MICROSOFT'S NEW OPERATING SYSTEM—LONGHORN

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ABSTRACT

There has been great anticipation and excitement from computer users regarding the release of Microsoft's new operating system, code-named Longhorn. Longhorn was originally going to be released in early 2005, but now Microsoft executives have announced that Longhorn will not be released until 2006.

Keywords: Longhorn, Window XP Service Pack 2, Next-Generation Secure Computing Base, WinFX.

INTRODUCTION

There has been great anticipation and excitement from computer users regarding the release of Microsoft's new operating system, code-named Longhorn. Longhorn was originally going to be released in early 2005, but now Microsoft executives have announced that Longhorn will not be released until 2006 [12]. One direct result of this delay is the release of Windows XP Service Pack 2, a security-centric update for Windows XP [11].

Microsoft holds the majority of the market share right now, if the release of Longhorn does not happen in 2006 Microsoft may risk losing some of its market share. It is obvious that many users are getting anxious, upset, and very skeptical of Microsoft concerning the release of Longhorn.

WINDOWS XP SERVICE PACK 2

Microsoft has released an interim solution known as Windows XP Service Pack 2 (SP2). This service pack can be downloaded from Microsoft's website. Although the intentions of Microsoft with SP2 was to keep customers satisfied until the release of Longhorn, many compatibility issues have arisen with SP2 that have affected the way many people feel towards the delay, and Microsoft. SP2 is designed to enhance security in a variety of ways. Microsoft had originally intended for SP2 to automatically send updates by default; however, this turned out to be illegal in some countries, so now when SP2 is downloaded users have to turn the automatic updates button "on" or "off". With SP2, Microsoft has installed automatic updates for both critical and security patches for Windows, as well as for some other applications. With SP2 if an application is interrupted, Windows has an update that restarts the application programs where the interruption occurred [11].

Security Measures Implemented in SP2

With SP2 there is also a new Security Center which helps to keep important information visible. Its tray icon will turn red if a problem arises with the application, or it will turn yellow if new

updates are available. Double-clicking an icon will make the Security Center window pop-up, and it will show the security status in three of the following areas: Firewall, Automatic Updates, and Virus Protection. SP2 also monitors third-party antivirus and firewall products that direct and warn the user if they are turned off or if they need to be updated because they are out of date. The Security Center provides direct links to automatic updates, Internet options, and the Windows firewall. Most of the security enhancements to SP2 are hidden to provide tighter security than in previous operating systems. It offers tighter security controls over protocols such as Remote Procedure Call (RPC), Distributed Common Object Model (DCOM), and Web-based Distributed Authoring and Versioning (WebDAV) [11].

Recently, Microsoft's main focus has been on three main tasks: building stronger security into its software, resolving antitrust complaints against the company, and upgrading its Windows operating system. Due to Microsoft's emphasis on these three main tasks, Longhorn will be released without one of its original features, which was a technique designed to combine all its sophisticated search capabilities into all desktop applications. Microsoft's strong focus on security with SP2 has actually taken time and resources away from the development of the Longhorn operating system. Instead, programmers have been fixing Windows XP rather that working on and tweaking Longhorn [2].

Compatibility Issues with SP2

According to Microsoft, SP2 shows enhancements and features never seen before, and it gives users an idea of what is to come when the long awaited Longhorn operating system does arrive [10]. The main problem with SP2 has been its enhanced security features. Some applications currently on desktops will need to be upgraded or re-engineered prior to downloading SP2 so the applications will not fail. Other problems that have arisen include Microsoft Systems Management Server Remote Tools not being able to remotely handle clients running SP2, the Systems Management Server Administrator console not being able to access Windows Event Viewer or System Monitor, and the firewall disabling Client Push Installation [10]. Businesses and home users using Windows NT, 95, 98, 2000 have to decide on whether to upgrade their current systems. Randle has stated the following, "We encourage all our customers to move to Windows XP with the introduction of SP2. Randle did confirm that users did not have to feel obligated to upgrade their systems and those users of older operating systems will continue to be supported. Randle stated, "We will never walk away from our customers and we will continue to issue support and patches." Firms who are running XP should fully test SP2 before implementing it throughout their organization [10].

Longhorn

Longhorn is Microsoft's most ambitious operating system upgrade in over a decade, which includes both an extensive redesign and major changes in the application programming interface (API). The Longhorn operating system will build on Windows XP and Windows server 2003 code bases and also on the .NET framework, while being consistent and compatible with existing networks. There are many goals that Microsoft hopes to achieve after the release of Longhorn, which include making Windows more productive and engaging, improving security and reliability, and providing support for media-aware applications. Although the expected shipment

date is expected in 2006 or 2007, many are hopeful about the new operating system. The new 3D interface will be an exciting new look for Longhorn, as well as WinFS, the file system designed to better organize, categorize, and expose material on modern hard drives. According to researchers, Microsoft has attempted to simplify Windows applications and to make it easier to write graphically rich applications with increased reliability and security [4].

The Basics of Longhorn

Longhorn will come in more than one version. The versions of Longhorn that will be available are desktop and server versions, a 64-bit version, and versions that will be the same as Windows XP Media Center Edition and Tablet PC Edition. The installation and maintenance of Longhorn is expected to be easier than in any prior operating system. The Windows pre-installation software is mostly graphical, and it lets the user interact with it so most of the installation can be left to run unattended by the user. Longhorn is written in "managed code" on top of the company's .NET framework. Managed code automatically handles tasks such as memory allocation and boundary checking so it is not as susceptible to bugs. Also, the .NET framework is good for developers when it comes to packaging applications. Along with all the installation changes, Longhorn's network-sensing and auto configuration features will also improve. Longhorn's infrastructure will also improve allowing smaller networks to manage multiple systems without heavy-duty equipment. More support for mobile devices including instant resume for notebook computers and synchronization with Personal Digital Assistant's (PDAs) will be included in Longhorn. Security will be a major concern utilizing many of the same features which are currently being used in XP and SP2, one example being the Windows firewall. Longhorn will, however, have its own new high-security environment known as Next-Generation Secure Computing Base (NGSCB). The NGSCB is capable of protecting sensitive information from other programs that might try to access it for illegitimate purposes [4].

New Looks Added to Longhorn

The user interface for Longhorn is called Aero, which will be available in two tiers. The first tier is known as standard Aero and the second one is known as Aero Glass. The Aero Glass will require more high-end equipment like a DirectX 9-compliant 3D graphics processor with AGP 8X or PCI Express support and at least 64MB of Random Access Memory (RAM). Aero Glass will support high-end graphics capabilities with 3-D images, animations, and transparency. Some say that Microsoft may be trying to keep up with Apple in the interface department. Soon, users will be able to find out for themselves when Longhorn does arrive [4].

A new task scheduler and command line interpreter, code-named Monad, will be available for high-end users. Just as one can write batch files from a command line, Monad supports the pipelining of object-oriented cmdlets, which are scripts that make it easier to share information and objects or send queries to more than one application at a time [4].

New Features Included with Longhorn

Longhorn will include WinFX, which does not stand for anything, but from researching other articles, one can see that a part of WinFX, known as WinFS, has been deleted from the operating

system so that it can be released sooner. WinFS will be included in this research so that one can get an idea of how it was going to be designed, and what capabilities it was designed to have because it was supposed to be an integral part of the new operating system. WinFX is made of three subsystems: Avalon (presentation), WinFS (data storage), and Indigo (communication) and each one will be briefly discussed below. Avalon is the graphics application processing interface (API) that allows Aero to exist, and it displays common API's that exist in Windows now, such as DirectX, GDI+, and Windows Forms. The goals of Avalon are to simplify applications that combine capabilities such as dialogs and animations, and to reduce central processing unit (CPU) context switching, which eliminates bottlenecks during video playback. In Avalon, graphics are vector-based, rather than bitmapped, making it easier to scale and add visual effects to graphics. Also, if a user switches between a standard 96-dpi monitor to a higher-resolution monitor, the font and icons will not shrink or change after the switch. Also, individual applications can write to a private canvas and a Desktop Compositing Engine will decide how to manipulate, apply effects, and overlay individual programs. Furthermore, Avalon will allow extensive programming as well, which will be known as Extensive Application Markup Language (XAML). XAML gives users a better way to build sophisticated user interfaces, while leaving core development tasks and assignments to developers. This will include support for 3D with built-in lighting and texturing effects, as well as "hit-testing, which is figuring out what the user clicked on in a complex 3D environment" [4].

Microsoft Removes WinFS from Longhorn

According to Microsoft, in order to hit its targets for delivering Longhorn in 2006 and its server operating system in 2007, the deletion of WinFS was necessary [13]. This feature, WinFS, has been pushed back in order to give Microsoft more time to focus on traditional operating system concepts and features including productivity, deployment, reliability, and security. Jim Allchin, group vice president of platforms, stated that "Microsoft had to make tradeoffs in order to deliver to corporate customers and consumers a new product, which is highly anticipated, in a reasonable amount of time" [3]. WinFS will be in "beta testing" when the Longhorn client is released. According to Greg Sullivan, lead product manager on Microsoft's Windows client team, WinFS is being developed independently of the client and server operating system, and it will be delivered separately after the release of Longhorn. After WinFS is finished, it will be compatible enough to be installed into the existing operating systems [13].

Microsoft Deals With Skeptics and Critics

To soften the criticism concerning the deletion of WinFS from Longhorn, Microsoft said that it plans to make the next operating system's graphics and communications system not only available for users of Longhorn, but also for users of Windows XP and Windows Server 2003, hopefully starting in 2006. This will have a great impact on the number of computers that can run programs initially designed for Longhorn. According to Microsoft, this will inevitably increase the incentive for developers to write programs and software for the new operating system. According to Will Poole, Microsoft's senior vice president, even with the deletion of WinFS, the company still remains solid on its stand that Longhorn will still deliver high value and performance to customers [1].

The deletion of WinFS from Longhorn is not a surprise to some, but it is a disappointment. According to Thomas Grove, a systems engineer at Oregon State University in Corvallis, the WinFS feature of the Longhorn interested him the most due to its file system speed, less-frequent file system degradation, faster data retrieval, and the connection and integration between local and network data. Groves also stated, "WinFS has the greatest potential to revolutionize Windows." Another critic, Ethan Roberts, an application architect from Winterthur North America Incorporated, is also disappointed with the deletion of WinFS so much that he feels Microsoft always disappoints their customers and users so much that broken promises have turned out to be a pattern for the company. He says that Microsoft continually promises to make all these changes and add new features to its products, which in turn helps it to retain its dominant share in the market, but "it's all our (users) fault because we (consumers) continue to put up with it, therefore, Microsoft has no incentive to change." Microsoft continually makes promises after promises and always manages to have good reasons behind every change to a promise [13].

Due to Microsoft's promises and then changes to its promises, Microsoft has created groups of skeptical customers all around them. Windows is installed on over ninety percent of the currently in place microcomputers. This has created a culture for Microsoft that is both resistant to change and a target for hackers, which. say some analysts, is the reason for the delay of Longhorn. Microsoft has realized that its customers needed more attention and help in security and reliability. Many skeptical business users say that no operating system will have the impact that Windows 95 had. Many business analysts' insist that Longhorn will merely represent a revolution in computing. Dwight B. Davis, vice president of Summit Strategies, suggests that the peak of the Windows cycle came with Windows 95 [12].

Microsoft's Actions Opens the Doors for Rivals

Many business analysts' feel that the delay in the release of Longhorn could damage not only Microsoft's reputation, but it also could damage Bill Gates reputation in the future. Also, since Longhorn will not be released until 2006, there will not be any changes or advances made to the operating system for almost two years because Microsoft will be busy working on Longhorn. This, in turn, gives customers fewer reasons to buy new computers because there will not be any new advances in either system or application software. Furthermore, it gives rivals an opportunity to attract Microsoft's consumer and big corporation accounts. Mike Ferris, product marketing manager at Red Hat Incorporated, which sells the rival Linux operating system, says that now customers can look to an open source as an alternative. Also, many in the industry feel that Microsoft could follow another rival's footsteps—Apple Computer Company. The Macintosh maker does keep its secrets and breakthroughs silent, so that when they do come out, customers are thrilled and stunned. That is exactly what happened with the new iMac computer that was recently released. The stumble with Longhorn gives rivals a chance and an opening to retract some of Microsoft's market share now that its popularity and integrity are being questioned [7].

Linux is capitalizing on Microsoft's weaknesses. Linux offers software that is low-priced, flexible, and crash-proof, yet many customers have not noticed it yet nor have reaped the benefits it has to offer. Because of charges for upgrades and technical changes to Longhorn,

Microsoft is left vulnerable. Linux distributor Red Hat came out with a desktop-productivity version in April that runs on Linux, which will receive updates next year. Novell, which has acquired SuSE Linux AG and Linux desktop software maker Ximian Incorporated, is planning its own launch by the end of the year. Sun Microsystems has been selling software suites to companies for a hundred dollars per user and has won a contract with Wal-Mart Stores Incorporated to sell Linux-based computers on its website. Mike Ferris, the Red Hat marketing manager, said "The biggest challenge is helping people understand that they have a choice on the desktop." Both Red Hat and Novell feel positive that Linux's data center and its open-source community's development of a "security enhanced" version of Linux, could give its operating system an edge when it comes to security and keeping computers safe from viruses, something that has always plagued Windows users [8].

According to market researcher IDC, Windows accounted for almost ninety-four percent of operating system sales in 2002, Linux accounted for two point eight percent of sales, and Macintosh operating sales held two point nine percent of the market. By 2005, IDC predicts that Linux will double its share; however, what Linux lacks is the brand-name trust, familiar controls, and compatibility with files and desktop software that users use on a daily basis. Ease of use is very important, and Linux will never increase its market share until its desktop software becomes more user friendly. Also, there is an economic cost when switching from Windows to competing operating systems. However, Windows has attempted to counter Linux by introducing Windows XP Starter Edition, which is a lower priced version of Windows that will sell in Thailand, Malaysia, and Indonesia. Dell has begun to install Linux on its workstations and servers. Yet, it is still hesitant to install Linux on its personal computers. The success of Linux in the future will depend on its vision of becoming more dominant in the market, coupled with its attempts to offer its operating system in Hewlett Packard notebooks and Dell's workstations and servers. There is no doubt that within a short period of time, Linux will become more apparent and its number of users will soon rise [8].

Another rival, Apple is also joining in the crusade against Microsoft. Apple's next operating system X release, Tiger 10.4, will be released early in 2005. It will apply a features to the operating system known as iTunes. An application known as Dashboard will be used, which will provide access to mini JavaScript applets, known as widgets. These widgets include a calendar, stock ticker, and sticky notes. Also, the new operating system will include graphics architecture, support for the new H.624/AVC (Advanced Video Coding) standard, and a new interface called VoiceOver. Apple's Xcode 2.0, a visual application, will add sixty-four bit support and will help the company to increase the number of applications for the Macintosh operating system, which has always lagged behind Windows [9].

Some Longhorn Issues in Early 2005

When Microsoft delivers a beta version of Longhorn during the first half of 2005, it will include support for "auxiliary displays," [5]. Microsoft will deliver in March of 2005 early developer releases of two of the three key pillars of its next major version of Windows, code-named Longhorn. These so called "Community Technology Preview" (CTP) WinFX releases will be made available to developers in March 2005. The releases also will include a new build of Visual Studio 2005, Microsoft's next generation tool suite [6].

CONCLUSION

Microsoft is faced with a lot of pressure, and it has many credibility issues surrounding the release of its Longhorn operating system technology. The release of Windows XP SP2 has caused numerous compatibility issues. Although Apple and Linux developers have a big challenge ahead of them to gain more of personal computer market share, if they keep applying pressure the success that they are currently achieving will continue. If they continue to release products when expected—who knows, one day soon, it maybe one of these companies with the largest share of the pc market. The biggest issue and problem facing Microsoft, is its credibility due to delays, broken promises, and deletions from its original products. Microsoft releases great products and is very popular, but customers make companies popular and successful and if customers are not happy, they will change to other organizations. If Microsoft does not release Longhorn by 2006, and if Longhorn turns out to be a "flop," Microsoft's success in the future will more than likely suffer because customers are tired of being disappointed time and time again. For now, all Microsoft customer's can do is wait, and see what Microsoft has in store when and if Longhorn arrives in 2006.

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