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IBM Power Systems Announcement Overview

Aspire Big, Pay Little

IBM today introduced new virtualization and server offerings to help organizations save money, energy and space. This announcement expands the IBM Power™ Systems portfolio with new PowerVM™ virtualization software, two new POWER6™ processor-based entry-level System p™ Express servers, support for the BladeCenter® JS21 and JS22 Express blade servers in the innovative BladeCenter S chassis, and i5/OS® operating system support on the BladeCenter JS22 and a new i5/OS version for System i™ clients.

The announcements include:

- New PowerVM software, formerly known as Advanced POWER™ Virtualization (APV), now available for the first time in an Express Edition, as well as Standard and Enterprise Editions. All three PowerVM editions now allow System p servers to run Linux x86 binary applications unmodified without recompilation in addition to UNIX® and Linux® on System p servers.
- Two new POWER6 processor-based UNIX servers, the entry-level System p 520 Express and mid-range System p 550 Express, both built to handle mission-critical business workloads and both expected to entice additional Solaris and HP/UX customers to switch to IBM.
- A new release of the i5/OS operating system, IBM's flagship operating system for small and medium-size clients using System i servers, with new support for the BladeCenter POWER6 processor-based JS22 Express blade.
- First-time support for the BladeCenter JS22 and JS21 Express blades by AIX® -- IBM's UNIX operating system -- and Linux in the breakthrough, office-friendly BladeCenter S chassis, designed for smaller firms and distributed enterprises.
- A new x86 Server Consolidation Factory offering, built on the success of previous IBM Migration Factory offerings, designed to help clients migrate from competitive x86 platforms to IBM Power Systems servers with the new PowerVM virtualization software.

IBM PowerVM Technologies

The new PowerVM platform is a family of technologies, capabilities and offerings that deliver virtualization on POWER processor-based systems, designed to drive maximum energy efficiency, increase resource utilization, and lower operating costs, helping companies respond immediately to new business demands. PowerVM provides virtualization solutions for AIX, Linux and i5/OS clients.



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In addition to systems management and cost benefits, the PowerVM platform provides clients with new options to improve system and application availability, allowing reductions or elimination of planned downtime.

The new PowerVM Express Edition is designed for users looking for an introduction to more advanced virtualization features at a highly affordable price. With PowerVM Express, users can create up to three partitions on the server, leverage virtualized disk and optical devices with the built in Virtual I/O Server (VIOS), and utilize “shared dedicated capacity” to help optimize use of processor cycles.

PowerVM Standard Edition provides the most complete virtualization functionality for UNIX and Linux in the industry. PowerVM Standard Edition includes all capabilities of PowerVM Express Edition plus IBM Micro-Partitioning™ allowing up to 10 operating system partitions per processor core, and support for multiple shared processor pools.

PowerVM Enterprise Edition includes all the features of PowerVM Standard Edition plus an exciting new capability called Live Partition Mobility -- a unique virtualization technique that enables POWER6 servers to move operating system workloads from one server to another while the systems are running. With Live Partition Mobility, planned application downtime due to regular server maintenance can be a thing of the past since applications can be moved during business hours to alternate servers while still available to end users.

New to all three PowerVM Editions is the PowerVM Lx86 feature at no additional charge which will now allow System p Servers to run Linux x86 binary applications unmodified and without recompilation in addition to UNIX and Linux on POWER applications, greatly expanding the workloads available to be consolidated onto System p servers. PowerVM Lx86 (formerly System p Application Virtual Environment or p AVE) allows the creation of an x86 application virtual environment so users may easily install and run a wide range of x86 Linux applications on a Power Systems server with a Linux on POWER operating system.⁴ The Linux x86 application binaries are automatically detected at runtime and run seamlessly without additional configuration, allowing thousands of x86 Linux binaries to run easily on Power Systems servers, helping clients consolidate, cut escalating power and cooling costs and improve performance.

More than 225 companies have used PowerVM Lx86 in an open beta program to consolidate x86 applications on their Power Systems platform of choice, taking advantage of leadership performance and superb RAS features.

PowerVM Express Edition and PowerVM Lx86 will be available on February 8, 2008.

IBM System p 520 and 550 Express Servers

Combining IBM's industry-leading POWER6 processor technology with enhanced virtualization, energy efficiency and near-continuous availability features, the p520 and p550 Express servers offer outstanding price/performance and value for entry-level, SMB (Small and Medium Business), and mid-range clients wishing to run UNIX or Linux operating environments. IBM energy management and browser-based virtualization software makes it easier than ever to achieve increased server utilization and energy efficiency by using EnergyScale™ capabilities and optional PowerVM Editions. Exceptional reliability, availability and serviceability (RAS) functions including:



- built-in reliability through use of highly reliable components
- recovery from intermittent errors or failover to redundant components

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- detection and reporting of failures and impending failures
- self-healing hardware that automatically initiates actions to effect error correction, repair or component replacement

are designed to deliver exceptional application availability and allow more work to be processed with less operational disruption.



The innovative POWER6 processor within the p520 and p550 Express servers is designed with Hardware Decimal Floating-Point helping to improve the performance of the basic mathematical calculations of financial transactions that occur daily on today's business computers. In addition, the processor includes an AltiVec™ SIMD accelerator, which

helps to improve the performance of high performance computing (HPC) workloads. Also designed to help clients become more energy efficient, the POWER6 architecture with EnergyScale technology includes features that measure the energy use of the system and direct policies toward the energy-efficient operation of the server, while the underlying hardware automatically adjusts to deliver the desired operating solution.

The System p 520 Express server with one, two, or four 4.2 GHz POWER6 processor cores delivers outstanding performance at compelling low prices for use as a distributed application server, small database server, or in a high transaction environment based on the Java platform. The System p 550 Express server offers efficiency and flexibility while supporting two, four, six or eight 3.5 GHz or 4.2 GHz POWER6 processor cores. The p550 Express delivers outstanding price/performance as an application or mid-size database server and helps to reduce costs as a Linux consolidation server. Both the p520 and p550 Express are packaged as a desktide or 4U (4 EIA Units) rack-mount and utilize both the leading-edge IBM AIX and Linux operating systems to broaden the application offerings available and increase the ways clients can manage growth, complexity and risk.

The System p 550 Express server will be available on February 8, 2008. The System p 520 Express server will be available on February 29, 2008.

i5/OS Operating System



The i5/OS V6R1 operating system is the next step for efficient, resilient in business processing. This release includes expanded options for virtualization, upgraded storage and availability management, new encryption capabilities, enhanced Java™ performance, support for IBM BladeCenter, enhanced performance with IBM System Storage™ offerings, and support for the new High Availability Solutions Manager.

Virtualization of i5/OS storage: i5/OS workload management and virtualization support is enhanced with new features. For example, an i5/OS V6R1 partition will be able to host storage of another i5/OS V6R1 partition, which can reduce costs and simplify creation of i5/OS test and development environments. Also, i5/OS is supported as a client of VIOS, giving access to virtualized and network and storage resources. This virtualization of i5/OS storage is supported on POWER6 processor-based systems.

Encryption of backups and data on disk: i5/OS V6R1 security enhancements include encrypted backups, encryption of data stored on disk and intrusion protection. A new i5/OS option enables encrypted backup of user data—with tools like Backup and Recovery Media

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Services (BRMS)—to tape or a virtual tape device. A second option enables encryption of data residing in auxiliary storage pools (ASPs), including user ASPs or independent ASPs. These new options help enable customers to meet regulatory requirements with protection of critical business information.

Enhanced Java performance: i5/OS V6R1 can deliver enhanced performance for Java and WebSphere® applications. Leveraging several technology innovations, i5/OS V6R1 can deliver significantly more Java and WebSphere transactions per second as compared to i5/OS V5R4 on the same POWER5™ or POWER6 processor-based system.

Support for IBM BladeCenter servers: i5/OS V6R1 is supported on the JS22 Express blade server in the BladeCenter H chassis. With blade servers, clients can consolidate their IBM System i™ and Intel processor-based servers into a single chassis, leveraging the management, space and power savings provided by BladeCenter solutions.

Breakthrough performance with System Storage: With support of a new Fibre Channel adapter, i5/OS V6R1 offers enhanced integration and performance with System Storage solutions. The new adapter is a 4 Gbit, IO-less, dual-port adapter that can offer significantly improved performance, increased capacity with up to 64 logical unit numbers per port, and enhanced flexibility with support for disk and tape attachment. The new Fibre Channel adapter is supported with i5/OS V6R1, POWER6 processor-based systems, and IBM System Storage DS8000™ solutions.

Support for IBM High Availability Solutions Manager: i5/OS V6R1 supports the new IBM High Availability Solutions Manager (HASM) offering to help clients reduce the impact of planned and unplanned outages. HASM provides for the deployment and management of IASP-based high-availability (HA) cluster solutions including i5/OS geographic mirroring and DS8000™ Metro Mirror or Global Mirror.

The i5/OS V6R1 operating system will be available on March 21, 2008.

BladeCenter JS22 and JS21 Express Servers

The BladeCenter JS22 Express blade server has been enhanced through support of the i5/OS operating system.¹ In addition both the JS22 and JS21 Express blade servers will now support the BladeCenter S chassis. This chassis offers an easy-to-use, space-saving 7U chassis that incorporates hot-swap disks, uses standard office power and reduces cable requirements compared to traditional rack servers resulting in potential power and cooling savings, high system availability and efficient space utilization. Up to six JS22 Express or JS21 Express blades may be installed in a BladeCenter S chassis running AIX or Linux.²



To further enhance the ability to deploy blades into virtually any environment, BladeCenter JS22 and JS21 Express blades installed in a BladeCenter S chassis are now supported in the BladeCenter S Office Enablement Kit. The BladeCenter S Office Enablement Kit is the ideal way to deploy BladeCenter S in the everyday office environment. The kit features an 11U rack enclosure with an acoustical module, locking doors, easy mobility and an optional airborne containment filter.

In addition, you can get a fully integrated rack solution from IBM including blades and chassis along with servers, storage and I/O -- all the key ingredients to have a fully integrated rack

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solution -- all from IBM. With the addition of the rack integration features into the IBM Enterprise B42 rack, BladeCenter H chassis populated with either JS22 or JS21 Express blades can now be combined with a selected set of other Power Systems servers and key server options in the same rack for a completely integrated rack solution.

With the announcement of i5/OS support on the JS22 Express blade,³ small and medium clients now have the opportunity to consolidate their server infrastructure into a single BladeCenter chassis, achieving all of the benefits of BladeCenter packaging. Large enterprises can now consolidate their i5/OS applications into their centralized BladeCenter environments.

The BladeCenter support described above will be available on February 29, 2008.

Management Edition for AIX

IBM Management Edition for AIX is a new integrated systems management offering created specifically for the AIX / Power Systems platform that provides for discovery, monitoring and resource usage tracking for AIX, LPARs, the Hardware Management Console and other key components of a Power Systems environment.

Management Edition for AIX is designed to provide robust monitoring and quick time to value by incorporating out-of-the-box best practices such as predefined thresholds for alerting on key system metrics and recommendations for potential actions to resolve the issue. The Management Edition for AIX allows clients graphically display the monitoring data for AIX, LPARs, hardware, HMC and PowerVM Virtual I/O Server in the Tivoli® Enterprise Portal.

Management Edition for AIX will be available February 29, 2008.

IBM x86 Server Consolidation Factory

The IBM x86 Server Consolidation Factory for Power Systems is an adjunct to the IBM Server Consolidation Factory designed to deliver a Center of Excellence for consolidation of x86 workloads onto Power Systems servers. This offering includes consulting and implementation services designed to deliver compelling TCO solutions for migrating and consolidating common x86 server-based workloads onto Power Systems including infrastructure, Web server, Web applications and databases as well as other x86 workloads. Unlike the more broadly focused, multi-architecture scoped Server Consolidation Factory for Power Systems offering, this factory is a “specialty” that addresses the unique needs of Intel® architecture server consolidation onto Power Systems servers using either the AIX OS or a supported Linux on POWER OS.

The x86 Server Consolidation Factory will be available on Feb 29, 2008.

IBM Rational

Today, IBM Rational is announcing the latest release of WebSphere Development Studio for System i V6R1, offering significant enhancements to the i5/OS host Integrated Language Environment (ILE) compilers. This release includes a major repackaging of its components. The product no longer bundles all application development tools and compilers together. Instead, it contains three separately orderable features. These features include ILE compilers, Heritage compilers and Application Development ToolSet. Also included in this release are key enhancements to the ILE compilers: RPG, COBOL, C and C++.

Also announced is the IBM Rational Developer for System i V7.1, a new and follow-on product to IBM WebSphere Development Studio Client for System i. It is an integrated development environment for creating traditional i5/OS, flexible and integrated business applications. This release will include key enhancements to the Application diagram, i5/OS Web Services and Java Tools, and i5/OS V6R1 host support. It will contain specific functions previously in WebSphere Development Studio Client Advanced Edition for System i V7.0.

These IBM Rational products will be available on March 21, 2008.

In addition, several other new and updated components will be added to the Enterprise Modernization for i5/OS portfolio in the first quarter 2008. A follow-on version of the Host Access Transformation Services (HATS) and WebFacing technologies will be designed to make modernization of User Interfaces (UI) and creation of Web services even easier. IBM also intends to introduce the latest version of EGL, the newest IBM business language for the i5/OS development community, with the availability of IBM Rational Business Developer V7.1. IBM Rational Business Developer V7.1 delivers an Eclipse integrated developer environment (IDE) for EGL, a modern language designed to shield i5/OS programmers from the technical complexities of Web and SOA middleware and standards. And finally, a new software bundle offering called IBM Rational Developer on System i for SOA Construction will enable i5/OS users to do Web development and to create Web services using their existing RPG/COBOL programs or service programs. This software bundle will include IBM Rational Business Developer and IBM Rational Developer for System i.

Power Systems Solutions

For clients who need a flexible and robust server solution that can handle more users, deliver more throughput and help reduce energy usage, the Power Systems Express family with leadership virtualization and exceptional energy efficiency is an outstanding choice. Today, IBM is making several popular solutions even stronger by allowing them to take advantage of the new entry level POWER6 processor-based servers: System p 520 and System p 550 Express servers. The updated solutions are:

- IBM System p Solution Edition for Oracle E-Business Suite
- Sybase IQ for IBM Power Systems Solution
- Sybase Adaptive Server Enterprise for IBM Power Systems Solution
- Sybase Risk Analytics Platform for IBM Power Systems Solution

System Storage EXP 12S I/O Drawer

The IBM System Storage EXP 12S (#5886) is a high-density 2U, 19-inch rack-mountable disk drive enclosure which expands disk capacity on a POWER6 processor-based server. It offers:

- Modular SAS disk expansion drawer
- Up to twelve hot-swappable 3.5-inch SAS disk drives
- Variety of supported connection options
- Redundant hot-plug power and cooling
- Redundant and hot-swappable SAS expanders

The System Storage EXP 12S I/O Drawer will be available on February 8, 2008.

Footnotes

1 - i5/OS is not supported on the JS21 Express blade server.

2 - BladeCenter S chassis support by i5/OS is not currently available.

3 - BladeCenter JS22 Express running i5/OS is only supported in the BladeCenter H chassis.

4 - ibm.com/systems/power/software/virtualization/editions/ix86/qual.html

Information concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of the non-IBM products should be addressed with the suppliers.

All performance information was determined in a controlled environment. Actual results may vary. Performance information is provided "AS IS" and no warranties or guarantees are expressed or implied by IBM.

When referring to storage capacity, total TB equals total GB divided by 1000; accessible capacity may be less.

The IBM home page on the Internet can be found at <http://www.ibm.com>.

The IBM Power Systems home page on the Internet can be found at <http://www.ibm.com/systems/p/>.

The IBM BladeCenter home page on the Internet can be found at <http://www.ibm.com/systems/bladecenter/power-based.html>.

The IBM Linux on POWER home page on the Internet can be found at <http://www.ibm.com/systems/linux/power/>.



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