesis from plural images using a trifocal tensor data structure in a multi-view parallax geometry | 06-Mar-01 |
| 6195655 | Automatically associating archived multimedia content with current textual content | 27-Feb-01 |
| 6195622 | Methods and apparatus for building attribute transition probability models for use in pre-fetching resources | 27-Feb-01 |
| 6192487 | Method and system for remapping physical memory | 20-Feb-01 |
| 6192432 | Caching uncompressed data on a compressed drive | 20-Feb-01 |
| 6192360 | Methods and apparatus for classifying text and for building a text classifier | 20-Feb-01 |



MTC-00030616_0071

| Patent Number | Title | Issue Date |
|---|---|---|
| 6191790 | Inheritable property shading system for three-dimensional rendering of user interface controls | 20-Feb-01 |
| 6189146 | System and method for software licensing | 13-Feb-01 |
| 6189143 | Method and system for reducing an intentional program tree represented by high-level computational constructs | 13-Feb-01 |
| 6189100 | Ensuring the integrity of remote boot client data | 13-Feb-01 |
| 6189069 | Optimized logging of data elements to a data storage device | 13-Feb-01 |
| 6189019 | Computer system and computer-implemented process for presenting document connectivity | 13-Feb-01 |
| 6189016 | Journaling ordered changes in a storage volume | 13-Feb-01 |
| 6189000 | System and method for accessing user properties from multiple storage mechanisms | 13-Feb-01 |
| 6188405 | Methods, apparatus and data structures for providing a user interface, which exploits spatial memory, to objects | 13-Feb-01 |
| 6188401 | Script-based user interface implementation defining components using a text markup language | 13-Feb-01 |
| 6188387 | Computer input peripheral | 13-Feb-01 |
| 6188385 | Method and apparatus for displaying images such as text | 13-Feb-01 |
| 6185597 | Method and system for expanding a buried stack frame | 06-Feb-01 |
| 6185569 | Linked data structure integrity verification system which verifies actual node information with expected node information stored in a table | 06-Feb-01 |
| 6185568 | Classifying data packets processed by drivers included in a stack | 06-Feb-01 |
| 6185564 | Generation and validation of reference handles in a multithreading environment | 06-Feb-01 |
| 6184891 | Fog simulation for partially transparent objects | 06-Feb-01 |
| 6182286 | Dynamic versioning system for multiple users of multi-module software systems | 30-Jan-01 |
| 6182160 | Method and system for using editor objects to connect components | 30-Jan-01 |
| 6182133 | Method and apparatus for display of information prefetching and cache status having variable visual indication based on a period of time since prefetching | 30-Jan-01 |
| 6182108 | Method and system for multi-threaded processing | 30-Jan-01 |
| 6182092 | Method and system for converting between structured language elements and objects embeddable in a document | 30-Jan-01 |
| 6182086 | Client-server computer system with application recovery of server applications and client applications | 30-Jan-01 |
| 6181351 | Synchronizing the moveable mouths of animated characters with recorded speech | 30-Jan-01 |
| 6178529 | Method and system for resource monitoring of disparate resources in a server cluster | 23-Jan-01 |



MTC-00030616_0072

| Patent Number | Title | Issue Date |
|---|---|---|
| 6178423 | System and method for recycling numerical values in a computer system | 23-Jan-01 |
| 6177945 | Advanced graphics controls | 23-Jan-01 |
| 6175916 | Common-thread inter-process function calls invoked by jumps to invalid addresses | 16-Jan-01 |
| 6175900 | Hierarchical bitmap-based memory manager | 16-Jan-01 |
| 6175879 | Method and system for migrating connections between receive-any and receive-direct threads | 16-Jan-01 |
| 6175878 | Integration of systems management services with an underlying system object model | 16-Jan-01 |
| 6175863 | Storage of sitemaps at server sites for holding information regarding content | 16-Jan-01 |
| 6175834 | Consistency checker for documents containing japanese text | 16-Jan-01 |
| 6175833 | System and method for interactive live online voting with tallies for updating voting results | 16-Jan-01 |
| 6173421 | Centrally handling runtime errors | 09-Jan-01 |
| 6173406 | Authentication systems, methods, and computer program products | 09-Jan-01 |
| 6173404 | Software object security mechanism | 09-Jan-01 |
| 6173325 | Method computer program product, and system for assessing the performance of a packet schedule | 09-Jan-01 |
| 6173317 | Streaming and displaying a video stream with synchronized annotations over a computer network | 09-Jan-01 |
| 6172354 | Operator input device | 09-Jan-01 |
| 6169993 | Method, data structure, and computer program product for object state storage | 02-Jan-01 |
| 6169984 | Global incremental type search navigation directly from printable keyboard character input | 02-Jan-01 |
| 6169983 | Index merging for database systems | 02-Jan-01 |
| 6169546 | Global viewer scrolling system | 02-Jan-01 |
| 6167565 | Method and system of custom marshaling of inter-language parameters | 26-Dec-00 |
| 6167423 | Concurrency control of state machines in a computer system using cliques | 26-Dec-00 |
| 6166738 | Methods, apparatus and data structures for providing a user interface, which exploits spatial memory in three-dimensions, to objects | 26-Dec-00 |
| 6166732 | Distributed object oriented multi-user domain with multimedia presentations | 26-Dec-00 |
| 6163855 | Method and system for replicated and consistent modifications in a server cluster | 19-Dec-00 |
| 6163841 | Technique for producing privately authenticatable cryptographic signatures and for authenticating such signatures | 19-Dec-00 |



MTC-00030616_0073

| Patent Number | Title | Issue Date |
|---|---|---|
| 6163809 | System and method for preserving delivery status notification when moving from a native network to a foreign network | 19-Dec-00 |
| 6163777 | System and method for reducing location conflicts in a database | 19-Dec-00 |
| 6163324 | Median calculation using SIMD operations | 19-Dec-00 |
| 6161176 | System and method for storing configuration settings for transfer from a first system to a second system | 12-Dec-00 |
| 6161130 | Technique which utilizes a probabilistic classifier to detect "junk" e-mail by automatically updating a training and re-training the classifier based on the updated training set | 12-Dec-00 |
| 6161084 | Information retrieval utilizing semantic representation of text by identifying hypernyms and indexing multiple tokenized semantic structures to a same passage of text | 12-Dec-00 |
| 6160553 | Methods, apparatus and data structures for providing a user interface, which exploits spatial memory in three-dimensions, to objects and in which object occlusion is avoided | 12-Dec-00 |
| 6160550 | Shell extensions for an operating system | 12-Dec-00 |
| 6157942 | Imprecise caching of directory download responses for dynamic directory services | 05-Dec-00 |
| 6157905 | Identifying language and character set of data representing text | 05-Dec-00 |
| 6157747 | 3-dimensional image rotation method and apparatus for producing image mosaics | 05-Dec-00 |
| 6157618 | Distributed internet user experience monitoring system | 05-Dec-00 |
| 6157383 | Control polyhedra for a three-dimensional (3D) user interface | 05-Dec-00 |
| 6154843 | Secure remote access computing system | 28-Nov-00 |
| 6154767 | Methods and apparatus for using attribute transition probability models for pre-fetching resources | 28-Nov-00 |
| 6154220 | Rectilinear layout | 28-Nov-00 |
| 6154219 | System and method for optimally placing labels on a map | 28-Nov-00 |
| 6154205 | Navigating web-based content in a television-based system | 28-Nov-00 |
| 6151708 | Determining program update availability via set intersection over a sub-optical pathway | 21-Nov-00 |
| 6151632 | Method and apparatus for distributed transmission of real-time multimedia information | 21-Nov-00 |
| 6151618 | Safe general purpose virtual machine computing system | 21-Nov-00 |
| 6151607 | Database computer system with application recovery and dependency handling write cache | 21-Nov-00 |
| 6151022 | Method and apparatus for statically testing visual resources | 21-Nov-00 |
| 6148325 | Method and system for protecting shared code and data in a multitasking operating system | 14-Nov-00 |
| 6148304 | Navigating multimedia content using a graphical user interface with multiple display regions | 14-Nov-00 |



MTC-00030616_0074

| Patent Number | Title | Issue Date |
|---|---|---|
| 6148296 | Automatic generation of database queries | 14-Nov-00 |
| 6147685 | System and method for editing group information | 14-Nov-00 |
| 6145003 | Method of web crawling utilizing address mapping | 07-Nov-00 |
| 6144964 | Methods and apparatus for tuning a match between entities having attributes | 07-Nov-00 |
| 6144378 | Symbol entry system and methods | 07-Nov-00 |
| 6144377 | Providing access to user interface elements of legacy application programs | 07-Nov-00 |
| 6141722 | Method and apparatus for reclaiming memory | 31-Oct-00 |
| 6141705 | System for querying a peripheral device to determine its processing capabilities and then offloading specific processing tasks from a host to the peripheral device when needed | 31-Oct-00 |
| 6141696 | Secure decentralized object exporter | 31-Oct-00 |
| 6141018 | Method and system for displaying hypertext documents with visual effects | 31-Oct-00 |
| 6141003 | Channel bar user interface for an entertainment system | 31-Oct-00 |
| 6138128 | Sharing and organizing world wide web references using distinctive characters | 24-Oct-00 |
| 6138112 | Test generator for database management systems | 24-Oct-00 |
| 6137492 | Method and system for adaptive refinement of progressive meshes | 24-Oct-00 |
| 6137491 | Method and apparatus for reconstructing geometry using geometrically constrained structure from motion with points on planes | 24-Oct-00 |
| 6134658 | Multi-server location-independent authentication certificate management system | 17-Oct-00 |
| 6134602 | Application programming interface enabling application programs to group code and data to control allocation of physical memory in a virtual memory system | 17-Oct-00 |
| 6134596 | Continuous media file server system and method for scheduling network resources to play multiple files having different data transmission rates | 17-Oct-00 |
| 6134594 | Multi-user, multiple tier distributed application architecture with single-user access control of middle tier objects | 17-Oct-00 |
| 6134582 | System and method for managing electronic mail messages using a client-based database | 17-Oct-00 |
| 6134577 | Method and apparatus for enabling address lines to access the high memory area | 17-Oct-00 |
| 6134566 | Method for controlling an electronic mail preview pane to avoid system disruption | 17-Oct-00 |
| 6133925 | Automated system and method for annotation using callouts | 17-Oct-00 |
| 6133917 | Tracking changes to a computer software application when creating context-sensitive help functions | 17-Oct-00 |
| 6133915 | System and method for customizing controls on a toolbar | 17-Oct-00 |



MTC-00030616_0075

| Patent Number | Title | Issue Date |
|---|---|---|
| 6131192 | Software installation | 10-Oct-00 |
| 6131102 | Method and system for cost computation of spelling suggestions and automatic replacement | 10-Oct-00 |
| 6131051 | Interface between a base module and a detachable faceplate in an in-dash automotive accessory | 10-Oct-00 |
| 6128737 | Method and apparatus for producing a message authentication code in a cipher block chaining operation by using linear combinations of an encryption key | 03-Oct-00 |
| 6128713 | Application programming interface enabling application programs to control allocation of physical memory in a virtual memory system | 03-Oct-00 |
| 6128661 | Integrated communications architecture on a mobile device | 03-Oct-00 |
| 6128653 | Method and apparatus for communication media commands and media data using the HTTP protocol | 03-Oct-00 |
| 6128633 | Method and system for manipulating page-breaks in an electronic document | 03-Oct-00 |
| 6128629 | Method and apparatus for automatically updating data files in a slide presentation program | 03-Oct-00 |
| 6128012 | User interface for a portable data management device with limited size and processing capability | 03-Oct-00 |
| 6125373 | Identifying a driver that is an owner of an active mount point | 26-Sep-00 |
| 6125369 | Continuous object sychronization between object stores on different computers | 26-Sep-00 |
| 6125366 | Implicit session context system with object state cache | 26-Sep-00 |
| 6125352 | System and method for conducting commerce over a distributed network | 26-Sep-00 |
| 6122658 | Custom localized information in a networked server for display to an end user | 19-Sep-00 |
| 6122649 | Method and system for user defined and linked properties | 19-Sep-00 |
| 6122644 | System for halloween protection in a database system | 19-Sep-00 |
| 6121981 | Method and system for generating arbitrary-shaped animation in the user interface of a computer | 19-Sep-00 |
| 6121968 | Adaptive menus | 19-Sep-00 |
| 6121964 | Method and system for automatic persistence of controls in a windowing environment | 19-Sep-00 |
| 6119153 | Accessing content via installable data sources | 12-Sep-00 |
| 6119131 | Persistent volume mount points | 12-Sep-00 |
| 6119120 | Computer implemented methods for constructing a compressed data structure from a data string and for using the data structure to find data patterns in the data string | 12-Sep-00 |
| 6119115 | Method and computer program product for reducing lock contention in a multiple instruction execution stream processing environment | 12-Sep-00 |
| 6115708 | Method for refining the initial conditions for clustering with applications to small and large database clustering | 05-Sep-00 |



MTC-00030616_0076

| Patent Number | Title | Issue Date |
|---|---|---|
| 6115705 | Relational database system and method for query processing using early aggregation | 05-Sep-00 |
| 6112216 | Method and system for editing a table in a document | 29-Aug-00 |
| 6112214 | Method and system for the direct manipulation of cells in an electronic spreadsheet program or the like | 29-Aug-00 |
| 6111574 | Method and system for visually indicating a selection query | 29-Aug-00 |
| 6111567 | Seamless multimedia branching | 29-Aug-00 |
| 6110227 | Systems and methods for pre-processing variable initializers | 29-Aug-00 |
| 6108784 | Encryption of applications to ensure authenticity | 22-Aug-00 |
| 6108715 | Method and system for invoking remote procedure calls | 22-Aug-00 |
| 6108706 | Transmission announcement system and method for announcing upcoming data transmissions over a broadcast network | 22-Aug-00 |
| 6108661 | System for instance customization | 22-Aug-00 |
| 6108006 | Method and system for view-dependent refinement of progressive meshes | 22-Aug-00 |
| 6106575 | Nested parallel language preprocessor for converting parallel language programs into sequential code | 22-Aug-00 |
| 6105041 | Using three-state references to manage garbage collection of referenced objects | 15-Aug-00 |
| 6105039 | Generation and validation of reference handles | 15-Aug-00 |
| 6105038 | Hysteresis system and method for achieving a mean constant cost per action in a computer system | 15-Aug-00 |
| 6105024 | System for memory management during run formation for external sorting in database system | 15-Aug-00 |
| 6104377 | Method and system for displaying an image at a desired level of opacity | 15-Aug-00 |
| 6104359 | Allocating display information | 15-Aug-00 |
| 6102967 | Testing a help system of a computer software application without executing the computer software application | 15-Aug-00 |
| 6101546 | Method and system for providing data files that are partitioned by delivery time and data type | 08-Aug-00 |
| 6101513 | Method and apparatus for displaying database information according to a specified print layout and page format | 08-Aug-00 |
| 6101510 | Web browser control for incorporating web browser functionality into application programs | 08-Aug-00 |
| 6101499 | Method and computer program product for automatically generating an internet protocol (IP) address | 08-Aug-00 |
| 6101325 | Parameterized packaging system for programming languages | 08-Aug-00 |
| 6098081 | Hypermedia navigation using soft hyperlinks | 01-Aug-00 |



MTC-00030616_0077

| Patent Number | Title | Issue Date |
|---|---|---|
| 6097888 | Method and system for reducing an intentional program tree represented by high-level computational constructs | 01-Aug-00 |
| 6097854 | Image mosaic construction system and apparatus with patch-based alignment, global block adjustment and pair-wise motion-based local warping | 01-Aug-00 |
| 6097392 | Method and system of altering an attribute of a graphic object in a pen environment | 01-Aug-00 |
| 6097380 | Continuous media stream control | 01-Aug-00 |
| 6097371 | System and method of adjusting display characteristics of a displayable data file using an ergonomic computer input device | 01-Aug-00 |
| 6096095 | Producing persistent representations of complex data structures | 01-Aug-00 |
| 6094680 | System and method for managing distributed resources on networks | 25-Jul-00 |
| 6094679 | Distribution of software in a computer network environment | 25-Jul-00 |
| 6092208 | System and method for waking a computer having a plurality of power resources from a system state using a data structure | 18-Jul-00 |
| 6092144 | Method and system for interrupt-responsive execution of communications protocols | 18-Jul-00 |
| 6092067 | Desktop information manager for recording and viewing important events data structure | 18-Jul-00 |
| 6091411 | Dynamically updating themes for an operating system shell | 18-Jul-00 |
| 6091409 | Automatically activating a browser with internet shortcuts on the desktop | 18-Jul-00 |
| 6088739 | Method and system for dynamic object clustering | 11-Jul-00 |
| 6088718 | Methods and apparatus for using resource transition probability models for pre-fetching resources | 11-Jul-00 |
| 6088711 | Method and system for defining and applying a style to a paragraph | 11-Jul-00 |
| 6088708 | System and method for creating an online table from a layout of objects | 11-Jul-00 |
| 6088511 | Nested parallel 2D Delaunay triangulation method | 11-Jul-00 |
| 6088041 | Method of dropout control for scan conversion of a glyph comprising a plurality of discrete segments | 11-Jul-00 |
| 6086618 | Method and computer program product for estimating total resource usage requirements of a server application in a hypothetical user configuration | 11-Jul-00 |
| 6085247 | Server operating system for supporting multiple client-server sessions and dynamic reconnection of users to previous sessions using different computers | 04-Jul-00 |
| 6085226 | Method and apparatus for utility-directed prefetching of web pages into local cache using continual computation and user models | 04-Jul-00 |
| 6085206 | Method and system for verifying accuracy of spelling and grammatical composition of a document | 04-Jul-00 |
| 6084592 | Interactive construction of 3D models from panoramic images | 04-Jul-00 |
| 6084582 | Method and apparatus for recording a voice narration to accompany a slide show | 04-Jul-00 |



MTC-00030616_0078

| Patent Number | Title | Issue Date |
|---|---|---|
| 6083282 | Cross-project namespace compiler and method | 04-Jul-00 |
| 6081898 | Unification of directory service with file system service | 27-Jun-00 |
| 6081846 | Method and computer program product for reducing intra-system data copying during network packet processing | 27-Jun-00 |
| 6081816 | Method for placing text around polygons and other constraints | 27-Jun-00 |
| 6081802 | System and method for accessing compactly stored map element information from memory | 27-Jun-00 |
| 6081775 | Bootstrapping sense characterizations of occurrences of polysemous words in dictionaries | 27-Jun-00 |
| 6081598 | Cryptographic system and method with fast decryption | 27-Jun-00 |
| 6081264 | Optimal frame rate selection user interface | 27-Jun-00 |
| 6078999 | Recovering from a failure using a transaction table in connection with shadow copy transaction processing | 20-Jun-00 |
| 6078942 | Resource management for multimedia devices in a computer | 20-Jun-00 |
| 6078746 | Method and system for reducing an intentional program tree represented by high-level computational constructs | 20-Jun-00 |
| 6077313 | Type partitioned dataflow analyses | 20-Jun-00 |
| 6076100 | Server-side chat monitor | 13-Jun-00 |
| 6076051 | Information retrieval utilizing semantic representation of text | 13-Jun-00 |
| 6075545 | Methods and apparatus for storing, accessing and processing images through the use of row and column pointers | 13-Jun-00 |
| 6075540 | Storage of appearance attributes in association with wedges in a mesh data model for computer graphics | 13-Jun-00 |
| 6075532 | Efficient redrawing of animated windows | 13-Jun-00 |
| 6073226 | System and method for minimizing page tables in virtual memory systems | 06-Jun-00 |
| 6073214 | Method and system for identifying and obtaining computer software from a remote computer | 06-Jun-00 |
| 6073137 | Method for updating and displaying the hierarchy of a data store | 06-Jun-00 |
| 6072950 | Pointer analysis by type inference combined with a non-pointer analysis | 06-Jun-00 |
| 6072496 | Method and system for capturing and representing 3D geometry, color and shading of facial expressions and other animated objects | 06-Jun-00 |
| 6072486 | System and method for creating and customizing a deskbar | 06-Jun-00 |
| 6072485 | Navigating with direction keys in an environment that permits navigating with tab keys | 06-Jun-00 |
| 6072480 | Method and apparatus for controlling composition and performance of soundtracks to accompany a slide show | 06-Jun-00 |



MTC-00030616_0079

| Patent Number | Title | Issue Date |
|---|---|---|
| 6070007 | Method and system for reducing an intentional program tree represented by high-level computational constructs | 30-May-00 |
| 6069622 | Method and system for generating comic panels | 30-May-00 |
| 6067639 | Method for integrating automated software testing with software development | 23-May-00 |
| 6067578 | Container independent control architecture | 23-May-00 |
| 6067569 | Fast-forwarding and filtering of network packets in a computer system | 23-May-00 |
| 6067565 | Technique for prefetching a web page of potential future interest in lieu of continuing a current information download | 23-May-00 |
| 6067559 | Server architecture for segregation of dynamic content generation applications into separate process spaces | 23-May-00 |
| 6067551 | Computer implemented method for simultaneous multi-user editing of a document | 23-May-00 |
| 6067550 | Database computer system with application recovery and dependency handling write cache | 23-May-00 |
| 6067547 | Hash table expansion and contraction for use with internal searching | 23-May-00 |
| 6067541 | Monitoring document changes in a file system of documents with the document change information stored in a persistent log | 23-May-00 |
| 6067412 | Automatic bottleneck detection by means of workload reconstruction from performance measurements | 23-May-00 |
| 6067095 | Method for generating mouth features of an animated or physical character | 23-May-00 |
| 6067087 | Method for building menus during idle times | 23-May-00 |
| 6065035 | Method and system for procedure boundary detection | 16-May-00 |
| 6065020 | Dynamic adjustment of garbage collection | 16-May-00 |
| 6065012 | System and method for displaying and manipulating user-relevant data | 16-May-00 |
| 6065011 | System and method for manipulating a categorized data set | 16-May-00 |
| 6065008 | System and method for secure font subset distribution | 16-May-00 |
| 6065003 | System and method for finding the closest match of a data entry | 16-May-00 |
| 6064999 | Method and system for efficiently performing database table aggregation using a bitmask-based index | 16-May-00 |
| 6064406 | Method and system for caching presentation data of a source object in a presentation cache | 16-May-00 |
| 6064393 | Method for measuring the fidelity of warped image layer approximations in a real-time graphics rendering pipeline | 16-May-00 |
| 6064383 | Method and system for selecting an emotional appearance and prosody for a graphical character | 16-May-00 |
| 6061792 | System and method for fair exchange of time-independent information goods over a network | 09-May-00 |



MTC-00030616_0080

| Patent Number | Title | Issue Date |
|---|---|---|
| 6061695 | Operating system shell having a windowing graphical user interface with a desktop displayed as a hypertext multimedia document | 09-May-00 |
| 6061692 | System and method for administering a meta database as an integral component of an information server | 09-May-00 |
| 6061684 | Method and system for controlling user access to a resource in a networked computing environment | 09-May-00 |
| 6061677 | Database query system and method | 09-May-00 |
| 6059838 | Method and system for licensed design and use of software objects | 09-May-00 |
| 6058263 | Interface hardware design using internal and external interfaces | 02-May-00 |
| 6057841 | System and method for processing electronic messages with rules representing a combination of conditions, actions or exceptions | 02-May-00 |
| 6057837 | On-screen indentification and manipulation of sources that an object depends upon | 02-May-00 |
| 6057836 | System and method for resizing and rearranging a composite toolbar by direct manipulation | 02-May-00 |
| 6055548 | Computerized spreadsheet with auto-calculator | 25-Apr-00 |
| 6055314 | System and method for secure purchase and delivery of video content programs | 25-Apr-00 |
| 6054989 | Methods, apparatus and data structures for providing a user interface, which exploits spatial memory in three-dimensions, to objects and which provides spatialized audio | 25-Apr-00 |
| 6052735 | Electronic mail object synchronization between a desktop computer and mobile device | 18-Apr-00 |
| 6052710 | System and method for making function calls over a distributed network | 18-Apr-00 |
| 6052707 | Preemptive multi-tasking with cooperative groups of tasks | 18-Apr-00 |
| 6052698 | Reorganization of collisions in a hash bucket of a hash table to improve system performance | 18-Apr-00 |
| 6052697 | Reorganization of collisions in a hash bucket of a hash table to improve system performance | 18-Apr-00 |
| 6049869 | Method and system for detecting and identifying a text or data encoding system | 11-Apr-00 |
| 6049809 | Replication optimization system and method | 11-Apr-00 |
| 6049805 | Dynamic event mechanism for objects with associational relationships | 11-Apr-00 |
| 6049671 | Method for identifying and obtaining computer software from a network computer | 11-Apr-00 |
| 6049663 | Method and facility for uninstalling a computer program package | 11-Apr-00 |
| 6049636 | Determining a rectangular box encompassing a digital picture within a digital image | 11-Apr-00 |
| 6049341 | Edge cycle collision detection in graphics environment | 11-Apr-00 |
| 6047307 | Providing application programs with unmediated access to a contested hardware resource | 04-Apr-00 |



MTC-00030616_0081

| Patent Number | Title | Issue Date |
|---|---|---|
| 6047300 | System and method for automatically correcting a misspelled word | 04-Apr-00 |
| 6047297 | Method and system for editing actual work records | 04-Apr-00 |
| 6046744 | Selective refinement of progressive meshes | 04-Apr-00 |
| 6044408 | Multimedia device interface for retrieving and exploiting software and hardware capabilities | 28-Mar-00 |
| 6044387 | Single command editing of multiple files | 28-Mar-00 |
| 6044366 | Use of the UNPIVOT relational operator in the efficient gathering of sufficient statistics for data mining | 28-Mar-00 |
| 6044181 | Focal length estimation method and apparatus for construction of panoramic mosaic images | 28-Mar-00 |
| 6044155 | Method and system for securely archiving core data secrets | 28-Mar-00 |
| 6043826 | Transferring outline fonts to devices requiring raster fonts | 28-Mar-00 |
| 6043817 | Method and apparatus for arranging displayed graphical representations on a computer interface | 28-Mar-00 |
| 6041359 | Data delivery system and method for delivering computer data over a broadcast network | 21-Mar-00 |
| 6041345 | Active stream format for holding multiple media streams | 21-Mar-00 |
| 6041333 | Method and apparatus for automatically updating a data file from a network | 21-Mar-00 |
| 6041311 | Method and apparatus for item recommendation using automated collaborative filtering | 21-Mar-00 |
| 6040841 | Method and system for virtual cinematography | 21-Mar-00 |
| 6038628 | System and method for encapsulating legacy data transport protocols for IEEE 1394 serial bus | 14-Mar-00 |
| 6038610 | Storage of sitemaps at server sites for holding information regarding content | 14-Mar-00 |
| 6038567 | Method and system for propagating object properties in a desktop publishing program | 14-Mar-00 |
| 6038551 | System and method for configuring and managing resources on a multi-purpose integrated circuit card using a personal computer | 14-Mar-00 |
| 6037932 | Method for sending computer network data as part of vertical blanking interval | 14-Mar-00 |
| 6036495 | Interactive simulation including force feedback | 14-Mar-00 |
| 6035379 | Transaction processing for user data employing both logging and shadow copying | 07-Mar-00 |
| 6035342 | Method and computer program product for implementing object relationships | 07-Mar-00 |
| 6035327 | SMTP extension to preserve per-message and per-recipient properties | 07-Mar-00 |
| 6035269 | Method for detecting stylistic errors and generating replacement strings in a document containing Japanese text | 07-Mar-00 |



MTC-00030616_0082

| Patent Number | Title | Issue Date |
|---|---|---|
| 6035119 | Method and apparatus for automatic generation of text and computer-executable code | 07-Mar-00 |
| 6032197 | Data packet header compression for unidirectional transmission | 29-Feb-00 |
| 6032188 | Method and system for controlling data flow | 29-Feb-00 |
| 6031989 | Method of formatting and displaying nested documents | 29-Feb-00 |
| 6031534 | Operating system function for specifying a checked image representation and an unchecked image representation of a menu item | 29-Feb-00 |
| 6031518 | Ergonomic input device | 29-Feb-00 |
| 6029200 | Automatic protocol rollover in streaming multimedia data delivery system | 22-Feb-00 |
| 6029147 | Method and system for providing an interface for supporting multiple formats for on-line banking services | 22-Feb-00 |
| 6028604 | User friendly remote system interface providing previews of applications | 22-Feb-00 |
| 6026417 | Desktop publishing software for automatically changing the layout of content-filled documents | 15-Feb-00 |
| 6026416 | System and method for storing, viewing, editing, and processing ordered sections having different file formats | 15-Feb-00 |
| 6026239 | Run-time code compiler for data block transfer | 15-Feb-00 |
| 6026238 | Interface conversion modules based upon generalized templates for multiple platform computer systems | 15-Feb-00 |
| 6026233 | Method and apparatus for presenting and selecting options to modify a programming language statement | 15-Feb-00 |
| 6025841 | Method for managing simultaneous display of multiple windows in a graphical user interface | 15-Feb-00 |
| 6023744 | Method and mechanism for freeing disk space in a file system | 08-Feb-00 |
| 6023714 | Method and system for dynamically adapting the layout of a document to an output device | 08-Feb-00 |
| 6023710 | System and method for long-term administration of archival storage | 08-Feb-00 |
| 6023523 | Method and system for digital plenoptic imaging | 08-Feb-00 |
| 6023275 | System and method for resizing an input position indicator for a user interface of a computer system | 08-Feb-00 |
| 6023272 | Continuously accessible computer system interface | 08-Feb-00 |
| 6021412 | Method and system for automatically adding graphics to a document to illustrate concepts referred to therein | 01-Feb-00 |
| 6021262 | System and method for detection of, notification of, and automated repair of problem conditions in a messaging system | 01-Feb-00 |
| 6021203 | Coercion resistant one-time-pad cryptosystem that facilitates transmission of messages having different levels of security | 01-Feb-00 |
| 6018619 | Method, system and apparatus for client-side usage tracking of information server systems | 25-Jan-00 |



MTC-00030616_0083

| Patent Number | Title | Issue Date |
|---|---|---|
| 6018349 | Patch-based alignment method and apparatus for construction of image mosaics | 25-Jan-00 |
| 6018340 | Robust display management in a multiple monitor environment | 25-Jan-00 |
| 6016520 | Method of viewing at a client viewing station a multiple media title stored at a server and containing a plurality of topics utilizing anticipatory caching | 18-Jan-00 |
| 6016515 | Method, computer program product, and data structure for validating creation of and routing messages to file object | 18-Jan-00 |
| 6016508 | Server-determined client refresh periods for dynamic directory services | 18-Jan-00 |
| 6016497 | Methods and system for storing and accessing embedded information in object-relational databases | 18-Jan-00 |
| 6016492 | Forward extensible property modifiers for formatting information in a program module | 18-Jan-00 |
| 6016488 | Method and system for constructing queries | 18-Jan-00 |
| 6016150 | Sprite compositor and method for performing lighting and shading operations using a compositor to combine factored image layers | 18-Jan-00 |
| 6016145 | Method and system for transforming the geometrical shape of a display window for a computer system | 18-Jan-00 |
| 6014744 | State governing the performance of optional booting operations | 11-Jan-00 |
| 6014733 | Method and system for creating a perfect hash using an offset table | 11-Jan-00 |
| 6014706 | Methods and apparatus for implementing control functions in a streamed video display system | 11-Jan-00 |
| 6014701 | Selecting a cost-effective bandwidth for transmitting information to an end user in a computer network | 11-Jan-00 |
| 6014681 | Method for saving a document using a background save thread | 11-Jan-00 |
| 6014666 | Declarative and programmatic access control of component-based server applications using roles | 11-Jan-00 |
| 6014518 | Terminating polymorphic type inference program analysis | 11-Jan-00 |
| 6012096 | Method and system for peer-to-peer network latency measurement | 04-Jan-00 |
| 6012075 | Method and system for background grammar checking an electronic document | 04-Jan-00 |
| 6012058 | Scalable system for K-means clustering of large databases | 04-Jan-00 |
| 6012052 | resources, editing resource link topology, building resource link topology templates, and collaborative filtering | 04-Jan-00 |
| 6009459 | Intelligent automatic searching for resources in a distributed environment | 28-Dec-99 |
| 6009452 | Apparatus and methods for optimally using available computer resources for task execution during idle-time based on probabilistic assessment of future task instances | 28-Dec-99 |
| 6009441 | Selective response to a comment line in a computer file | 28-Dec-99 |
| 6009190 | Texture map construction method and apparatus for displaying panoramic image mosaics | 28-Dec-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 6009188 | Method and system for digital plenoptic imaging | 28-Dec-99 |
| 6008820 | Processor for controlling the display of rendered image layers and method for controlling same | 28-Dec-99 |
| 6008816 | Method and system for managing color specification using attachable palettes and palettes that refer to other palettes | 28-Dec-99 |
| 6008807 | Method and system for controlling the display of objects in a slide show presentation | 28-Dec-99 |
| 6008806 | Shell extensions for an operating system | 28-Dec-99 |
| 6008803 | System for displaying programming information | 28-Dec-99 |
| 6008799 | Method and system for entering data using an improved on-screen keyboard | 28-Dec-99 |
| 6006331 | Recovery of online sessions for dynamic directory services | 21-Dec-99 |
| 6006241 | Production of a video stream with synchronized annotations over a computer network | 21-Dec-99 |
| 6006239 | Method and system for allowing multiple users to simultaneously edit a spreadsheet | 21-Dec-99 |
| 6006218 | Methods and apparatus for retrieving and/or processing retrieved information as a function of a user's estimated knowledge | 21-Dec-99 |
| 6005582 | Method and system for texture mapping images with anisotropic filtering | 21-Dec-99 |
| 6005575 | Foreground window determination through process and thread initialization | 21-Dec-99 |
| 6005551 | Offline force effect rendering | 21-Dec-99 |
| 6003108 | Method and system for interrupt-responsive execution of communications protocols | 14-Dec-99 |
| 6003097 | System for automatically configuring a network adapter without manual intervention by using a registry data structure maintained within a computer system memory | 14-Dec-99 |
| 6003061 | Method and system for scheduling the use of a computer system resource using a resource planner and a resource provider | 14-Dec-99 |
| 6003050 | Method for integrating a virtual machine with input method editors | 14-Dec-99 |
| 6002852 | Method and system for confirming receipt of data opportunistically broadcast to client computer systems | 14-Dec-99 |
| 5999996 | Adapter for wirelessly interfacing a full-size stand alone keyboard with a handheld computing device | 07-Dec-99 |
| 5999986 | Method and system for providing an event system infrastructure | 07-Dec-99 |
| 5999979 | Method and apparatus for determining a most advantageous protocol for use in a computer network | 07-Dec-99 |
| 5999938 | System and method for creating a new data structure in memory populated with data from an existing data structure | 07-Dec-99 |
| 5999896 | Method and system for identifying and resolving commonly confused words in a natural language parser | 07-Dec-99 |
| 5999711 | Method and system for providing certificates holding authentication and authorization information for users/machines | 07-Dec-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5995997 | Apparatus and methods for optimally allocating currently available computer resources to future task instances versus continued execution of current task instances | 30-Nov-99 |
| 5995940 | Method and system for editing multivalued properties of an object | 30-Nov-99 |
| 5995922 | Identifying information related to an input word in an electronic dictionary | 30-Nov-99 |
| 5991804 | Continuous media file server for cold restriping following capacity change by repositioning data blocks in the multiple data servers | 23-Nov-99 |
| 5991802 | Method and system for invoking methods of objects over the internet | 23-Nov-99 |
| 5991794 | Component integration system for an application program | 23-Nov-99 |
| 5991777 | System and method for performing defined actions when grafting the name space of one storage medium into the name space of another storage medium | 23-Nov-99 |
| 5990905 | System provided child window controls | 23-Nov-99 |
| 5990904 | Method and system for merging pixel fragments in a graphics rendering system | 23-Nov-99 |
| 5990901 | Model based image editing and correction | 23-Nov-99 |
| 5990899 | Method for compressing journal streams | 23-Nov-99 |
| 5990886 | Graphically creating e-mail distribution lists with geographic area selector on map | 23-Nov-99 |
| 5990883 | Unified presentation of programming from different physical sources | 23-Nov-99 |
| 5990871 | Ergonomic pointing device | 23-Nov-99 |
| 5987517 | System having a library of protocol independent reentrant network interface functions for providing common calling interface for communication and application protocols | 16-Nov-99 |
| 5987481 | Method and apparatus for using label references in spreadsheet formulas | 16-Nov-99 |
| 5987376 | System and method for the distribution and synchronization of data and state information between clients in a distributed processing system | 16-Nov-99 |
| 5987257 | Metafile optimization | 16-Nov-99 |
| 5987164 | Block adjustment method and apparatus for construction of image mosaics | 16-Nov-99 |
| 5986675 | System and method for animating an object in three-dimensional space using a two-dimensional input device | 16-Nov-99 |
| 5986668 | Deghosting method and apparatus for construction of image mosaics | 16-Nov-99 |
| 5986623 | System and method for interlaced display device data transmission | 16-Nov-99 |
| 5983274 | Creation and use of control information associated with packetized network data by protocol drivers and device drivers | 09-Nov-99 |
| 5983242 | Method and system for preserving document integrity | 09-Nov-99 |
| 5983240 | Method and system of converting data from a source file system to a target file system | 09-Nov-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5982389 | Generating optimized motion transitions for computer animated objects | 09-Nov-99 |
| 5982381 | Method and apparatus for modifying a cutout image for compositing | 09-Nov-99 |
| 5978815 | File system primitive providing native file system support for remote storage | 02-Nov-99 |
| 5978814 | Native data signatures in a file system | 02-Nov-99 |
| 5978802 | System and method for providing opportunistic file access in a network environment | 02-Nov-99 |
| 5978795 | Temporally ordered binary search method and system | 02-Nov-99 |
| 5978566 | Client side deferred actions within multiple MAPI profiles | 02-Nov-99 |
| 5978484 | System and method for safety distributing executable objects | 02-Nov-99 |
| 5977977 | Method and system for multi-pass rendering | 02-Nov-99 |
| 5977973 | Window linking | 02-Nov-99 |
| 5977971 | Tree view control | 02-Nov-99 |
| 5977966 | System-provided window elements having adjustable dimensions | 02-Nov-99 |
| 5977951 | System and method for substituting an animated character when a remote control physical character is unavailable | 02-Nov-99 |
| 5974483 | Multiple transparent access to in put peripherals | 26-Oct-99 |
| 5974454 | Method and system for installing and updating program module components | 26-Oct-99 |
| 5974427 | Method and computer system for implementing concurrent accesses of a database record by multiple users | 26-Oct-99 |
| 5974421 | Cache-efficient object loader | 26-Oct-99 |
| 5974416 | Method of creating a tabular data stream for sending rows of data between client and server | 26-Oct-99 |
| 5974410 | Method and system for filtering in a uniform data interface | 26-Oct-99 |
| 5974409 | System and method for locating information in an on-line network | 26-Oct-99 |
| 5970496 | Method and system for storing information in a computer system memory using hierarchical data node relationships | 19-Oct-99 |
| 5970173 | Image compression and affine transformation for image motion compensation | 19-Oct-99 |
| 5968121 | Method and apparatus for representing and applying network topological data | 19-Oct-99 |
| 5966719 | Method for inserting capitalized Latin characters in a non-Latin document | 12-Oct-99 |
| 5966716 | Automatic spreadsheet forms | 12-Oct-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5966705 | Tracking a user across both secure and non-secure areas on the Internet, wherein the users is initially tracked using a globally unique identifier | 12-Oct-99 |
| 5966686 | Method and system for computing semantic logical forms from syntax trees | 12-Oct-99 |
| 5966140 | Method for creating progressive simplicial complexes | 12-Oct-99 |
| 5966133 | Geomorphs and variable resolution control of progressive meshes | 12-Oct-99 |
| 5964885 | Method and system for recovering text from a damaged electronic file | 12-Oct-99 |
| 5964843 | System for enhancing device drivers | 12-Oct-99 |
| 5963945 | Synchronization of a client and a server in a prefetching resource allocation system | 05-Oct-99 |
| 5963894 | Method and system for bootstrapping statistical processing into a rule-based natural language parser | 05-Oct-99 |
| 5963893 | Identification of words in Japanese text by a computer system | 05-Oct-99 |
| 5963209 | Encoding and progressive transmission of progressive meshes | 05-Oct-99 |
| 5963197 | 3-D cursor positioning device | 05-Oct-99 |
| 5961591 | Downloading data while rejection of its use may be overridden | 05-Oct-99 |
| 5960423 | Database system index selection using candidate index selection for a workload | 28-Sep-99 |
| 5959621 | System and method for displaying data items in a ticker display pane on a client computer | 28-Sep-99 |
| 5958004 | Disabling and enabling transaction committal in transactional application components | 28-Sep-99 |
| 5956724 | Method for compressing a data file using a separate dictionary file | 21-Sep-99 |
| 5956721 | Method and computer program product for classifying network communication packets processed in a network stack | 21-Sep-99 |
| 5956715 | Method and system for controlling user access to a resource in a networked computing environment | 21-Sep-99 |
| 5956509 | System and method for performing remote requests with an on-line service network | 21-Sep-99 |
| 5956489 | Transaction replication system and method for supporting replicated transaction-based services | 21-Sep-99 |
| 5956483 | System and method for making function calls from a web browser to a local application | 21-Sep-99 |
| 5956481 | Method and apparatus for protecting data files on a computer from virus infection | 21-Sep-99 |
| 5956033 | Document control interface and method for graphical message document software | 21-Sep-99 |
| 5953729 | Using sparse file technology to stage data that will then be stored in remote storage | 14-Sep-99 |
| 5953012 | Method and system for connecting to, browsing, and accessing computer network resources | 14-Sep-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5951694 | Method of redirecting a client service session to a second application server without interrupting the session by forwarding service-specific information to the second server | 14-Sep-99 |
| 5951653 | Method and system for coordinating access to objects of different thread types in a shared memory space | 14-Sep-99 |
| 5950221 | Variably-sized kernel memory stacks | 07-Sep-99 |
| 5950193 | Interactive records and groups of records in an address book database | 07-Sep-99 |
| 5950186 | Database system index selection using cost evaluation of a workload for multiple candidate index configurations | 07-Sep-99 |
| 5949975 | Method and system for negotiating capabilities when sharing an application program with multiple computer systems | 07-Sep-99 |
| 5949430 | Peripheral lenses for simulating peripheral vision on a display device | 07-Sep-99 |
| 5949429 | Method for performing pixel addressing operations for a tiled image | 07-Sep-99 |
| 5949428 | Method and apparatus for resolving pixel data in a graphics rendering system | 07-Sep-99 |
| 5949418 | Operating system for handheld computing device having graphical window minimization/enlargement functionality | 07-Sep-99 |
| 5948113 | System and method for centrally handling runtime errors | 07-Sep-99 |
| 5946698 | Database computer system with application recovery | 31-Aug-99 |
| 5946697 | Rapid transfer of HTML files | 31-Aug-99 |
| 5946696 | Object property lists | 31-Aug-99 |
| 5946691 | Method of presenting, storing, and updating a filing identifier for a data record | 31-Aug-99 |
| 5946648 | Identification of words in Japanese text by a computer system | 31-Aug-99 |
| 5945987 | Interactive entertainment network system and method for providing short sets of preview video trailers | 31-Aug-99 |
| 5945981 | Wireless input device, for use with a computer, employing a movable light-emitting element and a stationary light-receiving element | 31-Aug-99 |
| 5943048 | Method and apparatus for testing a graphic control area | 24-Aug-99 |
| 5941947 | System and method for controlling access to data entities in a computer network | 24-Aug-99 |
| 5941944 | Method for providing a substitute for a requested inaccessible object by identifying substantially similar objects using weights corresponding to object features | 24-Aug-99 |
| 5940847 | System and method for automatically correcting multi-word data entry errors | 17-Aug-99 |
| 5940833 | Compressing sets of integers | 17-Aug-99 |
| 5938752 | System and method for encapsulating legacy data transport protocols for IEEE 1394 serial bus | 17-Aug-99 |
| 5938729 | System and method for monitoring server performance at a client computer | 17-Aug-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5936616 | Method and system for accessing and displaying a compressed display image in a computer system | 10-Aug-99 |
| 5935224 | Method and apparatus for adaptively coupling an external peripheral device to either a universal serial bus port on a computer or hub or a game port on a computer | 10-Aug-99 |
| 5935211 | Distributed notification | 10-Aug-99 |
| 5935210 | Mapping the structure of a collection of computer resources | 10-Aug-99 |
| 5933842 | Method and system for compressing publication documents in a computer system by selectively eliminating redundancy from a hierarchy of constituent data structures | 03-Aug-99 |
| 5933838 | Database computer system with application recovery and recovery log sequence numbers to optimize recovery | 03-Aug-99 |
| 5933822 | Apparatus and methods for an information retrieval system that employs natural language processing of search results to improve overall precision | 03-Aug-99 |
| 5933599 | Apparatus for presenting the content of an interactive on-line network | 03-Aug-99 |
| 5933535 | Object-based video compression process employing arbitrarily-shaped features | 03-Aug-99 |
| 5933145 | Method and system for visually indicating a selection query | 03-Aug-99 |
| 5933139 | Method and apparatus for creating help functions | 03-Aug-99 |
| 5931935 | File system primitive allowing reprocessing of I/O requests by multiple drivers in a layered driver I/O system | 03-Aug-99 |
| 5929860 | Mesh simplification and construction of progressive meshes | 27-Jul-99 |
| 5929840 | System and method for computer cursor control | 27-Jul-99 |
| 5926813 | Database system index selection using cost evaluation of a workload for multiple candidate index configurations | 20-Jul-99 |
| 5926807 | Method and system for effectively representing query results in a limited amount of memory | 20-Jul-99 |
| 5926805 | Dual namespace client having long and short filenames | 20-Jul-99 |
| 5925127 | Method and system for monitoring the use of rented software | 20-Jul-99 |
| 5924108 | Document summarizer for word processors | 13-Jul-99 |
| 5924099 | Data transfer with expanded clipboard formats | 13-Jul-99 |
| 5923897 | System for adapter with status and command registers to provide status information to operating system and processor operative to write eject command to command register | 13-Jul-99 |
| 5923848 | System and method for resolving names in an electronic messaging environment | 13-Jul-99 |
| 5923846 | Method of uploading a message containing a file reference to a server and downloading a file from the server using the file reference | 13-Jul-99 |
| 5923328 | Method and system for displaying a hierarchical sub-tree by selection of a user interface element in a sub-tree bar control | 13-Jul-99 |
| 5923307 | Logical monitor configuration in a multiple monitor environment | 13-Jul-99 |



MTC-00030616_0090

| Patent Number | Title | Issue Date |
|---|---|---|
| 5922058 | Optical transmission system for generating first-edge-based serial data bit stream by inverting control output line at mark times | 13-Jul-99 |
| 5920895 | Mapped file input/output with delayed zeroing | 06-Jul-99 |
| 5920734 | System for providing electrical power to a computer input device according to the interface types through the shared use of wires and a voltage clamp | 06-Jul-99 |
| 5920720 | Efficient computer based virtual machine object structure | 06-Jul-99 |
| 5920697 | Method of automatic updating and use of routing information by programmable and manual routing information configuration based on least lost routing | 06-Jul-99 |
| 5920327 | Multiple resolution data display | 06-Jul-99 |
| 5920316 | Taskbar with start menu | 06-Jul-99 |
| 5919264 | System and method for using data structures to share a plurality of power resources among a plurality of devices | 06-Jul-99 |
| 5917499 | Interactive graph display system | 29-Jun-99 |
| 5917489 | System and method for creating, editing, and distributing rules for processing electronic messages | 29-Jun-99 |
| 5917480 | Method and system for interacting with the content of a slide presentation | 29-Jun-99 |
| 5915129 | Method and system for storing uncompressed data in a memory cache that is destined for a compressed file system | 22-Jun-99 |
| 5914717 | Methods and system for providing fly out menus | 22-Jun-99 |
| 5914716 | Slide out interface bar | 22-Jun-99 |
| 5914714 | System and method for changing the characteristics of a button by direct manipulation | 22-Jun-99 |
| 5913217 | Generating and compressing universally unique identifiers (UUIDs) using counter having high-order bit to low-order bit | 15-Jun-99 |
| 5913207 | Database system index selection using index configuration enumeration for a workload | 15-Jun-99 |
| 5913206 | Database system multi-column index selection for a workload | 15-Jun-99 |
| 5913038 | System and method for processing multimedia data streams using filter graphs | 15-Jun-99 |
| 5912661 | Z-encoder mechanism | 15-Jun-99 |
| 5911072 | Method and system for reducing an intentional program tree represented by high-level computational constructs | 08-Jun-99 |
| 5911068 | Container independent control architecture | 08-Jun-99 |
| 5911066 | Data transfer utilizing a single functionally independent data transfer mechanism | 08-Jun-99 |
| 5910802 | Operating system for handheld computing device having taskbar auto hide | 08-Jun-99 |
| 5910800 | Usage tips for on-screen touch-sensitive controls | 08-Jun-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5907837 | Information retrieval system in an on-line network including separate content and layout of published titles | 25-May-99 |
| 5907685 | System and method for synchronizing clocks in distributed computer nodes | 25-May-99 |
| 5905987 | Method, data structure, and computer program product for object state storage in a repository | 18-May-99 |
| 5905981 | Automatically associating archived multimedia content with current textual content | 18-May-99 |
| 5905894 | Meta-programming methods and apparatus | 18-May-99 |
| 5905890 | Event architecture for system management in an operating system | 18-May-99 |
| 5905884 | Method and system for registering and retrieving data formats for objects using a persistent registry | 18-May-99 |
| 5905522 | Resource allocation method for interactive televideo system | 18-May-99 |
| 5905508 | Method and system for dynamically plotting an element on an image using a table | 18-May-99 |
| 5905492 | Dynamically updating themes for an operating system shell | 18-May-99 |
| 5903917 | Method and system for alignment of blocks in a program image | 11-May-99 |
| 5903905 | Method for simultaneously constructing and displaying a dynamic preview of a document that provides an accurate customized document | 11-May-99 |
| 5903903 | System for determining the sequence and placement of pages for a multiple-page document | 11-May-99 |
| 5903896 | Method for installing a file on demand using a preview | 11-May-99 |
| 5903894 | System and method for using a hierarchical data structure to control and identify devices and represent connections between the devices | 11-May-99 |
| 5903754 | Dynamic layered protocol stack | 11-May-99 |
| 5903728 | Plug-in control including an independent plug-in process | 11-May-99 |
| 5903265 | System-provided window elements having adjustable dimensions | 11-May-99 |
| 5903255 | Method and system for selecting a color value using a hexagonal honeycomb | 11-May-99 |
| 5901312 | Providing application programs with unmediated access to a contested hardware resource | 04-May-99 |
| 5900905 | System and method for linking video, services and applications in an interactive television system | 04-May-99 |
| 5900004 | Method and system for interactive formatting of word processing documents with deferred rule evaluation and format editing | 04-May-99 |
| 5899999 | Iterative convolution filter particularly suited for use in an image classification and retrieval system | 04-May-99 |
| 5898868 | Method and system for file system management using a flash-erasable, programmable, read-only memory | 27-Apr-99 |
| 5898819 | System for black and white printing of colored pages | 27-Apr-99 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5898170 | Apparatus and method for finding optimal sensitivity level for optical encoding circuit | 27-Apr-99 |
| 5897650 | Encapsulation of extracted portions of documents into objects | 27-Apr-99 |
| 5897642 | Method and system for integrating an object-based application with a version control system | 27-Apr-99 |
| 5897640 | Method and system of associating, synchronizing and reconciling computer files in an operating system | 27-Apr-99 |
| 5897622 | Electronic shopping and merchandising system | 27-Apr-99 |
| 5893915 | Local font face selection for remote electronic document browsing | 13-Apr-99 |
| 5893107 | Method and system for uniformly accessing multiple directory services | 06-Apr-99 |
| 5893077 | Method and apparatus for generating and collecting a billing event object within an on-line network | 06-Apr-99 |
| 5892917 | System for log record and log expansion with inserted log records representing object request for specified object corresponding to cached object copies | 06-Apr-99 |
| 5892904 | Code certification for network transmission | 06-Apr-99 |
| 5892521 | System and method for composing a display frame of multiple layered graphic sprites | 06-Apr-99 |
| 5890174 | Method and system for constructing a formula in a spreadsheet | 30-Mar-99 |
| 5890171 | Computer system and computer-implemented method for interpreting hypertext links in a document when including the document within another document | 30-Mar-99 |
| 5890161 | Automatic transaction processing of component-based server applications | 30-Mar-99 |
| 5890147 | Scope testing of documents in a search engine using document to folder mapping | 30-Mar-99 |
| 5889952 | Access check system utilizing cached access permissions | 30-Mar-99 |
| 5889522 | System provided child window controls | 30-Mar-99 |
| 5889521 | System provided child window controls | 30-Mar-99 |
| 5886701 | Graphics rendering device and method for operating same | 23-Mar-99 |
| 5886699 | Method and system for transferring data to common destinations using a common destination list | 23-Mar-99 |
| 5886695 | System provided child window controls | 23-Mar-99 |
| 5886694 | Method for automatically laying out controls in a dialog window | 23-Mar-99 |
| 5884316 | Implicit session context system with object state cache | 16-Mar-99 |
| 5884306 | System and method for directly manipulating fields for grouping items | 16-Mar-99 |
| 5883633 | Method and system of variable run length image encoding using sub-palette | 16-Mar-99 |



MTC-00030616_0093

| Patent Number | Title | Issue Date |
|---|---|---|
| 5883627 | Advanced graphics controls | 16-Mar-99 |
| 5881292 | Dynamic versioning system for multiple users of multi-module software system | 09-Mar-99 |
| 5881252 | Method and apparatus for automatically configuring circuit cards in a computer system | 09-Mar-99 |
| 5881230 | Method and system for remote automation of object oriented applications | 09-Mar-99 |
| 5880744 | Method and apparatus for vector transformation involving a transformation matrix | 09-Mar-99 |
| 5880737 | Method and system for accessing texture data in environments with high latency in a graphics rendering system | 09-Mar-99 |
| 5880733 | Display system and method for displaying windows of an operating system to provide a three-dimensional workspace for a computer system | 09-Mar-99 |
| 5880731 | Use of avatars with automatic gesturing and bounded interaction in on-line chat session | 09-Mar-99 |
| 5878421 | Information map | 02-Mar-99 |
| 5878410 | File system sort order indexes | 02-Mar-99 |
| 5878386 | Natural language parser with dictionary-based part-of-speech probabilities | 02-Mar-99 |
| 5878282 | Portable information device and system and method for downloading executable instruction from a computer to the portable information device | 02-Mar-99 |
| 5877765 | Method and system for displaying internet shortcut icons on the desktop | 02-Mar-99 |
| 5877758 | System and method for using a slider control for controlling parameters of a display item | 02-Mar-99 |
| 5875289 | Method and system for simulating auto-init mode DMA data transfers | 23-Feb-99 |
| 5874960 | Method and system for sharing applications between computer systems | 23-Feb-99 |
| 5873660 | Morphological search and replace | 23-Feb-99 |
| 5873124 | Virtual memory scratch pages | 16-Feb-99 |
| 5873118 | Method and system for storing file system state information in multiple sectors based on update frequency | 16-Feb-99 |
| 5873081 | Document filtering via directed acyclic graphs | 16-Feb-99 |
| 5872930 | Load balancing between E-mail servers within a local area network | 16-Feb-99 |
| 5870763 | Database computer system with application recovery and dependency handling read cache | 09-Feb-99 |
| 5870556 | Monitoring a messaging link | 09-Feb-99 |
| 5870097 | Method and system for improving shadowing in a graphics rendering system | 09-Feb-99 |
| 5867657 | Distributed scheduling in a multiple data server system | 02-Feb-99 |



MTC-00030616_0094

| Patent Number | Title | Issue Date |
|---|---|---|
| 5867652 | Method and apparatus for supporting multiple outstanding network requests on a single connection | 02-Feb-99 |
| 5867650 | Out-of-band data transmission | 02-Feb-99 |
| 5867646 | Providing secure access for multiple processes having separate directories | 02-Feb-99 |
| 5867175 | Method and apparatus for scriping animation | 02-Feb-99 |
| 5867173 | Method for rendering a spline for scan conversion of a glyph comprising a plurality of discrete segments | 02-Feb-99 |
| 5867166 | Method and system for generating images using Gsprites | 02-Feb-99 |
| 5867144 | Method and system for the direct manipulation of information, including non-default drag and drop operation | 02-Feb-99 |
| 5864848 | Goal-driven information interpretation and extraction system | 26-Jan-99 |
| 5864711 | System for determining more accurate translation between first and second translator, and providing translated data to second computer if first translator is more accurate | 26-Jan-99 |
| 5864669 | Method and system for accessing a particular instantiation of a server process | 26-Jan-99 |
| 5864342 | Method and system for rendering graphical objects to image chunks | 26-Jan-99 |
| 5864337 | Mehtod for automatically associating multimedia features with map views displayed by a computer-implemented atlas program | 26-Jan-99 |
| 5862337 | Determining throughput dynamically | 19-Jan-99 |
| 5862318 | System for generating a gapless series of identity values | 19-Jan-99 |
| 5860073 | Style sheets for publishing system | 12-Jan-99 |
| 5859648 | Method and system for providing substitute computer fonts | 12-Jan-99 |
| 5857190 | Event logging system and method for logging events in a network system | 05-Jan-99 |
| 5854932 | Compiler and method for avoiding unnecessary recompilation | 29-Dec-98 |
| 5854931 | Method and system for accessing virtual base classes | 29-Dec-98 |
| 5852823 | Image classification and retrieval system using a query-by-example paradigm | 22-Dec-98 |
| 5852443 | Method and system for memory decomposition in a graphics rendering system | 22-Dec-98 |
| 5852441 | Shell extensions for an operating system | 22-Dec-98 |
| 5852436 | Notes facility for receiving notes while the computer system is in a screen mode | 22-Dec-98 |
| 5850232 | Method and system for flipping images in a window using overlays | 15-Dec-98 |
| 5845300 | Method and apparatus for suggesting completions for a partially entered data item based on previously-entered, associated data items | 01-Dec-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5845293 | Method and system of associating, synchronizing and reconciling computer files in an operating system | 01-Dec-98 |
| 5845280 | Method and apparatus for transmitting a file in a network using a single transmit request from a user-mode process to a kernel-mode process | 01-Dec-98 |
| 5845273 | Method and apparatus for integrating multiple indexed files | 01-Dec-98 |
| 5845084 | Automatic data display formatting with a networking application | 01-Dec-98 |
| 5845077 | Method and system for identifying and obtaining computer software from a remote computer | 01-Dec-98 |
| 5844569 | Display device interface including support for generalized flipping of surfaces | 01-Dec-98 |
| 5844551 | Shell extensions for an operating system | 01-Dec-98 |
| 5842214 | Distributed file system providing a unified name space with efficient name resolution | 24-Nov-98 |
| 5842211 | Method and system for transferring a bank file to an application program | 24-Nov-98 |
| 5842180 | Method and system for detecting and correcting errors in a spreadsheet formula | 24-Nov-98 |
| 5842018 | Method and system for referring to and binding to objects using identifier objects | 24-Nov-98 |
| 5842016 | Thread synchronization in a garbage-collected system using execution barriers | 24-Nov-98 |
| 5838963 | Apparatus and method for compressing a data file based on a dictionary file which matches segment lengths | 17-Nov-98 |
| 5838923 | Method and system for synchronizing computer mail user directories | 17-Nov-98 |
| 5838336 | Method and system for displaying images on a display device | 17-Nov-98 |
| 5838322 | Shell extensions for an operating system | 17-Nov-98 |
| 5838320 | Method and system for scrolling through data | 17-Nov-98 |
| 5838319 | System provided child window control for displaying items in a hierarchical fashion | 17-Nov-98 |
| 5838317 | Method and apparatus for arranging displayed graphical representations on a computer interface | 17-Nov-98 |
| 5838304 | Packet-based mouse data protocol | 17-Nov-98 |
| 5835964 | Virtual memory system with hardware TLB and unmapped software TLB updated from mapped task address maps using unmapped kernel address map | 10-Nov-98 |
| 5835908 | Processing multiple database transactions in the same process to reduce process overhead and redundant retrieval from database servers | 10-Nov-98 |
| 5835904 | System and method for implementing database cursors in a client/server environment | 10-Nov-98 |
| 5835086 | Method and apparatus for digital painting | 10-Nov-98 |
| 5835084 | Method and computerized apparatus for distinguishing between read and unread messages listed in a graphical message window | 10-Nov-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5832528 | Method and system for selecting text with a mouse input device in a computer system | 03-Nov-98 |
| 5832514 | System and method for discovery based data recovery in a store and forward replication process | 03-Nov-98 |
| 5832502 | Conversation index builder | 03-Nov-98 |
| 5832479 | Method for compressing full text indexes with document identifiers and location offsets | 03-Nov-98 |
| 5832225 | Method computer program product and system for maintaining replication topology information | 03-Nov-98 |
| 5831606 | Shell extensions for an operating system | 03-Nov-98 |
| 5828885 | Method and system for merging files having a parallel format | 27-Oct-98 |
| 5828364 | One-piece case top and integrated switch for a computer pointing device | 27-Oct-98 |
| 5828361 | Method and system for rapidly transmitting multicolor or gray scale display data having multiple bits per pixel to a display device | 27-Oct-98 |
| 5826269 | Electronic mail interface for a network server | 20-Oct-98 |
| 5826257 | Method and structure for maintaining and utilizing a lookup value associated with a stored database value | 20-Oct-98 |
| 5826041 | Method and system for buffering network packets that are transferred between a V86 mode network driver and a protected mode computer program | 20-Oct-98 |
| 5825363 | Method and apparatus for determining visible surfaces | 20-Oct-98 |
| 5825357 | Continuously accessible computer system interface | 20-Oct-98 |
| 5822751 | Efficient multidimensional data aggregation operator implementation | 13-Oct-98 |
| 5822526 | System and method for maintaining and administering email address names in a network | 13-Oct-98 |
| 5822525 | Method and system for presentation conferencing | 13-Oct-98 |
| 5819293 | Automatic Spreadsheet forms | 06-Oct-98 |
| 5819288 | Statistically based image group descriptor particularly suited for use in an image classification and retrieval system | 06-Oct-98 |
| 5819272 | Record tracking in database replication | 06-Oct-98 |
| 5819112 | Apparatus for controlling an I/O port by queuing requests and in response to a predefined condition, enabling the I/O port to receive the interrupt requests | 06-Oct-98 |
| 5819107 | Method for managing the assignment of device drivers in a computer system | 06-Oct-98 |
| 5819055 | Method and apparatus for docking re-sizeable interface boxes | 06-Oct-98 |
| 5819032 | Electronic magazine which is distributed electronically from a publisher to multiple subscribers | 06-Oct-98 |
| 5819030 | System and method for configuring a server computer for optimal performance for a particular server type | 06-Oct-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5818465 | Fast display of images having a small number of colors with a VGA-type adapter | 06-Oct-98 |
| 5818447 | System and method for in-place editing of an electronic mail message using a separate program | 06-Oct-98 |
| 5815793 | Parallel computer | 29-Sep-98 |
| 5815705 | Method and computer system for integrating a compression system with an operating system | 29-Sep-98 |
| 5815703 | Computer-based uniform data interface (UDI) method and system using an application programming interface (API) | 29-Sep-98 |
| 5815689 | Method and computer program product for synchronizing the processing of multiple data streams and matching disparate processing rates using a standardized clock mechanism | 29-Sep-98 |
| 5815682 | Device independent modem interface | 29-Sep-98 |
| 5815665 | System and method for providing trusted brokering services over a distributed network | 29-Sep-98 |
| 5813013 | Representing recurring events | 22-Sep-98 |
| 5813008 | Single instance storage of information | 22-Sep-98 |
| 5812844 | Method and system for scheduling the execution of threads using optional time-specific scheduling constraints | 22-Sep-98 |
| 5812793 | System and method for asynchronous store and forward data replication | 22-Sep-98 |
| 5812784 | Method and apparatus for supporting multiple, simultaneous services over multiple, simultaneous connections between a client and network server | 22-Sep-98 |
| 5812780 | Method, system, and product for assessing a server application performance | 22-Sep-98 |
| 5812773 | System and method for the distribution of hierarchically structured data | 22-Sep-98 |
| 5812430 | Componentized digital signal processing | 22-Sep-98 |
| 5812136 | System and method for fast rendering of a three dimensional graphical object | 22-Sep-98 |
| 5812123 | System for displaying programming information | 22-Sep-98 |
| 5809564 | Apparatus and method for swapping blocks of memory between a main memory area and a secondary storage area of a computer system | 15-Sep-98 |
| 5809329 | System for managing the configuration of a computer system | 15-Sep-98 |
| 5809295 | Method and apparatus for storing compressed file data on a disk where each MDFAT data structure includes an extra byte | 15-Sep-98 |
| 5808617 | Method and system for depth complexity reduction in a graphics rendering system | 15-Sep-98 |
| 5808604 | Apparatus and method for automatically positioning a cursor on a control | 15-Sep-98 |
| 5806065 | Data system with distributed tree indexes and method for maintaining the indexes | 08-Sep-98 |
| 5805911 | Word prediction system | 08-Sep-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5805896 | System for writing main memory address of object to secondary storage when storing object and reading main memory address of object when retrieving object from secondary storage | 08-Sep-98 |
| 5805885 | Method and system for aggregating objects | 08-Sep-98 |
| 5805170 | Systems and methods for wrapping a closed polygon around an object | 08-Sep-98 |
| 5805165 | Method of selecting a displayed control item | 08-Sep-98 |
| 5805164 | Data display and entry using a limited-area display panel | 08-Sep-98 |
| 5802590 | Method and system for providing secure access to computer resources | 01-Sep-98 |
| 5802526 | System and method for graphically displaying and navigating through an interactive voice response menu | 01-Sep-98 |
| 5802380 | Method and system for uniform access of textual data | 01-Sep-98 |
| 5802367 | Method and system for transparently executing code using a surrogate process | 01-Sep-98 |
| 5802305 | System for remotely waking a sleeping computer in power down state by comparing incoming packet to the list of packets storing on network interface card | 01-Sep-98 |
| 5802304 | Automatic dialer responsive to network programming interface access | 01-Sep-98 |
| 5801717 | Method and system in display device interface for managing surface memory | 01-Sep-98 |
| 5801701 | Method and system for in-place interaction with contained objects | 01-Sep-98 |
| 5801692 | Audio-visual user interface controls | 01-Sep-98 |
| 5801664 | System and method for transmitting data from a computer to a portable information device using RF emissions from a computer monitor | 01-Sep-98 |
| RE35,881 | Method and system for traversing linked list record based upon write-once predetermined bit value of secondary pointers | 25-Aug-98 |
| 5799321 | Replicating deletion information using sets of deleted record IDs | 25-Aug-98 |
| 5799184 | System and method for identifying data records using solution bitmasks | 25-Aug-98 |
| 5796988 | Method and system using dedicated location to share information between real mode and protected mode drivers | 18-Aug-98 |
| 5796402 | Method and system for aligning windows on a computer screen | 18-Aug-98 |
| 5794256 | Pointer swizzling facility using three-state references to manage access to referenced objects | 11-Aug-98 |
| 5794253 | Time based expiration of data objects in a store and forward replication enterprise | 11-Aug-98 |
| 5794230 | Method and system for creating and searching directories on a server | 11-Aug-98 |
| 5794038 | Method and system for notifiying clients using multicasting and for connecting objects using delayed binding | 11-Aug-98 |
| 5794006 | System and method for editing content in an on-line network | 11-Aug-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5793979 | System for allocating the resources of a computer system | 11-Aug-98 |
| 5793973 | Method and system for opportunistic broadcasting of data | 11-Aug-98 |
| 5793970 | Method and computer program product for converting message identification codes using a conversion map accesible via a data link | 11-Aug-98 |
| 5793374 | Specialized shaders for shading objects in computer generated images | 11-Aug-98 |
| 5793356 | System and method for the software emulation of a computer joystick | 11-Aug-98 |
| 5790863 | Method and system for generating and displaying a computer program | 04-Aug-98 |
| 5790858 | Method and system for selecting instrumentation points in a computer program | 04-Aug-98 |
| 5790677 | System and method for secure electronic commerce transactions | 04-Aug-98 |
| 5790126 | Method for rendering a spline for scan conversion of a glyph | 04-Aug-98 |
| 5790115 | System for character entry on a display screen | 04-Aug-98 |
| 5787451 | Method for background spell checking a word processing document | 28-Jul-98 |
| 5787442 | Creating interobject reference links in the directory service of a store and forward replication computer network | 28-Jul-98 |
| 5787417 | Method and system for selection of hierarchically related information using a content-variable list | 28-Jul-98 |
| 5787411 | Method and apparatus for database filter generation by display selection | 28-Jul-98 |
| 5787262 | System and method for distributed conflict resolution between data objects replicated across a computer network | 28-Jul-98 |
| 5787259 | Digital interconnects of a PC with consumer electronics devices | 28-Jul-98 |
| 5787247 | Replica administration without data loss in a store and forward replication enterprise | 28-Jul-98 |
| 5787246 | System for configuring devices for a computer system | 28-Jul-98 |
| 5786818 | Method and system for activating focus | 28-Jul-98 |
| 5784628 | Method and system for controlling power consumption in a computer system | 21-Jul-98 |
| 5784618 | Method and system for managing ownership of a released synchronization mechanism | 21-Jul-98 |
| 5784616 | Apparatus and methods for optimally using available computer resources for task execution during idle-time for future task instances exhibiting incremental value with computation | 21-Jul-98 |
| 5784615 | Computer system messaging architecture | 21-Jul-98 |
| 5784555 | Automation and dial-time checking of system configuration for internet | 21-Jul-98 |
| 5781902 | Method, computer program product, and system for extending the capabilities of an existing process to store and display foreign data | 14-Jul-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5781896 | Method and system for efficiently performing database table aggregation using an aggregation index | 14-Jul-98 |
| 5781797 | Method and system for configuring device driver by selecting a plurality of component drivers to be included in the device driver | 14-Jul-98 |
| 5781723 | System and method for self-identifying a portable information device to a computing unit | 14-Jul-98 |
| 5781195 | Method and system for rendering two-dimensional views of a three-dimensional surface | 14-Jul-98 |
| 5781190 | Method and system for transferring a slide presentation between computers | 14-Jul-98 |
| 5778403 | Method for displaying text on a rendering device to accurately represent the text as if displayed on a target device | 07-Jul-98 |
| 5778402 | Method and system for auto-formatting a document using an event-based rule engine to format a document as the user types | 07-Jul-98 |
| 5778375 | Database normalizing system | 07-Jul-98 |
| 5778372 | Remote retrieval and display management of electronic document with incorporated images | 07-Jul-98 |
| 5778361 | Method and system for fast indexing and searching of text in compound-word languages | 07-Jul-98 |
| 5778069 | Non-biased pseudo random number generator | 07-Jul-98 |
| 5774725 | Method and computer program product for simplifying construction of a program for testing computer software subroutines in an application programming interface | 30-Jun-98 |
| 5774668 | System for on-line service in which gateway computer uses service map which includes loading condition of servers broadcasted by application servers for load balancing | 30-Jun-98 |
| 5774126 | Method and apparatus for dynamically changing the color depth of objects displayed in a computer system | 30-Jun-98 |
| 5771399 | Optical wand having an end shaped to register to the surface of a portable device to align respective optical element pairs for data transfer | 23-Jun-98 |
| 5771384 | Method and system for replacement and extension of container interfaces | 23-Jun-98 |
| 5771381 | Method and system for adding configuration files for a user | 23-Jun-98 |
| 5771034 | Font format | 23-Jun-98 |
| 5771033 | Method and system for dissolving an image displayed on a computer screen | 23-Jun-98 |
| 5768566 | Method and facility for uninstalling a computer program package | 16-Jun-98 |
| 5768519 | Method and apparatus for merging user accounts from a source security domain into a target security domain | 16-Jun-98 |
| 5768515 | Method for generating and storing two segments of HTTP message headers with different lifetimes and combining them to form a single response header | 16-Jun-98 |
| 5767835 | Method and system for displaying buttons that transition from an active state to an inactive state | 16-Jun-98 |
| 5765180 | Method and system for correcting the spelling of misspelled words | 09-Jun-98 |
| 5765156 | Data transfer with expanded clipboard formats | 09-Jun-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5764983 | Method and system for efficiently creating a new file associated with an application program | 09-Jun-98 |
| 5764913 | Computer network status monitoring system | 09-Jun-98 |
| 5764890 | Method and system for adding a secure network server to an existing computer network | 09-Jun-98 |
| 5764241 | Method and system for modeling and presenting integrated media with a declarative modeling language for representing reactive behavior | 09-Jun-98 |
| 5761689 | Autocorrecting text typed into a word processing document | 02-Jun-98 |
| 5761669 | Controlling access to objects on multiple operating systems | 02-Jun-98 |
| 5761510 | Method for error identification in a program interface | 02-Jun-98 |
| 5761477 | Methods for safe and efficient implementations of virtual machines | 02-Jun-98 |
| 5760788 | Graphical programming system and method for enabling a person to learn text-based programming | 02-Jun-98 |
| 5760773 | Methods and apparatus for interacting with data objects using action handles | 02-Jun-98 |
| 5760770 | System and method for defining a view to display data | 02-Jun-98 |
| 5760768 | Method and system for customizing a user interface in a computer system | 02-Jun-98 |
| 5758360 | Meta-data structure and handling | 26-May-98 |
| 5758358 | Method and system for reconciling sections of documents | 26-May-98 |
| 5758352 | Common name space for long and short filenames | 26-May-98 |
| 5758337 | Database partial replica generation system | 26-May-98 |
| 5758184 | System for performing asynchronous file operations requested by runnable threads by processing completion messages with different queue thread and checking for completion by runnable threads | 26-May-98 |
| 5758154 | Method and system for storing configuration data into a common registry | 26-May-98 |
| 5757920 | Logon certification | 26-May-98 |
| 5757371 | Taskbar with start menu | 26-May-98 |
| 5754890 | System for automatic identification of a computer data entry device interface type using a transistor to sense the voltage generated by the interface and output a matching voltage level | 19-May-98 |
| 5754862 | Method and system for accessing virtual base classes | 19-May-98 |
| 5754858 | Customizable application project generation process and system | 19-May-98 |
| 5754854 | Method and system for providing a group of parallel resources as a proxy for a single shared resource | 19-May-98 |
| 5754175 | Method and system for in-place interaction with contained objects | 19-May-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5752252 | Storage of file data on disk in multiple representations | 12-May-98 |
| 5752243 | Computer method and storage structure for storing and accessing multidimensional data | 12-May-98 |
| 5752038 | Method and system for determining an optimal placement order for code portions within a module | 12-May-98 |
| 5752031 | Queue object for controlling concurrency in a computer system | 12-May-98 |
| 5752025 | Method, computer program product, and system for creating and displaying a categorization table | 12-May-98 |
| 5751283 | Resizing a window and an object on a display screen | 12-May-98 |
| 5751282 | System and method for calling video on demand using an electronic programming guide | 12-May-98 |
| 5751276 | Method for calibrating touch panel displays | 12-May-98 |
| 5748980 | System for configuring a computer system | 05-May-98 |
| 5748895 | transmitted from a display device while concurrently displaying human-readable explanation of the pattern | 05-May-98 |
| 5748512 | Adjusting keyboard | 05-May-98 |
| 5748468 | Prioritized co-processor resource manager and method | 05-May-98 |
| 5748191 | Method and system for creating voice commands using an automatically maintained log interactions performed by a user | 05-May-98 |
| 5745904 | Buffered table user index | 28-Apr-98 |
| 5745902 | Method and system for accessing a file using file names having different file name formats | 28-Apr-98 |
| 5745767 | Method and system for testing the interoperability of application programs | 28-Apr-98 |
| 5745764 | Method and system for aggregating objects | 28-Apr-98 |
| 5745752 | Dual namespace client having long and short filenames | 28-Apr-98 |
| 5745738 | Method and engine for automating the creation of simulations for demonstrating use of software | 28-Apr-98 |
| 5745119 | Color data conversion using real and virtual address spaces | 28-Apr-98 |
| 5745110 | Method and apparatus for arranging and displaying task schedule information in a calendar view format | 28-Apr-98 |
| 5745103 | Real-time palette negotiations in multimedia presentations | 28-Apr-98 |
| 5745095 | Compositing digital information on a display screen based on screen descriptor | 28-Apr-98 |
| 5742848 | System for passing messages between source object and target object utilizing generic code in source object to invoke any member function of target object by executing the same instructions | 21-Apr-98 |
| 5742835 | Method and system of sharing common formulas in a spreadsheet program and of adjusting the same to conform with editing operations | 21-Apr-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5742829 | Automatic software installation on heterogeneous networked client computer systems | 21-Apr-98 |
| 5742828 | Compiler and method for evaluation of foreign syntax expressions in source code | 21-Apr-98 |
| 5742825 | Operating system for office machines | 21-Apr-98 |
| 5742818 | Method and system of converting data from a source file system to a target file system | 21-Apr-98 |
| 5742773 | Method and system for audio compression negotiation for multiple channels | 21-Apr-98 |
| 5742756 | System and method of using smart cards to perform security-critical operations requiring user authorization | 21-Apr-98 |
| 5742278 | Force feedback joystick with digital signal processor controlled by host processor | 21-Apr-98 |
| 5742260 | System and method for transferring data using a frame-scanning display device | 21-Apr-98 |
| 5740456 | Methods and system for controlling intercharacter spacing as font size and resolution of output device vary | 14-Apr-98 |
| 5740439 | Method and system for referring to and binding to objects using identifier objects | 14-Apr-98 |
| 5740405 | Method and system for providing data compatibility between different versions of a software program | 14-Apr-98 |
| 5737733 | Method and system for searching compressed data | 07-Apr-98 |
| 5737611 | Methods for dynamically escalating locks on a shared resource | 07-Apr-98 |
| 5737591 | Database view generation system | 07-Apr-98 |
| 5736987 | Compression of graphic data normals | 07-Apr-98 |
| 5736983 | Shell extensions for an operating system | 07-Apr-98 |
| 5734904 | Method and system for calling one of a set of routines designed for direct invocation by programs of a second type when invoked by a program of the first type | 31-Mar-98 |
| 5734858 | Method and apparatus for simulating banked memory as a linear address space | 31-Mar-98 |
| 5734387 | Method and apparatus for creating and performing graphics operations on device-independent bitmaps | 31-Mar-98 |
| 5732267 | Caching/prewarming data loaded from CD-ROM | 24-Mar-98 |
| 5732265 | Storage optimizing encoder and method | 24-Mar-98 |
| 5732256 | CD-ROM optimization and stream splitting | 24-Mar-98 |
| 5731844 | Television scheduling system for displaying a grid representing scheduled layout and selecting a programming parameter for display or recording | 24-Mar-98 |
| 5729748 | Call template builder and method | 17-Mar-98 |
| 5729745 | Methods and apparatus for creating a base class for manipulating external data connections in a computer generated document | 17-Mar-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5729689 | Network naming services proxy agent | 17-Mar-98 |
| 5727178 | System and method for reducing stack physical memory requirements in a multitasking operating system | 10-Mar-98 |
| 5726687 | Auto-scrolling with mouse speed computation during dragging | 10-Mar-98 |
| 5724594 | Method and system for automatically identifying morphological information from a machine-readable dictionary | 03-Mar-98 |
| 5724588 | Method and system for network marshalling of interface pointers for remote procedure calls | 03-Mar-98 |
| 5724558 | System and method for dynamic data packet configuration | 03-Mar-98 |
| 5724492 | Systems and method for displaying control objects including a plurality of panels | 03-Mar-98 |
| 5724074 | Method and system for graphically programming mobile toys | 03-Mar-98 |
| 5724070 | Common digital representation of still images for data transfer with both slow and fast data transfer rates | 03-Mar-98 |
| 5724068 | Joystick with uniform center return force | 03-Mar-98 |
| 5721919 | Method and system for the link tracking of objects | 24-Feb-98 |
| 5721916 | Method and system for shadowing file system structures from multiple types of networks | 24-Feb-98 |
| 5721847 | Method and system for linking controls with cells of a spreadsheet | 24-Feb-98 |
| 5721781 | Authentication system and method for smart card transactions | 24-Feb-98 |
| 5719941 | Method for changing passwords on a remote computer | 17-Feb-98 |
| 5717902 | Method and system for selectively applying an appropriate object ownership model | 10-Feb-98 |
| 5717845 | Method and apparatus for transferring a brush pattern to a destination bitmap | 10-Feb-98 |
| 5715441 | Method and system for storing and accessing data in a compound document using object linking | 03-Feb-98 |
| 5715415 | Computer application with help pane integrated into workspace | 03-Feb-98 |
| 5713020 | Method and system for generating database queries containing multiple levels of aggregation | 27-Jan-98 |
| 5713003 | Method and system for caching data | 27-Jan-98 |
| 5713002 | Modified buddy system for managing storage space | 27-Jan-98 |
| 5710941 | System for substituting protected mode hard disk driver for real mode driver by trapping test transfers to verify matching geometric translation | 20-Jan-98 |
| 5710928 | Method and system for connecting objects in a computer system | 20-Jan-98 |
| 5710925 | Method and system for aggregating objects | 20-Jan-98 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5710880 | Method and system for creating a graphic image with geometric descriptors | 20-Jan-98 |
| 5709219 | Method and apparatus to create a complex tactile sensation | 20-Jan-98 |
| 5708814 | Method and apparatus for reducing the rate of interrupts by generating a single interrupt for a group of events | 13-Jan-98 |
| 5708812 | Method and apparatus for Migrating from a source domain network controller to a target domain network controller | 13-Jan-98 |
| 5706505 | Method and system for binding data in a computer system | 06-Jan-98 |
| 5706504 | Method and system for storing data objects using a small object data stream | 06-Jan-98 |
| 5706483 | Run-time code compiler for data block transfer | 06-Jan-98 |
| 5706462 | Self optimizing font width cache | 06-Jan-98 |
| 5706458 | Method and system for merging menus of application programs | 06-Jan-98 |
| 5706450 | Method and system for presenting alternatives for selection using adaptive learning | 06-Jan-98 |
| 5706411 | Printer status user interface and methods relating thereto | 06-Jan-98 |
| 5701511 | Redbook audio sequencing | 23-Dec-97 |
| 5701499 | Method and system for automatically entering a data series into contiguous cells of an electronic spreadsheet program or the like | 23-Dec-97 |
| 5701491 | Method and system for transitioning the network mode of a workstation | 23-Dec-97 |
| 5701469 | Method and system for generating accurate search results using a content-index | 23-Dec-97 |
| 5701462 | Distributed file system providing a unified name space with efficient name resolution | 23-Dec-97 |
| 5701461 | Method and system for accessing a remote database using pass-through queries | 23-Dec-97 |
| 5701460 | Intelligent joining system for a relational database | 23-Dec-97 |
| 5701424 | Palladian menus and methods relating thereto | 23-Dec-97 |
| 5701137 | Method for separating a hierarchical tree control into one or more hierarchical child tree controls in a graphical user interface | 23-Dec-97 |
| 5699518 | System for selectively setting a server node, evaluating to determine server node for executing server code, and downloading server code prior to executing if necessary | 16-Dec-97 |
| 5696946 | Method and apparatus for efficient transfer of data to memory | 09-Dec-97 |
| 5694610 | Method and system for editing and formatting data in a dialog window | 02-Dec-97 |
| 5694606 | Mechanism for using common code to handle hardware interrupts in multiple processor modes | 02-Dec-97 |
| 5694563 | Method and system for transferring data to common destinations using a common destination list | 02-Dec-97 |



MTC-00030616_0106

| Patent Number | Title | Issue Date |
|---|---|---|
| 5694561 | Method and system for grouping and manipulating windows | 02-Dec-97 |
| 5694559 | On-line help method and system utilizing free text query | 02-Dec-97 |
| 5694153 | Input device for providing multi-dimensional position coordinate signals to a computer | 02-Dec-97 |
| 5692189 | Method and apparatus for isolating circuit boards in a computer system | 25-Nov-97 |
| 5692177 | Method and system for data set storage by iteratively searching for perfect hashing functions | 25-Nov-97 |
| 5692173 | Method and system for combining prefix and first character searching of a list | 25-Nov-97 |
| 5692157 | Method and system for transferring data between objects using registered data formats | 25-Nov-97 |
| 5692144 | Method and system for depicting an object springing back from a position | 25-Nov-97 |
| 5691745 | Low power pixel-based visual display device having dynamically changeable number of grayscale shades | 25-Nov-97 |
| 5689709 | Method and system for invoking methods of an object | 18-Nov-97 |
| 5689703 | Method and system for referring to and binding to objects using identifier objects | 18-Nov-97 |
| 5689700 | Unification of directory service with file system services | 18-Nov-97 |
| 5689664 | Interface sharing between objects | 18-Nov-97 |
| 5689663 | Remote controller user interface and methods relating thereto | 18-Nov-97 |
| 5689662 | Shell extensions for an operating system | 18-Nov-97 |
| 5689638 | Method for providing access to independent network resources by establishing connection using an application programming interface function call without prompting the user for authentication data | 18-Nov-97 |
| 5689565 | Cryptography system and method for providing cryptographic services for a computer application | 18-Nov-97 |
| 5687392 | System for allocating buffer to transfer data when user buffer is mapped to physical region that does not conform to physical addressing limitations of controller | 11-Nov-97 |
| 5687331 | Method and system for displaying an animated focus item | 11-Nov-97 |
| 5685003 | Method and system for automatically indexing data in a document using a fresh index table | 04-Nov-97 |
| 5685001 | Method and system for automatically entering a data series into contiguous cells of an electronic spreadsheet program or the like | 04-Nov-97 |
| 5684993 | Segregation of thread-specific information from shared task information | 04-Nov-97 |
| 5684510 | Method of font rendering employing grayscale processing of grid fitted fonts | 04-Nov-97 |
| 5682536 | Method and system for referring to and binding to objects using identifier objects | 28-Oct-97 |
| 5682532 | System and method having programmable containers with functionality for managing objects | 28-Oct-97 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5682511 | Graphical viewer interface for an interactive network system | 28-Oct-97 |
| 5682510 | Method and system for adding application defined properties and application defined property sheet pages | 28-Oct-97 |
| 5682478 | Method and apparatus for supporting multiple, simultaneous services over multiple, simultaneous connections between a client and network server | 28-Oct-97 |
| 5682469 | Software platform having a real world interface with animated characters | 28-Oct-97 |
| 5680629 | Method and system for previewing computer output | 21-Oct-97 |
| 5680616 | Method and system for generating and maintaining property sets with unique format identifiers | 21-Oct-97 |
| 5680582 | Method for heap coalescing where blocks do not cross page of segment boundaries | 21-Oct-97 |
| 5680559 | Shell extensions for an operating system | 21-Oct-97 |
| 5680458 | Root key compromise recovery | 21-Oct-97 |
| 5678034 | Accessbar arbiter | 14-Oct-97 |
| 5678014 | Folder rack icons | 14-Oct-97 |
| 5678012 | Method and system for selecting a video piece from a database | 14-Oct-97 |
| 5678007 | Method and apparatus for supporting multiple outstanding network requests on a single connection | 14-Oct-97 |
| 5678002 | System and method for providing automated customer support | 14-Oct-97 |
| 5677708 | System for displaying a list on a display screen | 14-Oct-97 |
| 5675833 | Apparatus and method for detecting insertions and removals of floppy disks by monitoring write-protect signal | 07-Oct-97 |
| 5675831 | Method for automatic installation of a modem wherein unique identification for the device registry is computed from modem responses to queries by the system | 07-Oct-97 |
| 5675813 | System and method for power control in a universal serial bus | 07-Oct-97 |
| 5675796 | Concurrency management component for use by a computer program during the transfer of a message | 07-Oct-97 |
| 5675793 | Dynamic allocation of a common buffer for use by a set of software routines | 07-Oct-97 |
| 5675787 | Unification of directory service with file system services | 07-Oct-97 |
| 5675782 | Controlling access to objects on multiple operating systems | 07-Oct-97 |
| 5675520 | Method for extending a common user interface | 07-Oct-97 |
| 5673401 | Systems and methods for a customizable sprite-based graphical user interface | 30-Sep-97 |
| 5673394 | Method of sharing memory between an operating system and an application program | 30-Sep-97 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5670955 | Method and apparatus for generating directional and force vector in an input device | 23-Sep-97 |
| 5668996 | Rendering CD redbook audio using alternative storage locations and formats | 16-Sep-97 |
| 5666526 | Method and system for supporting scrollable, updatable database queries | 09-Sep-97 |
| 5666523 | Method and system for distributing asynchronous input from a system input queue to reduce context switches | 09-Sep-97 |
| 5666489 | Method and apparatus for enhancing capabilities of office machines | 09-Sep-97 |
| 5664228 | Portable information device and system and method for downloading executable instructions from a computer to the portable information device | 02-Sep-97 |
| 5664191 | Method and system for improving the locality of memory references during execution of a computer program | 02-Sep-97 |
| 5664178 | Method and system for organizing internal structure of a file | 02-Sep-97 |
| 5664173 | Method and apparatus for generating database queries from a meta-query pattern | 02-Sep-97 |
| 5664133 | Context sensitive menu system/menu behavior | 02-Sep-97 |
| 5659791 | Encapsulation of extracted portions of documents into objects | 19-Aug-97 |
| 5659747 | Multiple level undo/redo mechanism | 19-Aug-97 |
| 5659685 | Method and apparatus for maintaining network communications on a computer capable of connecting to a WAN and LAN | 19-Aug-97 |
| 5659674 | System and method for implementing an operation encoded in a graphics image | 19-Aug-97 |
| 5659336 | Method and apparatus for creating and transferring a bitmap | 19-Aug-97 |
| 5657050 | Distance control for displaying a cursor | 12-Aug-97 |
| 5655154 | Method and system for sharing utilities between operating systems | 05-Aug-97 |
| 5655148 | Method for automatically configuring devices including a network adapter without manual intervention and without prior configuration information | 05-Aug-97 |
| 5655077 | Method and system for authenticating access to heterogeneous computing services | 05-Aug-97 |
| 5652913 | System for providing intercommunication of I/O access factors stored in a shared data structure, accessed and maintained by both file system and device driver | 29-Jul-97 |
| 5652901 | Method and system for previewing computer output | 29-Jul-97 |
| 5652888 | System for interconnecting software components in an object oriented programming environment using a separate editor object for each run-time object instantiated for each selected component | 29-Jul-97 |
| 5652883 | Computer method and system for conservative-stack and generational heap garbage collection | 29-Jul-97 |
| 5652602 | Fast serial data transmission using a CRT | 29-Jul-97 |
| 5651676 | Method of organizing and storing simulated scenery in a flight simulation system | 29-Jul-97 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5649222 | Method for background spell checking a word processing document | 15-Jul-97 |
| 5649194 | Unification of directory service with file system services | 15-Jul-97 |
| 5649183 | Method for compressing full text indexes with document identifiers and location offsets | 15-Jul-97 |
| 5644758 | Bitmap block transfer image conversion | 01-Jul-97 |
| 5644739 | Method and system for adding buttons to a toolbar | 01-Jul-97 |
| 5644737 | Method and system for stacking toolbars in a computer display | 01-Jul-97 |
| 5644706 | Failure detection and reporting for a computer mail gateway | 01-Jul-97 |
| 5642503 | Method and computer system for implementing concurrent accesses of a database record by multiple users | 24-Jun-97 |
| 5642481 | Method and system for validating a memory window in system address space | 24-Jun-97 |
| 5640607 | Method for sending bit mapped image by appending special code to text string and transmitting the text string separately from compressed residual image | 17-Jun-97 |
| 5640580 | Method and system for previewing computer output | 17-Jun-97 |
| 5640579 | Method and system for logically partitioning a view of a document object from a frame in which the document object is displayed | 17-Jun-97 |
| 5640560 | CD-ROM content repurposing | 17-Jun-97 |
| 5640522 | Method and system for previewing transition effects between pairs of images | 17-Jun-97 |
| 5640498 | Accessbar arbiter | 17-Jun-97 |
| 5638445 | Blind encryption | 10-Jun-97 |
| 5636340 | System and method for special effects for text objects | 03-Jun-97 |
| 5636297 | Method and system for recognizing a graphic object's shape, line style, and fill pattern in a pen environment | 03-Jun-97 |
| 5634050 | Method and system for file system management using a flash-erasable programmable, read-only memory | 27-May-97 |
| 5634019 | Method and system for in-place interaction with contained objects | 27-May-97 |
| 5633472 | Method and system using pathnames to specify and access audio data at fidelity levels other than the level at which the data is stored | 27-May-97 |
| 5630138 | method and system for merging files having a parallel format | 13-May-97 |
| 5630119 | System and method for displaying program listings in an interactive electronic program guide | 13-May-97 |
| 5630080 | Method and system for the direct manipulation of information, including non-default drag and drop operation | 13-May-97 |
| 5628017 | Method and system for providing event-response capabilities to pseudocode | 06-May-97 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5628005 | System and method for providing opportunistic file access in a network environment | 06-May-97 |
| 5627997 | Method and system for converting computer mail messages using an extensible set of conversion routines | 06-May-97 |
| 5625799 | Method and apparatus for determining the logic and functionality of a changeline | 29-Apr-97 |
| 5625783 | Automated system and method for dynamic menu construction in a graphical user interface | 29-Apr-97 |
| 5623674 | Method for determining steerable interrupt request lines used by PCMCIA controllers | 22-Apr-97 |
| 5623651 | Method and system for repairing cross-linked clusters and reattaching lost directories on a storage device | 22-Apr-97 |
| 5623613 | System for displaying programming information | 22-Apr-97 |
| 5623282 | Method and system for the direct manipulation of cells in an electronic spreadsheet program or the like | 22-Apr-97 |
| 5621894 | System and method for exchanging computer data processing capabilites | 15-Apr-97 |
| 5621875 | Method and system for automatic formatting of user selected text | 15-Apr-97 |
| 5619688 | Method and system for constructing database queries using a field selection grid | 08-Apr-97 |
| 5617569 | Method and system for implementing pointers to members in a compiler for an object-oriented programming language | 01-Apr-97 |
| 5617526 | Operating system provided notification area for displaying visual notifications from application programs | 01-Apr-97 |
| 5613131 | Auto-formatting of tables in a spreadsheet program | 18-Mar-97 |
| 5613124 | Method and system for generating and storing multiple representations of a source object in object storage | 18-Mar-97 |
| 5613123 | Method and system for configuring and executing device drivers based on configuration requirements | 18-Mar-97 |
| 5613105 | Efficient storage of objects in a file system | 18-Mar-97 |
| 5613079 | System for verifying the proper operation of a replication facility | 18-Mar-97 |
| 5613058 | Method and system for in-place interaction with contained objects | 18-Mar-97 |
| 5613019 | System and methods for spacing, storing and recognizing electronic representations of handwriting, printing and drawings | 18-Mar-97 |
| 5611060 | Auto-scrolling during a drag and drop operation | 11-Mar-97 |
| 5611040 | Method and system for activating double click applications with a single click | 11-Mar-97 |
| 5608909 | Method and system for caching presentation data of a source object in a presentation cache | 04-Mar-97 |
| 5608901 | Method and system for improving the contiguity of sectors of a file | 04-Mar-97 |
| 5608853 | System and method for graphics scaling and localized color enhancement | 04-Mar-97 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5604897 | Method and system for correcting the spelling of misspelled words | 18-Feb-97 |
| 5604887 | Method and system using dedicated location to share information between real and protected mode device drivers | 18-Feb-97 |
| 5604856 | Motion compensated noise reduction method and system for computer generated images | 18-Feb-97 |
| 5604850 | Method and system for dynamically generating computer instructions for performing a logical operation on bitmaps | 18-Feb-97 |
| 5604849 | Overlay management system and method | 18-Feb-97 |
| 5604847 | System and method of printer banding | 18-Feb-97 |
| 5603030 | Method and system for destruction of objects using multiple destructor functions in an object-oriented computer system | 11-Feb-97 |
| 5602981 | Quickselect icon button on a computer display which redisplays the last view style activated by the icon button | 11-Feb-97 |
| 5598563 | Method of loading device drivers from ROM without requirement of system to have any harddisks or floppy drives and without using config.sys file | 28-Jan-97 |
| 5598520 | Methods and apparatus for hinting a font for controlling stem width as font size and resolution of output device vary | 28-Jan-97 |
| 5598519 | Method and system for direct cell formatting in a spreadsheet | 28-Jan-97 |
| 5598183 | System and method for computer cursor control | 28-Jan-97 |
| 5596755 | Mechanism for using common code to handle hardware interrupts in multiple processor modes | 21-Jan-97 |
| 5596726 | Method and system for buffering transient data using a single physical buffer | 21-Jan-97 |
| 5596347 | System and method for computer cursor control | 21-Jan-97 |
| 5594905 | Exception handler and method for handling interrupts | 14-Jan-97 |
| 5594898 | Method and system for joining database tables using compact row mapping structures | 14-Jan-97 |
| 5594847 | System and method for selecting free form objects associated with a selection region displayed by a computer | 14-Jan-97 |
| 5594462 | Calibrating data transmission line spacing on a frame-scanning display device for optically transmitting data to a portable programmable device | 14-Jan-97 |
| 5592670 | Avoidance of deadlocks in a demand paged video adapter | 07-Jan-97 |
| 5590347 | Method and system for specifying alternate behavior of a software system using alternate behavior indicia | 31-Dec-96 |
| 5590336 | Method and apparatus for performing overlapping service of multiple IDE peripheral devices | 31-Dec-96 |
| 5590318 | Method and system for tracking files pending processing | 31-Dec-96 |
| 5590267 | Method and system for scalable borders that provide an appearance of depth | 31-Dec-96 |
| 5588147 | Replication facility | 24-Dec-96 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5588100 | Method and system for creating a freeform drawing object | 24-Dec-96 |
| 5588099 | Method and system for automatically resizing tables | 24-Dec-96 |
| 5586328 | Module dependency based incremental compiler and method | 17-Dec-96 |
| 5586318 | Method and system for managing ownership of a released synchronization mechanism | 17-Dec-96 |
| 5585838 | Program time guide | 17-Dec-96 |
| 5583981 | Method and system for changing the size of edit controls on a graphical user interface | 10-Dec-96 |
| 5581760 | Method and system for referring to and binding to objects using identifier objects | 03-Dec-96 |
| 5581736 | Method and system for dynamically sharing RAM between virtual memory and disk cache | 03-Dec-96 |
| 5581686 | Method and system for in-place interaction with contained objects | 03-Dec-96 |
| 5579517 | Common name space for long and short filenames | 26-Nov-96 |
| 5579466 | Method and system for editing and formatting data in a dialog window | 26-Nov-96 |
| 5579223 | Method and system for incorporating modifications made to a computer program into a translated version of the computer program | 26-Nov-96 |
| 5577224 | Method and system for caching data | 19-Nov-96 |
| 5577187 | Method and system for tiling windows based on previous position and size | 19-Nov-96 |
| 5577173 | System and method of printer banding | 19-Nov-96 |
| 5574920 | Method for controlling power down of a hard disk drive in a computer | 12-Nov-96 |
| 5574907 | Two-pass defragmentation of compressed hard disk data with a single data rewrite | 12-Nov-96 |
| 5574840 | Method and system for selecting text utilizing a plurality of text using switchable minimum granularity of selection | 12-Nov-96 |
| 5572589 | Disc serialization | 05-Nov-96 |
| 5566068 | Method and system for locating field breaks within input data | 15-Oct-96 |
| 5565887 | Method and apparatus for moving a cursor on a computer screen | 15-Oct-96 |
| 5565886 | Method and system for rapidly transmitting multicolor or gray scale display data having multiple bits per pixel to a display device | 15-Oct-96 |
| 5561788 | Method and system for executing programs using memory wrap in a multi-mode microprocessor | 01-Oct-96 |
| 5561786 | Computer method and system for allocating and freeing memory utilizing segmenting and free block lists | 01-Oct-96 |
| 5561751 | System and method for displaying a color image using vector error diffusion | 01-Oct-96 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5559943 | Method and apparatus customizing a dual actuation setting of a computer input device switch | 24-Sep-96 |
| 5559884 | Method and system for generating and auditing a signature for a computer program | 24-Sep-96 |
| 5557723 | Method and system for customizing forms in an electronic mail system | 17-Sep-96 |
| 5557714 | Method and system for rotating a three-dimensional model about two orthogonal axes | 17-Sep-96 |
| 5557440 | Noise-insensitive optoencoding techniques with compensation for device variations | 17-Sep-96 |
| 5553215 | Method and system of sharing common formulas in a spreadsheet program and of adjusting the same to conform with editing operations | 03-Sep-96 |
| 5552982 | Method and system for processing fields in a document processor | 03-Sep-96 |
| 5551024 | System for identifying data records in a database using a data structure with linked parameters in a search range | 27-Aug-96 |
| 5550972 | Method and apparatus for efficient transfer of data to memory | 27-Aug-96 |
| 5548759 | System for storing executable code within a resource data section of an executable file | 20-Aug-96 |
| 5548305 | Method and apparatus for displaying color on a computer output device using dithering techniques | 20-Aug-96 |
| 5546518 | System and method for composing a display frame of multiple layered graphic sprites | 13-Aug-96 |
| 5544082 | Method and system for placing a computer in a reduced power state | 06-Aug-96 |
| 5537628 | Method for handling different code pages in text | 16-Jul-96 |
| 5537589 | Method and system for efficiently performing database table aggregation using an aggregation index | 16-Jul-96 |
| 5535324 | Method and system for dragging and plotting new data onto an embedded graph | 09-Jul-96 |
| 5530895 | System and method for computer interface board identification by serially comparing identification address bits and asserting complementary logic patterns for each match | 25-Jun-96 |
| 5530794 | Method and system for handling text that includes paragraph delimiters of differing formats | 25-Jun-96 |
| 5528742 | Method and system for processing documents with embedded fonts | 18-Jun-96 |
| 5526523 | Interface between operating system and operating system extension | 11-Jun-96 |
| 5522068 | Statistic-based reorganization of B-trees yielding an approximate optimal fill on substantially every page | 28-May-96 |
| 5519855 | Summary catalogs | 21-May-96 |
| 5517645 | Method and system for interfacing components via aggregate components formed by aggregating the components each with an instance of a component manager | 14-May-96 |
| 5517257 | Video control user interface for interactive television systems and method for controlling display of a video movie | 14-May-96 |
| 5515536 | Method and system for invoking methods of an object through a dispatching interface | 07-May-96 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5512921 | Visual display system having low energy data storage subsystem with date compression capabilities, and method for operating same | 30-Apr-96 |
| 5511197 | Method and system for network marshalling of interface pointers for remote procedure calls | 23-Apr-96 |
| 5510980 | Method and system for selecting and executing arithmetic functions and the like | 23-Apr-96 |
| 5510811 | Apparatus and method for controlling cursor movement | 23-Apr-96 |
| 5506983 | Method and system for transactioning of modifications to a tree structured file | 09-Apr-96 |
| 5504889 | Method and system for monitoring file attributes using bitmaps to determine group membership of files and to determine which files have been processed | 02-Apr-96 |
| 5504500 | User programmable orientation of cursor movement direction | 02-Apr-96 |
| 5499369 | Method and system for connecting objects using alert and running states | 12-Mar-96 |
| 5499335 | Method and system for providing standard resources in different natural languages | 12-Mar-96 |
| 5499334 | Method and system for displaying window configuration of inactive programs | 12-Mar-96 |
| 5497492 | System and method for loading an operating system through use of a fire system | 05-Mar-96 |
| 5495571 | Method and system for performing parametric testing of a functional programming interface | 27-Feb-96 |
| 5495566 | Scrolling contents of a window | 27-Feb-96 |
| 5490274 | Modified buddy system for managing disk space | 06-Feb-96 |
| 5485617 | Method and system for dynamically generating object connections | 16-Jan-96 |
| 5485574 | Operating system based performance monitoring of programs | 16-Jan-96 |
| 5485558 | Method and system for displaying color on a computer output device using dithering techniques | 16-Jan-96 |
| 5485460 | System and method for running multiple incompatible network protocol stacks | 16-Jan-96 |
| 5481667 | Method and system for instructing a user of a computer system how to perform application program tasks | 02-Jan-96 |
| 5473691 | System and method for computer data transmission | 05-Dec-95 |
| 5473344 | 3-D cursor positioning device | 05-Dec-95 |
| 5473343 | Method and apparatus for locating a cursor on a computer screen | 05-Dec-95 |
| 5471564 | System and method for dynamic printer timeout | 28-Nov-95 |
| 5471563 | System and method for automatic resolution reduction | 28-Nov-95 |
| 5467472 | Method and system for generating and maintaining property sets with unique format identifiers | 14-Nov-95 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5455600 | Method and apparatus for mapping colors in an image through dithering and diffusion | 03-Oct-95 |
| 5452406 | Method and system for scalable borders that provide an appearance of depth | 19-Sep-95 |
| 5450536 | Technique for automatically resizing tables | 12-Sep-95 |
| 5446887 | Optimal reorganization of a B-tree | 29-Aug-95 |
| 5442793 | Method and system for locating an inherited virtual function member of a derived class | 15-Aug-95 |
| 5442751 | Method and apparatus for processing data through a register portion by portion | 15-Aug-95 |
| 5437036 | Text checking application programming interface | 25-Jul-95 |
| 5437013 | Method and system for network communications using raw mode protocols | 25-Jul-95 |
| 5437006 | Spreadsheet command/function capability from a dynamic-link library | 25-Jul-95 |
| 5432941 | Method and system for dynamically configuring a software system using configuration groups | 11-Jul-95 |
| 5432936 | Method for implementing pointers to members in a compiler for an object-oriented programming language | 11-Jul-95 |
| 5432928 | Updating objects stored in a permanent container while preserving logical contiguity | 11-Jul-95 |
| 5432924 | Method and system for selectively applying an appropriate object ownership model | 11-Jul-95 |
| 5430878 | Method for revising a program to obtain compatibility with a computer configuration | 04-Jul-95 |
| 5426760 | Method and system for storing index information using a base number of bits | 20-Jun-95 |
| 5426729 | Method and system for nonuniformly adjusting a predefined shape | 20-Jun-95 |
| 5418956 | Method and system for avoiding selector loads | 23-May-95 |
| 5416726 | Method and system for placing a computer in a reduced power state | 16-May-95 |
| 5414445 | Ergonomic pointing device | 09-May-95 |
| 5412807 | System and method for text searching using an n-ary search tree | 02-May-95 |
| 5410705 | Method for generating an object data structure layout for a class in a compiler for an object-oriented programming language | 25-Apr-95 |
| 5394518 | Luminance sensitive palette | 28-Feb-95 |
| 5392427 | System for updating data stored on a flash-erasable, programmable, read-only memory (FEPROM) based upon predetermined bit value of indicating pointers | 21-Feb-95 |
| 5381521 | System and method of rendering curves | 10-Jan-95 |
| 5381347 | Method and system for displaying images on a display device using an offscreen video memory | 10-Jan-95 |



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| Patent Number | Title | Issue Date |
|---|---|---|
| 5375241 | Method and system for dynamic-link library | 20-Dec-94 |
| 5371891 | Method for object construction in a compiler for an object-oriented programming language | 06-Dec-94 |
| 5371885 | High performance file system | 06-Dec-94 |
| 5371847 | Method and system for specifying the arrangement of windows on a display | 06-Dec-94 |
| 5369770 | Standardized protected-mode interrupt manager | 29-Nov-94 |
| 5367617 | System and method of hybrid forward differencing to render Bezier splines | 22-Nov-94 |
| 5363487 | Method and system for dynamic volume tracking in an installable file system | 08-Nov-94 |
| 5363479 | System and method for rendering bezier splines | 08-Nov-94 |
| 5357605 | Method and system for displaying patterns using a bitmap display | 18-Oct-94 |
| 5357603 | Method and system for changing a shape type while maintaining existing graphic characteristics | 18-Oct-94 |
| 5341464 | Luminance emphasized color image rendering | 23-Aug-94 |
| 5339432 | Method and system for providing user control of device driver configuration | 16-Aug-94 |
| 5327562 | Method for implementing virtual function tables in a compiler for an object-oriented programming language | 05-Jul-94 |
| 5301326 | Method and system for controlling the execution of an application program | 05-Apr-94 |
| 5300946 | Method for outputting transparent text | 05-Apr-94 |
| 5297284 | Method and system for implementing virtual functions and virtual base classes and setting a this pointer for an object-oriented programming language | 22-Mar-94 |
| 5287514 | Method and system for customizing a user interface in a computer system | 15-Feb-94 |
| 5287417 | Method and system for recognizing a graphic object's shape, line style, and fill pattern in a pen environment | 15-Feb-94 |
| 5281958 | Pointing device with adjustable clamp attachable to a keyboard | 25-Jan-94 |
| 5274751 | System and method for printing graphic objects | 28-Dec-93 |
| 5272628 | Method and system for aggregating tables having dissimilar formats | 21-Dec-93 |
| 5268675 | Computer command and pointing device with multi-axis engagement assembly | 07-Dec-93 |
| 5265261 | Method and system for network communications using raw mode protocols | 23-Nov-93 |
| 5261101 | Method for calling and returning from subroutine that is invoked by either a near call or a far call | 09-Nov-93 |
| 5261051 | Method and system for open file caching in a networked computer system | 09-Nov-93 |



MTC-00030616_0117

| Patent Number | Title | Issue Date |
|---|---|---|
| 5257370 | Method and system for optimizing data caching in a disk-based computer system | 26-Oct-93 |
| 5255356 | Method for hiding and showing spreadsheet cells | 19-Oct-93 |
| 5247658 | Method and system for traversing linked list record based upon write-once predetermined bit value of secondary pointers | 21-Sep-93 |
| 5231577 | Method and system for processing formatting information in a spreadsheet | 27-Jul-93 |
| 5220675 | Method and system for customizing a user interface in an integrated environment | 15-Jun-93 |
| 5218697 | Method and system for networking computers having varying file architectures | 08-Jun-93 |
| 5214755 | Document processing method and system | 25-May-93 |
| 5204960 | Incremental compiler | 20-Apr-93 |
| 5187468 | Pointing device with adjustable clamp attachable to a keyboard | 16-Feb-93 |
| 5146580 | Method and system for using expanded memory for operating system buffers and application buffers | 08-Sep-92 |
| 5138303 | Method and apparatus for displaying color on a computer output device using dithering techniques | 11-Aug-92 |
| 5125077 | Method of formatting data from a mouse | 23-Jun-92 |
| 5027273 | Method and operating system for executing programs in a multi-mode microprocessor | 25-Jun-91 |
| 5021974 | Method for updating a display bitmap with a character string or the like | 04-Jun-91 |
| 4974159 | Method of transferring control in a multitasking computer system | 27-Nov-90 |
| 4967378 | Method and system for displaying a monochrome bitmap on a color display | 30-Oct-90 |
| 4866602 | Power supply for a computer peripheral device which positions a cursor on a computer display | 12-Sep-89 |
| 4825358 | Method and operating system for executing programs in a multi-mode microprocessor | 25-Apr-89 |
| 4779187 | Method and operating system for executing programs in a multi-mode microprocessor | 18-Oct-88 |



MTC-00030616_0118

Exhibit

I

# Shared Source vs. Open Source: Panel Discussion

08/09/2001

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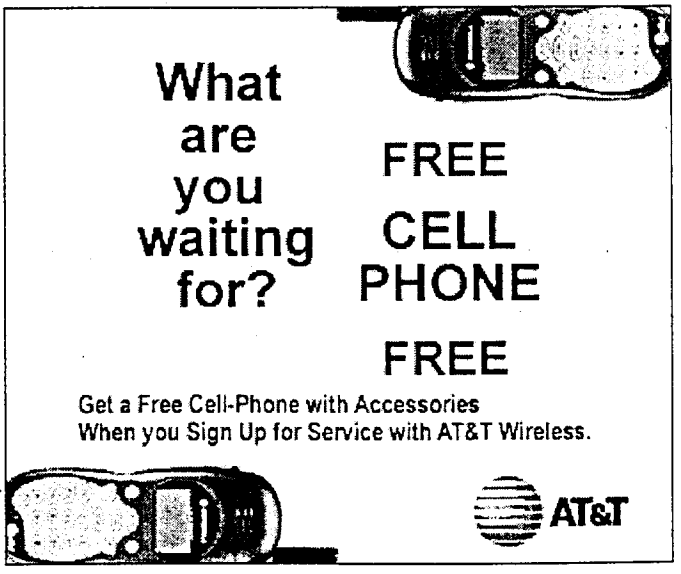
Browsers
Certification
Community
Database
Desktop
Device Drivers
Firewalls
Getting Started
Kernel

Part 1: The Debate

**Tim:**
Sounds like some of Michael's speech was maybe a treaty with the free software people. [laughter]




Anyway, there probably are divisions within Microsoft just as there are divisions within our community. It's kind of interesting, because the diversity of opinions often leads not to division but to strength, and I think we're going to demonstrate that strength as we hear from a number of people who are prominent in our community and are allied under the banner of the core principles of open source, but who do have different takes on how it works and what's important about it.

Anyway, I'd like to invite up the rest of our panel. Michael and Craig, you may want to come back up and sit down.

I have here with us Brian Behlendorf, who's one of the cofounders of the Apache Project. [applause] I'll just start down at the far end, then.

Clay Shirky is a partner at an incubator called the Accelerator Group. He's also a well-known

**Panelists:**

Clay Shirky
Accelerator Group
Shirky.com

Michael Tiemann,



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commentator on coming technologies, and he's recently done some very interesting thinking about some of Microsoft's new technologies, in particular Hailstorm. That's why he's here to talk to us. [applause]

Dave Stutz is, I believe, now the program manager for the shared source implementation of the common language run time and so forth. Is that the appropriate designation?

**Dave:**
Sure. It'll work.

**Tim:**
Dave is —

**Dave:**
— Craig's Mini-Me .

**Tim:**
Yeah, I was going to say, I don't know, maybe something like, if you had the hat [reference to the red hats on heads all through the room], I would say, "Mini-Me. Do not chew on your hat." [laughter]

Next in line is Mitchell Baker, who's known as the Chief Lizard Wrangler at Mozilla.org. Mitchell is also the person who wrote the Mozilla license, so she's done a lot of thinking about free software and open source licenses and the needs of corporations. [applause]

We have with us Ron Johnson, who's an attorney at Arnold & Porter and the chair of the 22nd Annual Computer and Internet Law Institute.

And obviously you know Craig, and I already introduced Brian.

So, Craig, I don't know if you wanted to respond at all to any of Michael's comments [laughter], or whether you want to hear from a few other people before we get there.

**Craig:**
I'll just offer one general thought, which is, you know, in some sense it's easy to poke fun or think you know what is the look-in from the outside and to be at Microsoft.

We're a company now of 50,000 people, and among any community of 50,000 people, particularly fairly smart people, you're going to have a lot of people who think carefully about a lot of issues, and feel passionately as you do about a lot of issues. So I don't think we're embarrassed at all to find that

Chief Technical Officer
RedHat

David Stutz
Software architect
Microsoft

Mitchell Baker
Chief Lizard Wrangler
Mozilla.org

Ronald Johnston
Partner
Arnold & Porter

Craig Mundie,
Senior Vice President
Advanced Strategies
Microsoft

Brian Behlendorf
Founder & CTO
CollabNet

Tim O'Reilly
Founder & President
O'Reilly & Associates



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people would come forward at Microsoft and ask questions or ask whether we do the right thing or not.

What I can tell you is that there is a single-purpose focus in the management of the company. The leadership of the company is not uncertain about what we're doing. We welcome people asking questions in the company, but ultimately we recognize our job is to make decisions and provide consistent leadership. And so if people don't like what the company wants to do, there's no indentured servitude. You know, they're free to go do something else. But the company is clear about what it will do. And I can just tell you that as a member of a management committee of the company, and while listening to Michael's comments that many of the ways he characterizes what he thinks may go on inside the company in terms of a civil war or anything, frankly [it] just doesn't exist. It may be fine to ruminate about what you think could exist or does exist. I can tell you quite specifically, there's no civil war at the management level and, to me, no observable civil war among the rank and file either. So that's one thought I'd leave with you today.

**Tim:**
So, Brian, you're obviously someone who has, you know, come up from the GPL side of the house but from the university style of license regime. Clearly you have done a lot of thinking about what licenses you would choose and why. Do you have any thoughts on that, or any things you'd like to talk to Craig about with regard to the BSD orientation.... [laughter]

Left to right: Clay Shirky, Michael Tiemann, David Stutz, Mitchell Baker, Ronald Johnston, Craig Mundie, Brian Behlendorf.

**Brian:**
Sure. [more laughter] You don't want to call on anybody else, do you? [laughter]

One of the slides in [Craig Mundie's] presentation was actually a very useful slide. It showed that there is a relationship — a set of relationships — between the public research through universities, corporations, users, and government. I think what *we've* seen is that it's not one-directional like that. What we've seen is that it's actually bi-directional in all those things — in fact, bi-directional across universities and consumers and government and business and all those directions.



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And so while Apache, for example, is under a BSD-style license, it was very important while we were building the Apache community that we not only have other corporations use it and adopt it into their commercial products, but also that we communicate to those companies the need to reinvest back, the need to build Apache itself as a strong force as they build up the momentum behind it. And to us, even though the obligation isn't there to share their code back, the companies that are participating in the Apache Software Foundation and even more broadly, within the BSD communities, understand the need to reinvest, to build it back up. And that's one thing that I think may be missing in some of this debate: the creation of licenses, the creation of regimes that really are bi-directional, that really put all the participants at an equal level.

I totally welcome Microsoft exploring shared source licenses. I think for proprietary software, I'd much rather have the code to it than not have the code to it. I think we're going to see a big difference in the amount of resources that people will put in to a shared source license regime versus one that is an open source license regime. So it's all a matter of experimentation. I'm all for experimenting with different licenses. I think history has shown that open source is a more efficient way to go in certain circumstances. At the same time, there are 10 million Microsoft developers out there who might have a different opinion. I think it's worth finding out.

**Craig:**
One thought on that. I agree with you that it is bi-directional, and in a way, when you look at all the different licensing regimes, you're correct to point out that there are many different ways to give back. In a sense, giving the *code* back is just one way. You know giving taxes to the government to give back is essentially another institutionalized way.

**Tim:**
So how much does Microsoft pay in taxes? [laughter]

**Craig:**

It's a lot. I don't know the exact number this year, but it's billions. One of the things that we've been fascinated by, and I guess you could say it's some benchmark of this, [is that] this week, as I kind of predicted in May, we actually came out with this Windows CE source license. I guess we actually posted it three, maybe four days ago. And the first three days, ten thousand people downloaded the entire source tree. And we had had a kit that we had offered to people who just wanted to use it for commercial purposes and we had sold about four

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Debate and Panel Discussion

Technetcast of the debate

Part 1: The Debate

OSCON Conference Coverage

For the bulk of the panel discussion, Dave Stutz and Craig Mundie defended Microsoft's business position to the other panelists. Do you think this conversation helped bridge the gap between open source and Microsoft?

**Post your comments**



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hundred of those in the last year. I guess only time will tell whether people will decide that they really want to make an investment or whether they're just curious. But we were quite happy to see that when we offered it for non-commercial use — really targeting the academic environment, primarily — that ten thousand people in the first three days decided to take it and take a look at it. So we're enthused with that kind of reaction, and it is, you know, some way of giving back. You know, we give back financially, we give back in the standards world, as Michael said, with XML and other things. I mean, well before XML, we've been a big participant in the process of standardization, and so I think we will continue to seek ways to share and give back.

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Exhibit

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# Microsoft patents a threat to open source

By *Peter Galli*, eWEEK
August 28, 2001 10:55 AM PT
URL: http://techupdate.zdnet.com/techupdate/stories/main/0,14179,2808548,00.html

Members of the open-source community are becoming increasingly concerned by ongoing moves from Microsoft Corp. to acquire a range of software patents that the company can potentially use down the line to attack and try to restrict the development and distribution of open-source software.

And much of that concern is being directed toward open-source desktop company Ximian Inc.'s Mono Project, an open-source initiative to replace part of Microsoft's .Net product line, including a way to run C# programs and the .Net Common Language Infrastructure on Linux.

Leading the charge is Bruce Perens, Hewlett-Packard Co.'s open-source and Linux strategist who helped to craft the Debian Social Contract, which later became the Open Source Definition.

Perens told eWEEK in an interview on Monday in San Francisco ahead of the LinuxWorld conference that an increasing number of people in the open-source community are very concerned about the Mono Project and by Microsoft's initiative to buy software patents and to patent as much of its own technology as it can.

"If I were in Microsoft's position, I would be looking through all the patents I had been buying that are potentially being infringed by open-source software," Perens said. "They are going to hold onto these patents until they see what happens with the antitrust case against them. Once that is resolved, they will then use them against the open-source industry."

But Doug Miller, the director of competitive strategy for Microsoft's Windows division, told eWEEK he was unaware of any intended move by Microsoft to acquire software patents. "Not to say it isn't happening, but I'm not aware of any such planned attack," Miller said.

"With that being said, we strive to protect our intellectual property, and holding patents is one of the ways we do that. But nothing has changed, we're certainly no more aggressive now about filing patents or other copyright protections than we have been over the past couple of decades," he said.



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But Perens isn't buying this, saying that with regard to the Mono Project, Ximian needs to draw up an advance agreement with Microsoft that states the Redmond, Wash., company does not intend to assert its patents on this technology.

"If we don't get that agreement, I'll be happy to see Ximian implement this stuff, but I'm not sure I'll touch it," Perens said. "I'm also not sure I want to let it touch the rest of GNOME [GNU Network Object Model Environment] very much because if GNOME becomes dependent on it, it would have a potential weakness there."

Ximian is an active contributor to the GNOME Project, which has built a desktop environment for the user and a powerful application framework for the software developer. Ximian in fact this week launched two versions of the boxed Ximian Desktop, which includes the GNOME desktop interface.

No Linux app is safe

But Miguel de Icaza, the chief technical officer at Ximian, disagreed with Perens, saying that any application that runs on Linux could be infringing on some hidden and unknown patent owned by Microsoft.

"Microsoft has not historically used its patents in an aggressive way," he said. "They've previously used it to defend themselves. While I suppose they might use it for attack purposes going forward, I don't think they'll go after Mono as we are only in the early stages and are sticking to developing technology from existing concepts. There's nothing new in .Net; it's just a combination of existing technologies."

Nat Friedman, Ximian's vice president of product development, also stressed that Ximian is not co-operating with Microsoft on the Mono Project. "They are not assisting us in any way," he said. "We have talked to them twice - that's the extent of it.

"We believe this technology and infrastructure is too important to be controlled and wholly owned by Microsoft. We believe there has to be a free implementation of it out there," he said.

But while Perens acknowledged that Microsoft has largely not invoked its patent rights to date, he said, "Past performance is not predictive of future behavior. Microsoft's [senior vice president] Craig Mundie has previously said the company intends to enforce all its patents."

An example of a patent held by Microsoft that could be detrimental to open-source initiatives going forward was clearly demonstrated in the password change protocol found in Samba, he said. Microsoft had modified the password change technology and then patented the new protocol of the password change.

"This means you cannot make a compatible implementation without potentially infringing on a Microsoft patent," Perens said. "We went ahead and did it anyway, and Microsoft hasn't enforced that patent, but it doesn't mean they never will. This is a telling case as they've taken what was an open protocol and deliberately put in a patent to close it and then introduced the patented feature in all new systems."



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Samba, which develops open-source software that lets a Linux machine share files or manage print jobs like a Windows file server or print server, has included this patented technology. "In the climate of antitrust it would be nice to force them to overplay their hand, and Microsoft overplays their hand consistently," Perens said.

But while Jeremy Allison, a lead developer for Samba, confirmed that Microsoft holds the patent for the password change protocol, he believed this "was done with no malicious intent at all. All big companies patent software for protection. I also think this is probably a defective patent anyway," he said.

Microsoft's Mundie said he wasn't familiar with the Samba example, "but in any case where someone reverse-engineers technology -- and there's certainly lots of this in the Linux world -- there's always the risk they'll infringe on someone's patent. We highly value intellectual property and the laws created to protect this," he said.

But Samba's Allison said the Mono Project is "a very bad idea -- in fact, it's a terrible idea. By doing this they are helping .Net become a standard. ... .Net will become important if a majority of the clients use it, but it will not be mandatory if only, say, 50 percent use it, as Web sites will then still have to do Java stuff," Allison said. "By implementing an open-source version of this, they are making it easier for Microsoft to get to that magic monopoly figure.

"And when they've got that on the client, all the servers are in trouble. Look at the way they leveraged their client base to take over services like authentication, e-mail with Exchange, and DNS services by tying Active Directory to DNS. It's a continual case of taking their monopoly on a client system and tying servers to it," he said.



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