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Windows Server 2008's Customer-Centric Design

Tony Iams, VP and Senior Analyst

On February 27th, Microsoft announced Windows Server 2008, the newest release of its server operating system. Since Microsoft first began shipping its first server operating system nearly 15 years ago, each major release has delivered successive milestones toward its computing vision: a scalable and reliable computing platform spanning servers and desktops that can be managed like a single, continuous information system (see table below). With the previous release, Windows Server 2003, Microsoft made extraordinary progress in filling the remaining gaps in its original goals. Now, with the arrival of Windows Server 2008, Microsoft's server platform has matured to the point that major technical changes are no longer necessary to meet the company's goals. Instead, Microsoft has concentrated on refining the

feature set of its server platform in order to respond to specific customer needs.

From a functional standpoint, Windows Server 2008 represents a refinement over its predecessor, rather than a revolutionary leap toward meeting Microsoft's vision for computing infrastructures. Microsoft describes Windows Server 2008 as a "customer-focused release," emphasizing that the specific needs of end users were crucial to the definition of Windows Server 2008's design and feature set. Indeed, Windows Server 2008 includes a variety of incremental enhancements that will help organizations address the major strategic concerns confronting them today, which include:

- » The requirement to maintain performance in the face of soaring workloads

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Major Windows Server Releases and Functional Milestones

Year	Release	Key Functional Milestones
1993	Windows NT Server 3.1	First release of server OS designed by Microsoft
1996	Windows NT Server 4.0	First release to achieve volume deployment
2000	Windows 2000 Server	Active Directory introduced
2003	Windows Server 2003	Reliability enhancements and proven scalability
2008	Windows Server 2008	Customer-centric functional refinements and integrated virtualization

[Windows Server 2008 . . . continued from page 1]

- » The need to overcome real-world resource limitations
- » The opportunity to simplify overly complex IT environments through consolidation
- » The desire to fully exploit the rapidly evolving capabilities of industry-standard hardware

Deployment Scenario “Roles”

One of the greatest changes visible in Windows Server 2008 is its ability to be customized, compared to the relative homogeneity in packaging of earlier releases. Much of Microsoft’s product planning is now typically driven by “scenarios,” in which the potential user base of a product is segmented into hypothetical job roles and typical activities. The functions and interfaces of Microsoft’s software products are then segmented in a way that is optimized to meet the needs of a set of scenarios. With Windows Server 2008, Microsoft has identified 18 typical deployment scenarios, such as “file and print server,” “directory server,” “web server,” “virtual machine host,” and so on. Users can choose to install Windows Server 2008 with a limited set of functions tailored specifically for a particular “role,” so that only the functions required for that role are installed and managed. The hope is that this approach will simplify manageability, while simultaneously increasing reliability (and security) by reducing the software footprint (i.e., the surface area vulnerable to failure or incursion) on a particular server.

Moreover, eight of these roles do not employ a Graphical User Interface (GUI). For example, the Windows Server Core role lacks almost all of the GUI tools found on typical Windows systems, and is instead managed either by command line or remotely from other systems. These “roles” will make it easier to deploy Windows in form factors such as blade servers and virtual machines, which are not optimized for the keyboard, video, and mouse interface of traditional PC

hardware (for which Windows was originally designed).

Windows Server 2008 then includes 36 optional features that can be explicitly added to a role to incorporate functionality where it is needed. Such optional features include multipath I/O, clustering, backup functions, a “desktop experience” (i.e., turning on a GUI in roles where it is turned off by default), and so on.

Windows Server 2008 delivers a highly integrated, functionally rich computing environment that requires minimal expertise to deploy productively.

Windows PowerShell –

A Revolutionary Management Tool

A major advancement of Windows Server 2008 from an operational standpoint is the arrival of Windows PowerShell, a command-line interface (CLI) that could redefine the way administrators regularly interact with Windows Server machines. This new focus on CLI and scripting is a significant departure from Microsoft’s earlier, GUI-centric view of Windows system management, which had been primarily optimized for ease-of-use rather than efficiency. Microsoft has offered some command-line functions in earlier versions of Windows Server, but none has been as revolutionary or comprehensive in scope as the new Windows PowerShell, an interactive shell and scripting language that serves as a kind of “glue” for coupling various administrative objects and procedures.

Like scripting languages that have proven essential on other platforms – such as the venerable UNIX shells, or even the Job Control Language (JCL) on traditional mainframes – Windows PowerShell is designed to assemble scripts of system commands, and process their text-based output where appropriate, using an object-based pipeline view. Windows PowerShell is based on Microsoft’s .NET software framework, and it is also interoperable with Microsoft’s entire portfolio of protocols for issuing commands and exchanging data. As a result, Windows PowerShell commands and scripts gain an unprecedented ability to interoperate with Windows systems and their layered components, including Active Directory, SQL Server, Exchange, and even Microsoft Office programs. Therefore, Windows PowerShell will likely spawn a huge base of scripts for performing various Windows system management tasks.

Functional Enhancements

Windows Server 2008 also introduces significant functional enhancements in the following areas:

- » **Performance** – While continuing to tune the Windows Server 2008 kernel for large SMP configurations, Microsoft has also focused on improving the performance of network traffic in the new release, introducing a next-generation implementation of the TCP/IP stack, Quality of Service (QoS) mechanisms, and a new version of the SMB file-sharing protocol. The network performance improvements will be particularly effective with clients running Microsoft’s Windows Vista desktop operating system.
- » **Reliability** – The reliability of Windows servers had already been greatly improved in Windows Server 2003 through Microsoft’s institution of rigorous testing and threat modeling processes, and its extensive collection of operational data to better understanding the causes of down-

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[Windows Server 2008 . . . continued from page 2]

time. While continuing these measures in the development of Windows Server 2008, Microsoft also introduced several new refinements that will help to improve reliability in the new system. First, Windows Server Core allows the system to be deployed with the fewest possible “moving parts,” reducing the opportunity for failure (or downtime-causing security incursions). Microsoft has also considerably simplified the deployment of High Availability (HA) clusters with its Windows Server 2008 Failover Clustering option.

- » **Security** — Improving security was a high priority in the development of Windows Server 2008. Some of the key enhancements in the new release include: support for Read-Only Domain Controllers (RODC), which make it easier to deploy Active Directory security infrastructure in branch offices and other remote locations that may have limited access to administrative personnel; Network Access Protection (NAP), which checks clients for health and security compliance before they are allowed to attach to internal networks; and BitLocker drive encryption, which protects sensitive data even after a server falls into unauthorized hands.
- » **Virtualization** — Windows Server 2008 has been designed from the ground up to work with Hyper-V, Microsoft’s next-generation hypervisor technology (which will ship within 180 days after the release of Windows Server 2008). It also introduces a number of significant improvements to Windows Terminal Services, which allow desktop environments to be managed with better economies of scale by hosting them remotely on servers.

The IDEAS Bottom Line

The gradual advance of Windows Server 2008’s functionality is a testament to the relative maturity that the system has achieved in

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BENCHMARK CORNER

Lenovo Embarks on TPC-H with SureServer R630 G7

Lenovo has released a new 100 GB TPC-H result for the SureServer R630 G7 server. This test represents the first time that Lenovo has tested one of its systems in a TPC-H environment. For this test, the system was configured with four 2.93 Xeon X7350 quad-core processors (the maximum amount supported) and 128 GB of memory.

TPC-H 100 GB Performance

This result claims third position in the table below, surpassing the now fourth-placed result by 72% in terms of performance. This result is also the highest-ranked non-clustered result to date. ■

*TPC-H 100GB Performance Top Ten**

Rank	Co.	Configuration	QphH	\$/QphH	DB
1	CPI	Phoenix IQ-201(12 nodes 2ch/8co)	209,298.9	\$1.25	4
2	Sun	Fire X4100 M2 (15 nodes 2ch/4co)	98,857.0	\$2.65	1
3	Lenovo	SureServer R630 G7 (4ch/16co)	33,184.3	CNY50.07	3 NEW
4	HP	ProLiant DL585 G2 (4ch/8co)	19,323.0	\$10.67	2
5	HP	ProLiant ML370 G5 (2ch/8co)	17,686.7	\$7.98	3
6	Dell	PowerEdge 6950 (4ch/8co)	17,179.7	\$7.64	2
7	HP	ProLiant DL580 G4 (4ch/8co)	17,120.3	\$7.91	2
8	Dell	PowerEdge 6800 (4ch/8co)	16,320.1	\$13.40	2
9	Dell	PowerEdge 2900 (2ch/8co)	15,723.9	\$7.45	2
10	Dell	PowerEdge 6950 (4ch/8co)	14,923.1	\$5.66	2

** Extracted from Competitive Profiles*

Database Key:

- 1 - ParAccel Analytic Database
- 2 - Microsoft SQL Server 2005 Enterprise (SP1)
- 3 - Microsoft SQL Server 2005 Enterprise (SP2)
- 4 - EXASolution 2.0

RESULT SUMMARY

(All prices in China Yuan [CNY] Renminbi)

Date:	February 21, 2008
TPC-H (100 GB):	SureServer R630 G7
Company:	Lenovo
DB Size:	100 GB
QphH:	33,184.30
CNY/QphH:	50.07 CNY
QppH:	41,970.60
QthH:	26,237.30
Database:	Microsoft SQL Server 2005 Enterprise Edition SP2
OS:	Windows Server 2003 Enterprise Edition, SP2
Availability:	January 31, 2008
Configuration:	SureServer R630 G7 with 4 x 2.93 GHz Xeon X7350 processors (4 chips, 16 cores) each with 2 x 4 MB L2 cache, 128 GB memory
COO:	1,661,226 CNY
Benchmark Rev:	2.6.1

[Windows Server 2008 . . . continued from page 3]

its evolution, which in itself serves as an important qualification for many users who value stability. Still, the new system offers plenty of incremental refinements that will help to strengthen Microsoft's unique value proposition in the market. Windows Server 2008 delivers a highly integrated, functionally rich computing environment that requires minimal expertise to deploy productively, even as it fully exploits the compelling economics and growing technical capabilities of industry-standard hardware. Moreover, Windows Server 2008 shows that its underlying technology is flexible enough to absorb major evolutions to operational interfaces, while leaving its core functionality unchanged. This kind of flexibility could succeed in attracting new classes of users to Microsoft's server platform, even as it makes the existing user base more comfortable. ■



FEBRUARY BLOG BITE (<http://www.ideasint.blogs.com>)

Dell is also using ProSupport to standardize its offerings worldwide.

Prior to this announcement, users may have seen significant per-country variations in Dell's service portfolio.

From "Dell's New Global Service Offerings"

Gary Burgess | February 8, 2008

<http://ideasint.blogs.com/ideasinsights/2008/02/dells-new-globa.html>



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