IBM PowerVM and IBM PowerVC enhancements

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At a glance

IBM® PowerVM®, which delivers industrial-strength virtualization for IBM POWER® processor-based systems, is enhanced with the following new functions:

- SR-IOV vNIC Failover
- Shared Ethernet Adapter (SEA) large send performance improvements for IBM i and Linux™
- Scalability and resiliency improvements for Shared Storage Pools
- NovaLink
  - Partition support for Red Hat Enterprise Linux
  - Support for SR-IOV configurations
- Software-defined networking (Open vSwitch) technology preview
- PowerVM hypervisor memory optimization through large page exploitation
- Live Partition Mobility resiliency and performance improvements

IBM Power® Hardware Management Console includes the following new capabilities:

- Ability to export performance data to an external CSV file format
- Dynamic setting of the Simplified Remote Restart property

IBM PowerVC provides a comprehensive virtualization and cloud management offering for IBM Power Systems™ servers. Enhancements include:

- New high-availability capabilities
  - Automated policy-based VM remote restart
  - VM remote restart when system is powered off
- New storage capabilities
  - Improved storage zoning control
- Dynamic Resource Optimizer (DRO) improvements
  - Optimization and balancing based on memory usage
- PowerVM NovaLink management improvements
  - SR-IOV vNIC and vNIC failover configurations
  - NovaLink partition running Red Hat Enterprise Linux
  - PowerVM shared storage pools
  - VM console launch for guest VMs
Overview

PowerVM delivers industrial-strength enterprise virtualization for IBM AIX®, IBM i, and Linux environments on POWER processor-based systems and has expanded function and new management capabilities.

PowerVC is an advanced virtualization management and cloud offering for Power Systems servers based on OpenStack technology. This comprehensive virtualization and cloud management offering is simple to install and use, and enables virtual machine setup and management.

Key prerequisites

PowerVM

- Any IBM system that includes an IBM POWER7®, IBM POWER7 +, or IBM POWER8® processor.
- PowerVM NovaLink requires systems with a POWER8 processor and FW840, or higher, that is not managed by an HMC.

PowerVC

- IBM PowerKVM (5765-KVM).
- Firmware v8.2, or higher, is required for the new Remote Restart function for PowerVM that is managed by PowerVC.

Planned availability date

- November 11, 2016, for PowerVM
- November 18, 2016, for Hardware Management Console/Hardware Management Console (HMC) virtual appliance
- December 16, 2016, for PowerVC and PowerVM NovaLink

Description

PowerVM V2.2.5

PowerVM is enhanced with the following new functions:

- SR-IOV vNIC Failover, which provides automated failover for SR-IOV network configurations.
- Shared Ethernet Adapter (SEA) large send performance improvements, which now enable improved performance for IBM i and Linux workloads running on PowerVM-based systems.
- SEA improvements include failover health checks and failover controls to disable automatic failback.
- Scalability and resiliency improvements for Shared Storage Pools enable clients to have larger Shared Storage Pool clusters with greater resiliency.
- Reduction of hypervisor memory usage through large page exploitation, which is specifically helpful for workloads like SAP HANA. This is available in firmware level v860.
- Multiple LPM data movers increase reliability and performance.
- Software-defined networking (SDN) using OpenStack integration with Open vSwitch. This will be introduced with a technology preview. These SDN
capabilities include network overlays that enable functionality like cross physical
network (subnet) Live Partition Mobility and provide an open networking solution
for PowerVM.

**IBM PowerVM NovaLink V1.0.0.4**

PowerVM NovaLink, which provides a scalable direct OpenStack cloud management
connection for OpenStack solutions like PowerVC, has been enhanced with the
following new functions:

- Partition support for Red Hat Enterprise Linux
- Support for SR-IOV configurations

These improvements are typically controlled by systems management solutions
like PowerVC, or they can be managed by OpenStack community editions. SDN
orchestration can be achieved through the OpenStack PowerVM drivers and the
standard OpenStack Neutron agents.

**PowerVC V1.3.2**

PowerVC is an advanced virtualization management and cloud offering for Power
Systems based on OpenStack technology. This comprehensive virtualization and
cloud management offering is simple to install and use, and enables virtual machine
setup and management. PowerVC can help achieve the following goals:

- Simplify deployment and management of Power Systems-based private clouds.
- Increase agility and execution to quickly respond to changing business
  requirements.
- Increase IT productivity and responsiveness.
- Simplify Power Systems virtualization management.
- Accelerate repeatable error-free virtualization deployments.

PowerVC can manage AIX, Linux, and IBM i VMs running under PowerVM
virtualization and Linux VMs running under PowerKVM virtualization.

PowerVC includes the following features and benefits:

- Cloud self-service portal for VM deployment and lifecycle management
- Virtual machine image capture, deployment, resizing, and management
- Policy-based VM placement to help improve usage and reduce complexity
- Policy-based workload optimization using either VM migration or resource
  movement using mobile capacity on demand
- VM mobility with placement policies to help reduce the burden on IT staff in a
  simplified GUI
- A management system that manages existing virtualization deployments
- Integrated management of storage, network, and compute that simplifies
  administration

PowerVC Standard Edition has been enhanced with the following new features and
functions. These new functions are also in the IBM Cloud PowerVC Manager release
because it includes all functions of the PowerVC Standard Edition.

- High availability
  - Automated policy-based remote restart of VMs for both NovaLink and HMC
    configurations, which enables faster recovery from server failures. This
    function enables the administrator to set a policy for automatically restarting
    VMs on other healthy systems in the case of a host failure.
  - VM restart is now possible for HMC-managed systems that are powered off.
- Storage management: Storage zoning has new options (initiator zoning) that
  enable fewer storage zones to be used, which gives clients with large storage
  configurations more flexibility and control.
• Dynamic Resource Optimizer (DRO) now balances workloads based on host memory utilization for PowerVM NovaLink environments. This enables dynamic optimization for either compute or memory resources.

• PowerVM NovaLink management improvements include support for:
  – SR-IOV vNIC and vNIC failover configurations
  – NovaLink partition running Red Hat Enterprise Linux
  – PowerVM shared storage pools
  – VM console launch, which provides a guest VM console to the PowerVC user

HMC V8.8.6 has been enhanced to include support for the following:

• Ability to export performance and capacity data collected by the HMC to a CSV formatted flat file for use by other analysis tools
• Reporting on energy consumption, which can be used either by the REST APIs or by the new export facility
• Dynamic setting of the Simplified Remote Restart VM property, which enables this property to be turned on or off dynamically

Reference information

Refer to Software Announcement ZP15-0194, dated May 11, 2015.

Program number

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<td>5765-HMV</td>
<td>8.8.6</td>
<td>Hardware Management Console (HMC) virtual appliance</td>
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Note: IBM PowerVM for IBM PowerLinux has been renamed to IBM PowerVM, Linux Edition.

Ordering information

PowerVM Enterprise Edition V2.2 (5765-PVE)

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<th>Description</th>
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Prices

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