



IBM System p Virtualization — The most complete virtualization offering for UNIX and Linux

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At a glance

IBM Advanced POWER Virtualization (APV) is a System p specialized offering that can boost overall system flexibility through virtualization technologies that can reallocate system resources to where they are needed and tap into additional resources on demand. System p servers and APV can help you realize the following benefits:

- Reduced server sprawl
- Simplified systems management
- Improved business resiliency
- Opportunity for reduced total cost of ownership
- Enhanced performance by automatically reacting to anticipated and unanticipated spikes in server demand

APV includes the following key features and functions:

- Micro-Partitioning™, which allows the user to create LPARs to a minimum granularity of 1/10th of a CPU
- Virtual I/O Server, which allows for the sharing of SCSI and Fibre Channel adapters
- Integrated Virtualization Manager, which allows for management of a single System p server model p5-560Q and below or IBM BladeCenter JS21 without the use of a Hardware Management Console (HMC)

Overview

With the latest enhancements to System p™ Virtualization, including notable enhancements to APV, System p products once again are established as the most complete virtualization offering for UNIX® and Linux™.

Choose System p products designed to enable continuous application availability, the flexibility to manage rapidly changing server capacity requirements, the efficiency afforded by reducing energy costs by consolidating multiple kinds of applications onto one server, and top-notch CAP/EAL4+ security.

Primary areas of innovation:

- Systems management enhancements
 - Innovative integration with a broad range of IBM Tivoli® products such as IBM Tivoli Monitoring, IBM Tivoli Storage Manager, IBM Tivoli Usage and Accounting Manager, and IBM Tivoli Application Dependency Discovery Manager

- A new browser-based HMC interface with improved usability
- New and updated System Planning Tool (SPT) and deployment-related functions to assist with planning and deploying a virtualized environment
- Enhancements to VIOS V1.4 such as LDAP (Lightweight Directory Access Protocol), SNMP (Simple Network Management Protocol), I/O solutions support, and IBM Tivoli integration

Key prerequisites

APV requires a System p server with a POWER5™ or POWER6™ processor as well as AIX 5L™ V5.3, or later, and Linux on POWER. APV is also supported on the BladeCenter® JS21.

Description

There are a number of new innovations in the area of System p Virtualization. The following description breaks out the features of each element by product area.

APV is a System p hardware optional feature that delivers the following elements:

- Micro-Partitioning support for a single processor being shared by up to 10 logical partitions (LPARs).
- VIOS V1.4, a single-function appliance that resides in a POWER5 or POWER6 partition. It facilitates the sharing of physical I/O resources between client partitions (AIX 5L V5.3, or later, or Linux on POWER) within the server. VIOS provides virtual SCSI targets and Shared Ethernet Adapter virtual I/O to client LPARs.
 - Virtual SCSI (VSCSI) enables the sharing of physical storage adapters (SCSI and Fibre Channel) and storage devices (disk and optical) between LPARs.
 - Virtual networking: A shared Ethernet Adapter enables connectivity between physical and virtual networks.
- Integrated Virtualization Manager (IVM), a browser-based system management interface for certain models that can manage a partitioned system without an HMC. With IVM, you can cost-effectively consolidate multiple partitions onto a single server. With its intuitive interface, the IVM is easy to use and is designed to reduce significantly the time and effort required to manage virtual devices and partitions. Specific tasks that you can perform using IVM include:
 - Creating LPARs on a single managed system
 - Managing the virtual storage and virtual Ethernet on the managed system
 - Viewing service information related to the managed system
- Automated CPU reconfiguration
- Support for dedicated and shared processor LPAR groups

New in this release of APV are enhancements to VIOS

Integrated Virtualization Manager V1.4 content:

IVM adds support for System Plan Management.

- Web UI and command line support was added for System Plan Management, allowing for System Plan generation by the SPT and deployment by the deployment wizard

Virtual I/O Server

VIOS V1.4 content:

- POWER6: VIOS enablement for POWER6 processor in System p
- LDAP: Centralized user management
- SNMP: Standard interface used for monitoring and management
- New storage subsystems: nSeries and NetApp subsystems, iSCSI and Fibre Channel attach

- New interconnects: SAS (for disk attach), SATA (optical controller)
- System planning and deployment upgrades
- System planning and deployment tool helps simplify the process of planning and deploying System p servers and virtual I/O; the tool also supports the planning and deployment of the virtual I/O partitions
- Integrated Virtual Ethernet (also referred to as HEA or Host Ethernet Adapter): VIOS's Shared Ethernet Adapter supports bridging virtual Ethernet to HEA
- GVRP (GARP VLAN Registration Protocol): Automatic registration of VLANs to external switches
- Improvements to the VIOS command-line interface: usability, security, maintenance, and user management
- Tivoli Storage Manager client: Automated backup/restore of VIOS customized data
- ITUAM agent (IBM Tivoli Usage and Accounting Management): Accounting/usage metric collection/analysis
- TADDM (IBM Tivoli Application Dependency Discovery Manager) enables System p users to:
 - Discover their System p server environment along with the rest of their IT infrastructure
 - Learn how their System p servers are configured (and changing over time)
 - Determine if their System p servers are compliant with their configuration policies

System p and VIOS resource discovery

TADDM provides deep-dive discovery for the System p servers (POWER5, or higher), including its dependencies on the network and applications along with its configuration data, subsystems, and virtualized LPARs.

The discovery includes the HMC, VIOS, IVM, System p servers, and each of the LPARs.

For more information, visit

<http://www.ibm.com/software/tivoli/products/taddm/>

- Continuous availability enhancements such as a statement of direction for Live Partition Mobility

IBM is committed to enhancing its clients' investments in the System p product line. Based on this commitment, IBM plans to provide a new feature entitled "Live Partition Mobility" as part of System p APV for IBM's POWER6 processor-based servers in late 2007.

Live Partition Mobility will allow clients to move a running partition from one physical System p POWER6 server to another System p POWER6 server without application downtime, helping clients to avoid application interruption for planned system maintenance, provisioning, and workload management.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice and represent goals and objectives only.

Systems management enhancements

IBM has made significant strides in the area of managing a virtualized System p environment. Key areas of innovation include a dramatically redesigned HMC Interface, new monitoring and management tools from IBM Tivoli, IBM Systems Director Console, and the System Plan deployment capability on the HMC and IVM.

HMC updates

The new release of the HMC unveils a dramatically redesigned and easy-to-use browser-based interface complete with customizable views, and full integration with the SPT to assist customers with rolling out their new servers or easily making changes to existing servers. The redesigned HMC interface was developed based on direct customer feedback and critiqued by leading-edge designers.

IBM Systems Director and IBM Tivoli Management Tools

IBM Systems and Technology Group recently unveiled a full and comprehensive strategy to systems management for both virtualized and nonvirtualized environments. This framework includes IBM Systems Director as the base platform enablement and management and IBM

Tivoli as the tool of choice for enterprise customers.

IBM Systems Director

The IBM Systems Director Family is a suite of products consisting of a no-charge base (IBM Director) and for-a-fee extensions. Software support is optionally available for a fee. Using IBM Director and IBM Virtualization Manager, System p customers can perform basic monitoring and management of their System p (as well as cross-platform) virtualized and nonvirtualized environments from a single console view. Using these tools, customers can view and perform base management across IBM Systems in their enterprise. More information about IBM Systems Director can be found at

<http://www.ibm.com/systems/virtualization/systemsdirector/>

IBM Tivoli Management Tools

For customers desiring complete and comprehensive management of their enterprise environment, IBM recommends the use of IBM Tivoli. As part of a System p / IBM Tivoli collaboration effort, a number of core Tivoli management tool products have been enhanced to provide leading-edge virtualization monitoring capabilities for System p Virtualization. A summary of these new tools and offerings are listed.

IBM Tivoli Monitoring

IBM Tivoli Monitoring V6.1 now includes new System p agents, including an enhanced AIX® monitoring agent, as well as new monitoring agents for the System p Central Electronics Complex, VIOS, and HMC. These agents provide improved monitoring of System p performance, throughput, health, and availability, for both physical and logical partitions. Monitoring of virtual environments on System p servers is greatly enhanced with this release. Best practices are built into these monitors to provide quicker time to value and improved manageability of your System p servers. These enhancements deliver additional performance and throughput monitoring for AIX and the VIOS beyond that previously provided by the IBM Tivoli Monitoring System Edition for System p V6.1 product, which is available at no charge to System p customers. Also, because these agents are part of the IBM Tivoli Monitoring V6.1 product, clients can take advantage of the additional features of this product not available in IBM Tivoli Monitoring SE for System p V6.1 such as:

- Log file monitoring
- Historical data collection beyond 24 hours
- End-to-end management of heterogeneous resources in the IT environment from a single interface, the Tivoli Enterprise™ Portal Workflows
- Tivoli Enterprise Portal logical views
- Universal Agent for customized monitoring

Clients interested in adding these capabilities may purchase IBM Tivoli Monitoring V6.1 and, because both products use the same infrastructure, can upgrade from IBM Tivoli Monitoring System Edition for System p V6.1 with minimal effort.

For further information, visit

<http://www.ibm.com/software/tivoli/products/monitor-systemp/>

SPT is designed to ease deployment of a virtualized infrastructure.

SPT consists of tools to assist customers with deploying a virtualized environment and is available as a no-charge download from

<http://www.ibm.com/systems/support/tools/systemplanningtool/>

Use SPT for designing System p and System i™ servers and partitions. The resulting design, represented by a System Plan, can then be imported onto HMC V5.2, or later, and the IVM, where via the new System Plans feature, clients can automate configuration of the partitions designed via SPT. The System Plans feature of the HMC also allows generation of System Plans via the mksysplan command.

A major new feature in this version of SPT is support for VIOS resource planning, allowing customers to seamlessly size, plan, and deploy their VIOS partitions.

Highlights of SPT include:

- Export system configuration to IBM for order processing via the IBM Sales Configurator (eConfig)
- Export system configuration to HMC or IVM for support of Power-based systems configuration
- Performance Monitor and Workload Estimator (WLE) integration to aid in sizing workloads
- Interactive report
- Help system

Support for System p:

- VIOS Resource Planning based on Performance Analysis and Workload Sizing Tool.
- SPT integration with Performance Analysis and Sizing (PTX®/WLE) allows VIO simulation and adds validation of resulting configuration.
- VIOS LPAR Deployment automates deployment in a seamless manner via a predefined, validated plan (SPT).
- Complex configurations can be planned and deployed, including Redundancy, Shared Ethernet, SAN connections and Internal Storage, and MPIO attachments.
- Make system plan can capture VIO configuration, enabling configuration recovery.
- Deployment Planning and Configuration of IVM-managed partitions.
- Automated configuration of partitions from SPT System Plan via deployment. wizard on the IVM partition

System Plan Viewer

- Allows viewing and printing of the System Plan, which contains the hardware inventory and partition profile attributes for the system
- Allows viewing of sysplan report generated by mksysplan on HMC or IVM
- Provides reporting enhancements — report shows both HTML and text view, system diagram

SPT usability improvements: The SPT has added a number of user interface improvements based on direct client feedback to support greater productivity and ease of planning for system deployments.

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Reference information

For additional information about VIOS, refer to:

[206-026](#), dated February 9, 2006

[205-250](#), dated October 4, 2005

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBM ID).

BP Attachment for Announcement Letter 207-110

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=207-110>

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