

NetWare® 6.5 vs. Win2003

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NetWare 6.5 vs. Win2003

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Overview

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Microsoft's release of Windows* 2003 indirectly raises the question of solution selection between Novell and Microsoft. While improvements have been made to Win2003 in specific areas (particularly closing some security holes and a redesigned Web server), it still suffers from architecture and administration weaknesses which lead to deficiencies in the areas of scalability, openness, administration and security. In addition, the level of features and number of services that are available with Win2003 out-of-the-box are minimal when compared to those available with NetWare® 6.5.

Organizations that are on track to keep current with new IT technology and hold the line on current and future costs will find it enlightening to evaluate Win2003 feasibility in five general areas: business continuity, open source support, Web services, virtual office capabilities and total cost of ownership. This paper examines each of these areas and the NetWare advantages over Win2003 in each category.

At a high level, Win2003 and NetWare 6.5 fundamentally differ in the approach to creation of network computing solutions. NetWare provides the foundation and framework for a holistic solution to the problems of managing network resources and users—Novell® solutions build on strengths of openness, standards support and a strong foundation of scalability and reliability. Win2003 continues as a patchwork of point solutions that, at the GUI level, paint a picture of feature-rich completeness but underneath are a loosely linked collection of aged workstation technologies with new interfaces, names, and patched on server components. Windows is still focused on end-user, GUI-based applications—office applications, games, personal productivity—while network services are an add-on.

Novell advanced directory technology, combined with historically superior file and print methods and now comprehensive open source capabilities and Web services technologies, provide a foundation for revolutionary new capabilities that are not matched by Microsoft, even in the latest version. In addition, the strong performance design of NetWare continues to produce superior results in the areas of scalability and reliability.

BUSINESS CONTINUITY

How a network infrastructure holds up under conditions of normal use, dynamic changes, expansion and growth, and unforeseen disasters is of paramount importance to the ongoing viability of the organization depending on it. Inflexibility limits the ability to act or react to change; limited scalability hinders growth; and vulnerability can cripple or even eliminate an organization in the event of an unforeseen disaster.

Business continuity services for data access and recovery, workspace protection, and ongoing security are critical.

NetWare 6.5 provides a comprehensive set of business continuity services that eclipse those available in Win2003 and provide a necessary layer of protection during planned maintenance, reorganization and expansion as well as during unforeseen emergencies and disasters. NetWare 6.5 maintains advantages in the following areas:

NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
DATA ACCESS		
Novell iFolder. —Allows multiple client machines (home, notebook, office) to automatically synchronize files using a standard Internet connection. Files on any connected client are always current. Features include automatic synchronization on connection, conflict bin, delta change updates, Web access and reporting.	MS Intellimirror* Offline Folders—Contents of MyDocuments on client device are redirected to a network folder which synchronizes on connection. Connection must be dedicated (VPN or modem) or on corporate network.	Novell iFolder supports synchronization of many clients; Offline Folders only supports one client. Novell iFolder synchronization only updates the changes, not the entire file and hence changes are more efficient and less bandwidth intensive. Novell iFolder servers can be clustered and geographically distributed for geo-site failover protection. Using standard Internet connection eliminates cost and provides worldwide access.
Nterprise Branch Office™ —The Nterprise Branch Office appliance automatically provides data and directory synchronization services to corporate hub, in addition to local network, authentication, Web and printing services.	Win2003 has no equivalent to Nterprise Branch Office—build-you-own capability requires extensive hardware and manual configuration. Microsoft recommended configuration requires five servers for a branch office solution.	Nterprise Branch Office data and network intelligence is protected and managed through central hub—no need for local IT. Nterprise Branch Office users can remain productive even if then corporate connection is intermittent or temporarily terminated.
iSCSI SANs —NetWare 6.5 provides ability to cluster iSCSI SANs for geo-site failover. Supports up to 32 servers in a cluster.	Win2003 supports iSCSI but not clustered.	NetWare provides the ability to create inexpensive and secure data storage solutions. Using standard hardware and NetWare 6.5, reliable clustered geo-site failover systems can be created without exorbitant expense.
SnapShot and File Versioning —NetWare 6.5 includes SnapShot technology for open-file backup. SnapShot works with enterprise applications to ensure that all pending transactions are static before snap shot. Versioning provides immediate restoration of multiple previous versions of files.	Win2003 includes Shadow Copy of shared folders and open file backup. Files from client MyDocuments directory is copied to a file server. Open files can be backed up.	NetWare SnapShot incrementally updates delta changes and allows operation from the snap shot if needed—only changes are backed up, not entire file. File versioning allows users to retrieve previous version files without IT intervention.

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NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
DATA ACCESS CONTINUED		
<p>Native File Access—Access network resources using any client workstation: Macintosh* support for Mac OS* X native, NFS support and Web-based NFS server administration, improved Windows native file access.</p>	<p>Win2003—good Windows client support; Mac support limited to OS 9 protocol version; NFS support slower than previous NetWare releases (5.x, 6.0)</p>	<p>Eliminates need for any specific client—network is client-agnostic. Performance of NetWare NFS support is 5-6 times faster than Win2003. NetWare supports Mac OS X with roaming profiles. Access is encrypted on NetWare while Windows support is clear text.</p>
SCALABILITY		
<p>Clustering—NetWare base offering includes 2 nodes, expandable to 32 for enterprise-class, distributed clusters ensuring high availability. All applications are integrated with eDirectory™ and leverage eDirectory security to allow for service mobility between nodes in a cluster without compromising integrity.</p>	<p>Win2003 provides clustering only in Enterprise and Datacenter versions and is limited to 8 nodes. Due to Windows workstation-based architecture, all applications have heavy dependencies on the Windows Registry which is machine specific. This makes clustering more difficult and creates security vulnerabilities if not configured properly.</p>	<p>Basic level of clustering for any type of use is available at no extra charge. Clustering with up to 32 geographically distributed nodes provides enterprise-class computing power and scalability. Designed from the ground up based on enterprise-wide, industry leading directory service.</p>
<p>Novell Storage Services™ (NSS)—64-bit indexed storage system handles billions of directories and files with individual file sizes up to 8 terabytes while maintaining a small memory footprint. Software RAID 5 support without the need for a controller, splitting and moving of volumes, pool snap shots for backup, archive or restore, and Web-based management for partitions, disks, pools and volumes. NSS is a journaling file system designed for fast mounts and minimized disk repair (only requires rebuild if disk hardware failure occurs). NSS was first available in NetWare 5.0 in 1998.</p>	<p>The Windows file system (NTFS) added partial journaling in Windows 2000 but a disk checking utility was still required. Windows 2003 provides more complete journaling capabilities and a reduced need to run the disk checking utility (approximately one percent of disk crashes).</p>	<p>The mature file storage and handling capabilities of NetWare provide capacity as well as consistency. The result is less down time, fewer failures, and greater scalability than available with Win2003. Novell Storage Services has five years of field-proven experience compared to new Windows 2003 technology. Also, NSS provides better performance. NTFS performance slows as the number of files and folders increases. NSS does not experience performance degradation, even with millions of files in a given subdirectory. NetWare provides the ability to create inexpensive and secure data storage solutions. Using standard hardware and NetWare 6.5, reliable clustered geo-site failover systems can be created without exorbitant expense.</p>
ADMINISTRATION		
<p>iManager—NetWare 6.5 includes iManager, a Web-based management console that provides single-point access and control for all network resources. iManager manages servers, users, storage, printing, Web services, DHCP/DNS/FTP, iSCSI, NSS plus other Novell add-on products. iManager allows remote configuration of servers.</p>	<p>Win2003 includes several different management utilities (Microsoft Management Console—MMC, Group Policy Management Console—GPMC, etc.) for managing network users and resources. Management utilities are Windows-based.</p>	<p>iManager allows administrators to comprehensively manage all resources through one interface and that interface is accessible from any point on the Internet. Administration is simplified through consistency and administrators are free to work from any location that is convenient. Administrators can manage server processes and configure or upgrade servers remotely.</p>

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NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
ADMINISTRATION CONTINUED		
<p>Server Consolidation Utility—NetWare 6.5 Server Consolidation utility provides powerful flexibility for organizing, rearchitecting and creating high availability networks. Move, divide, combine and rearrange file, print and user configurations across multiple OS versions. Process is non-destructive-copies and reassigns ownership, inheritance, filters.</p>	<p>Win2003 includes migration tool that allows upgrade of an older domain to a new one. Passwords are migrated.</p>	<p>NetWare configuration solution is much more flexible for working between versions of software and is a valuable organization and architecture design tool. All information is migrated, not just passwords. Microsoft solution is primarily an upgrade tool to bring older versions current with Win2003.</p>
<p>eDirectory—NetWare 6.5 includes the world's leading directory service technology for securely and easily managing all network resources. The architecture for eDirectory provides constant protection, even if sections of a network are down. There is no dependency on a single machine.</p>	<p>Win2003 includes Active Directory* for managing users, file access and Windows devices. Based on domain model and integrated with other domains by forest connections.</p>	<p>eDirectory is still a significantly superior technology with inference and inheritance. Active Directory lacks relationship and context management of resources which limits the ability to manage by class. eDirectory is more flexible and extensible, more easily managed, better performing, more reliable, and more open.</p>
<p>Installation and Configuration—NetWare 6.5 includes new pattern deployment installation options that automatically configure and tune a server to a specific use. Preconfigured servers include:</p> <ul style="list-style-type: none"> • DNS/DHCP Server • exteNd™ J2EE* Web Application Server • LDAP Server • NetWare AMP (Apache, MySQL*, PHP/Perl) Server • NetWare Backup Server • NetWare Web Search Server • Nterprise Branch Office Server • Apache/Tomcat Server • Network Attached Storage (NAS) Server • iSCSI Storage Server • Management Server • Novell iFolder Server • Virtual Office Server <p>NetWare also supports Blade installs out of the box.</p>	<p>Win2003 provides various Role installations which are lists of components to include. IIS is not automatically installed because of potential security holes.</p>	<p>Pattern deployments in NetWare are tuned to a specific purpose with optimal server and parameter settings. Win2003 Roles are only selected components with no customized tuning or optimization. Installing Roles on top of each other is possible, creating opportunity for data loss and configuration corruption.</p>

OPEN SOURCE

NetWare 6.5 includes and fully supports AMP technologies—open source services that are widely used for creation of Web-based applications and services. Apache Web server, MySQL database server and PHP and Perl scripting languages are included and supported as part of the Novell open source solution. The Tomcat servlet container is also included. Using these component open-source technologies, Web application developers can develop enterprise-class, distributed applications for any type or size of organization. These services run on NetWare and benefit from high security and tight eDirectory integration.

Although open source AMP technologies run on Windows, Microsoft does not support them. The Windows solution to Web-based applications is IIS, SQL Server and a VB development environment. A major disadvantage is that solutions developed

using these technologies only work in a Windows environment. A database is not included with Win2003 and additional expense is incurred to obtain one.

Novell provides technical support for open source technologies included with NetWare 6.5 which gives organizations a higher level of confidence when deploying mission-critical applications. Novell’s MySQL offering includes a commercial license which gives developers the ability to create proprietary MySQL applications without open source license requirements. The commercially licensed version of MySQL means there are no user limitations and no open source requirements to make the application’s source code open and available. This gives developers freedom to create powerful commercial applications with the MySQL database for no additional license cost.

NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
AMP—NetWare 6.5 includes Apache Web server, MySQL database and PHP and Perl scripting and Tomcat servlet container for Web application development. These technologies are not license restricted and enable running of existing open source applications, databases and scripts.	Win2003 includes IIS, Microsoft’s Web server. SQL Server, Microsoft’s database server, is extra and development is done using Visual Interdev or Visual Studio.	NetWare provides everything needed to create new enterprise-class open source applications or to run existing open source applications out-of-the-box. To get the same level of application support from Microsoft requires additional products at incremental expense.
DirXML—NetWare 6.5 includes the DirXML Starter Pack with connectors for synchronizing Active Directory and NT Domains with eDirectory, as well as an eDirectory to eDirectory connector and password synchronization. Source authority is preserved and changes made in one location are reflected in others. XML is the open standard for information exchange and Web services integration.	Win2003 includes no comparable offering.	DirXML provides integration services for disparate directories including Active Directory and NT domains. Novell’s approach is accommodating, integrating and holistic. Win2003 approach is exclusive and based on Active Directory.
LDAP—eDirectory integrates with LDAP and can function as standalone LDAP server.	Minimal LDAP v3 compliance with limited support. Active Directory cannot be used as a standalone LDAP directory.	eDirectory can act as or replace any LDAP directory. Extensibility of eDirectory makes it possible to accommodate a wide assortment of resources for access and management through LDAP.

WEB SERVICES

Microsoft’s .NET strategy, while purporting to accommodate Java* and industry Web services standards, is still fundamentally proprietary. Microsoft “supports” Web services by being able to consume the protocols used for open source (SOAP, UDDI, WSDL, XML). However, the underlying processes are not open and not based on J2EE. In effect, Microsoft has written its own programming language environment that compiles open source as well as other languages into an intermediate language (Microsoft Intermediate Language—MSIL). This code is then executed by Microsoft’s Common Language Runtime (CLR) software. The disadvantage is that servlets or applications written to .NET services are not portable to other open source systems.

J2EE features that are not found in .NET include state management and persistence services. State management in J2EE simplifies coding and results in more rapid development.

Entity bean characteristics (persistence) make it easier to create and maintain components that are reusable, require less logic and are database independent. Other J2EE advantages include programmatic transactions and custom tags.

Novell’s exteNd technologies included with NetWare 6.5 provide several additional features that simplify development and decrease time to market. The exteNd Workbench™ provides enhanced J2EE component and Web-service creation wizards, visual designers, archive-based projects and one button deployment to J2EE application servers. exteNd Workbench is a J2EE-oriented IDE that providers can use to create, deploy, and maintain Web Services based on the JAX-RPC standard (Java API for XML-Remote Procedure Call). JAX-RPC enables Java technology developers to create SOAP-based interoperable and portable Web services and deploy them on any J2EE-compatible server. Workbench can also be used to develop Java-based Web service consumers that comply with JAX-RPC.

NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
J2EE—NetWare 6.5 fully supports J2EE standard 1.3 with ability to run open source code from large library of existing applications.	Microsoft .NET—Microsoft’s interpretation of openness—applications must be converted to run in Microsoft environment.	Applications written to J2EE are truly open and portable with insulation from operating system environment. J2EE specifications include load balancing and failover. Application and business logic is not platform dependent—now or in the future.
exteNd Application Server—NetWare 6.5 includes exteNd Application Server, a fully compliant and comprehensive, J2EE certified platform for building and deploying enterprise-class Web applications. It supports the full Java 2 Enterprise Edition standard including: JSP, EJB, JDBC, JNDI, JMS, JTA, JAAS, JMS, JAXP, CORBA, JavaMail*, and JAX-RPC.	Win2003—no application server included	J2EE applications can run securely on NetWare with all of the benefits of advanced enterprise features such as session-level failover, server-level failover, clustering support, floating JDBC connection pools with dynamic reconnect, remote server console and hot deployment. There is no need to purchase a separate Web application server.

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NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
<p>exteNd Workbench—Novell exteNd Workbench includes enhanced J2EE component and Web-service creation wizards, visual designers, archive-based projects and one-button deployment to J2EE application servers.</p>	<p>Win2003 does not include application development tools or IDE. Requires the .NET Framework and Visual Studio .NET at extra expense.</p>	<p>Novell solution provides development environment and full application server right out of the box. Deploy to multiple application servers (exteNd, WebSphere*, WebLogic*, Tomcat) and experience advantages of true portability.</p>

VIRTUAL OFFICE

Mobile employees in organizations, large and small, are requiring access to network resources and business systems from any location. A viable “virtual office” environment uses the public Internet as a network infrastructure, provides access via a user’s device of choice, and delivers a complete collaborative environment with applications, files and other services. Collaboration, freedom, mobility and self-support through Web-access are key concepts.

Microsoft does not provide virtual office services with Win2003. To some extent, the concept of virtual office services runs contrary to Microsoft’s product strategy where every client is Windows-

based whether it be Windows XP, CE or some variation. The client is a major source of revenue whereas in a virtual office environment, the client is any browser that supports open standards.

NetWare 6.5 includes a full-featured virtual office environment that provides users with access and collaboration tools using a standard Web server. With NetWare virtual office features, users can access files, collaborate with colleagues in virtual teams, print, e-mail, locate resources and services, and self-manage their virtual office environments. Win2003’s only offerings in this fast growing category are limited Internet printing and file sharing. Portal capabilities for virtual office and self-support are not available in Win2003.

NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
<p>iPrint—NetWare 6.5 includes iPrint allowing users to browse for available printers via an online map, automatically download and configure drivers, and print to the printer as if it were local.</p>	<p>Win2003 supports IPP (Internet Printing Protocol) but does not provide map location or auto-configuration. Printing jobs are not encrypted.</p>	<p>Internet printing with NetWare 6.5 is much simpler for users and much easier to administer. Microsoft print related IT costs are \$216 more per user/year than NetWare.</p>
<p>Virtual Teams—Virtual Teams provides specific Web-based applications for group communication and collaboration. End-users can create or join a virtual team with shared folders, Internet chat, team calendars, team discussions, team favorites and team Web pages.</p>	<p>Win2003 provides no comparable service.</p>	<p>Collaboration and team services are available immediately on install with users able to create teams and add members without IT intervention. Users can quickly and easily establish linked sites for team use and information sharing.</p>

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NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
<p>Portal Services—NetWare 6.5 Virtual Office provides a collection of services and applications that easily centralize content in a Web-based format. Web mail, search, password management, Virtual Teams, iPrint, Novell iFolder and eGuide plus links to Web services and applications are pre-configured or easily established.</p>	<p>Win2003 includes SharePoint* Services which is limited file sharing and alerts on changes. Documents can be customized via a Web browser but no portal capabilities are included.</p>	<p>NetWare 6.5 Web-based features are much more extensive with immediate portal and Web-based access for virtual office services and team collaboration. Virtual Office provides all network resources (file, print, team services, applications, management, mail, etc.) from any standard browser.</p>
<p>eGuide—Novell eGuide is an end-user tool providing controlled and rapid access to information contained in eDirectory. Users are able to search for names, addresses, phone/fax numbers, e-mail and any other information which may be stored in eDirectory or an LDAP-based repository. End-users can manage their own personal directory information. Using the inherent user/group/organization structure in eDirectory, end users can determine personnel reporting structures and even generate org charts.</p>	<p>Win2003 includes no comparable functionality.</p>	<p>Automatically provide rich directory information to users where they need it, when they need it, in a format that is useful.</p>
<p>E-mail—Novell's Virtual Office includes e-mail gateways that provide Web access to GroupWise-, Lotus Notes*, Microsoft Exchange and Novell NetMail™. Users are able to access e-mail from anywhere using a standard browser.</p>	<p>Win2003 includes no comparable functionality.</p>	<p>Web access to mail, from an assortment of mail back-ends, is free. Users have freedom, mobility and flexibility with mail access options.</p>

TOTAL COST OF OWNERSHIP

Organizations looking to migrate, upgrade, expand or even consolidate cannot overlook the overall cost of ownership. Across several categories of costs, NetWare 6.5 consistently provides better value than Windows. A Gartner TCO study conducted

at WFS Financial indicated software, hardware and administration costs for NetWare were 52% less expensive than Windows NT*/2000. With no changes to the Windows architecture in 2003 and only minor changes to management utilities, NetWare will remain less expensive to own and implement.

The cost advantages of NetWare compared to Windows are summarized as follows:

NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
<p>Complete Package—NetWare 6.5 is a complete package and includes networking capabilities for small business to enterprise needs for a moderate per user cost. Base offering includes: file, print, Web, exteNd application server, Web services IDE, database, eDirectory, iPrint, Novell iFolder, Nenterprise Branch Office, Web-based iManager, Server Consolidation Utility, Virtual Office Portal/Virtual Teams, eGuide, DirXML Starter Pack, Native File Access and much more.</p>	<p>Five different versions of Win2003 are available with additional functionality costing more.</p> <ul style="list-style-type: none"> • Win2003 Standard Edition: basic file, print, application, Web • Win2003 Enterprise Edition: add Clustering 8 processors and Metadirectory • Win2003 Datacenter Edition: add 32-way SMP with manager and tested on qualified hardware • Win2003 Web Edition: limited functionality but includes XML services and ASP.NET 	<p>At a price comparable to Windows 2003 Standard Edition, NetWare 6.5 provides all of the functionality of Microsoft's Enterprise and Datacenter versions plus 32 node clusters with 32-way SMP. Pricing is simplified and capability is greater with management for complete range of services integrated through eDirectory.</p>
<p>Licensing—NetWare 6.5 provides flexible licensing based on the needs of an organization. Licenses can be per user, per server or per organization. License types can be mixed and matched in an organization. In all cases, the least expensive combination of licensing is possible. Organizations only license per user and can have as many server instances of NetWare as needed without extra cost.</p>	<p>Win2003 licensing now is available per server or per user. Multiple versions of Windows 2003 exist however, at varying price points with the cheapest being for the Web server only. Win2003 Standard is \$1k (five-user/device), Enterprise \$4k (five-user/device). Per user pricing averages \$160-200. The MS licensing subscription model is expensive and requires ongoing payment for continued right to use software (i.e. license expires after time).</p>	<p>NetWare licensing is less complicated and easier to track and manage. Pricing by user allows organizations to provide a wide array of server services at no additional cost. An organization would pay the same licensing cost regardless if they have one file server or 20 file/application/ Web servers. NetWare licenses never expire.</p>
<p>Hardware—NetWare on average requires less hardware power to provide the same level of capability. Win2003—Less efficient design requires more RAM and processing power to provide the comparable level of services in NetWare.</p>	<p>Win2003 Enterprise and Datacenter versions are only available on specific (expensive) hardware that has been specially configured and tested to work with it.</p>	<p>NetWare hardware costs are much less for the same level of functionality and user or application support. Example: MySQL application can support a maximum of 50 users on Win2003 but 1200-1300 users on NetWare 6.5 with the same hardware.</p>
<p>User Support—Self service, eDirectory management, NetStorage, iPrint, Virtual Office—all of these technologies and more make NetWare 6.5 easier to support larger numbers of users.</p>	<p>Win2003, with dependence on Windows clients, no included portal or Web-based self-service features, and patchwork administration requires higher levels of user support.</p>	<p>Support costs with NetWare are lower. Users can do more for themselves through the Web and eDirectory simplifies user provisioning and administration.</p>
<p>Administration—NetWare iManager, eDirectory and advanced capacity allows administrators to manage more users and resources with less effort.</p>	<p>Win2003 includes some administration enhancements but basic global management is still awkward and time consuming.</p>	<p>Gartner TCO study found that Windows is 41% more costly to administer and maintain than NetWare in some enterprise environments. (source: Gartner WFS Financial TCO assessment, 15 March 2002)</p>
<p>Migration—Change is constant in many organizations. NetWare 6.5 Server Consolidation Utility and eDirectory flexibility make it easier to work between versions, migrate from other sources, reorganize and rearchitect.</p>	<p>Windows mainly provides an upgrade tool that requires ripping and replacing earlier version to bring them current with the latest version.</p>	<p>Reorganizing, accommodating mergers and acquisitions, and rearchitecting is much less costly with NetWare. A Gartner study indicates it costs nearly twice as much to migrate from NetWare to Windows than to upgrade to newer versions of NetWare (source: Gartner WFS Financial TCO assessment, 15 March 2002)</p>

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NETWARE 6.5	WIN2003	NETWARE ADVANTAGE
<p>Immediate ROI—NetWare 6.5 provides immediate ROI with ready-to-deploy applications and services (i.e. Virtual Office, Novell iFolder, iPrint, eGuide, etc.)</p>	<p>Win2003 requires additional services and expense for applications beyond file and network printing.</p>	<p>Cost for NetWare can be recaptured quickly for a faster return on investment.</p>

OTHER KEY DEFICIENCIES

Key areas not mentioned above where NetWare 6.5 excels when compared to Win2003 are architecture, security, maturity, and desktop philosophy.

Architecture—Win2003 is Windows NT/2000 with modifications and follows the historical Microsoft tradition of superficially updating features and interfaces while leaving the same fundamental desktop operating system architecture in place. The Windows architecture is a patchwork of solutions that are tied to the operating system. This leads to difficulties in managing users, storage, access and in creating secure and fault tolerant solutions. “Still, the new OS uses the same core NT architecture, and the same object-centric model for controlling access to files, printers and other network resources through access control lists (ACLs).” (source: April 2003, Unwrapping Win2003, Information Security)

In contrast, the architecture in NetWare is based on a high-performance, efficient protocol engine and a holistic architecture that allows a myriad of services (such as J2EE, AMP, eDirectory, XML, Web-based standards services, etc.) to operate independently, yet be integrated for comprehensive security and management. The architecture in NetWare provides better security and higher performance which leads to long-term reliability and high scalability.

Security—The much touted security enhancements of Win2003 are mainly fixes to sloppy coding inherited from earlier versions. According to Information Security, Win2003 “security holes were mainly fixed by cleaning up sloppy coding of 3.51 and turning off services that by default were turned on. It has many more services disabled by default, including the most dangerous—World Wide Web Publishing Service, which makes the system into a Web server and exposes it to frequently discovered HTTP-related exploits. Win2003 has more security controls activated, but still leaves password policy, lockout policy and auditing either disabled or relaxed. Most of the new features don’t do much to prevent the exploits that have plagued the Windows OS family over the years.”

The architecture in NetWare again provides excellent security—NetWare specific viruses of the same class as Windows viruses are nonexistent. In 2002, Novell released only 4 security alerts while Microsoft released 64 during the same period.

Maturity—Announcement of a new feature doesn’t necessarily indicate that the feature is functional or ready for prime time. The following list of new features announced with Win2003 have long been available and are proven under intense loads in earlier versions of NetWare.

- Journaling file system—Available since NetWare 5

- SAN Boot—Available since NetWare 5
- Partitioning and Abstraction—Available since NetWare 3
- Flexible Volume Mounting (comes only with Win2003 Datacenter and Enterprise versions)—Available since NetWare 5

Desktop Philosophy—A major portion of Microsoft's business is the desktop and a significant strategy element is controlling the client. Server and service backends are created and designed to take advantage of and entrench the Microsoft client whether it is Windows in any of its variations or Internet Explorer. This leads to applications and development environments that are more closed and optimally work only with a Microsoft client.

Novell solutions have traditionally been client agnostic. Good support for Macintosh and other client formats such as NFS and CIFS plus an open application service environment enables users to access resources no matter what client they are using. With the NetWare 6.5 release, there is generally no need for any type of specialized client beyond a standard Web browser. Backend applications and Web services support Web access; mail, file and printer access is via the Web; and all management of the network and network resources can be done using a browser.

The strategy of free and open access simplifies the development process, provides greater freedom and mobility for users, and overall reduces the cost of service implementation and maintenance. The benefits are greater self-service and integration among stakeholders whether they are employees, customers, partners, suppliers or administrators.

SUMMARY

While the arrival of Win2003 will be noted with a flurry of press and media events, organizations considering upgrading or migration should carefully examine the real benefits of any switch. NetWare 6.5 provides an extensive list of features, services and advantages compared to those available with Win2003. Out-of-the-box functionality includes Virtual Office, collaboration applications with Web-based portal access for file and print. Open source technologies are included and supported for Apache, MySQL and PHP/Perl. A complete J2EE application server and Web services development environment is also included.

In addition, NetWare 6.5 includes reliable and scalable file and storage capabilities. NetWare storage on the whole is more accommodating, more flexible and easy to manage. Windows requires more effort, reconfiguration and change. Administration and management of vast storage quantities is easily accomplished through eDirectory and iManager. NetWare 6.5 continues in the tradition of earlier versions to provide centralized and secure management of heterogeneous resources. Disparate systems, including Windows domains and Active Directory, are commonly managed and information is shared using industry standard XML and Novell's DirXML Starter Pack.

Services included with NetWare provide safe and solid business continuity solutions that provide high availability during routine maintenance or unforeseen disasters. Nterprise Branch Office and

Novell iFolder provide automatic synchronization and replication services while iPrint enables distributed and remote printing.

For any organization, NetWare 6.5 is a clear choice for getting state-of-the-art technology and services with a minimum of integration effort and

expense. Win2003, masked by expensive marketing, is a makeover of earlier versions with a new Web server and some security fixes. Companies that compare the two products for practical application, use and administration will find NetWare 6.5 delivers a superior solution.

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