



Highlights

- Open source server virtualisation for IBM® scale-out Linux® servers
 - Optimise Linux workload consolidation at a lower cost of ownership
 - Exploit the advantage of performance, scalability and security built into Linux and the Kernel-Based Virtual Machine (KVM) hypervisor
 - Avoids high cost proprietary x86 virtualisation
 - Managed just like any other KVM host – OpenStack, libvirt and open Linux tools help you avoid vendor lock-in
 - KVM enables single cross platform virtualisation which simplifies management.
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IBM PowerKVM – Open Virtualisation

PowerKVM – the open virtualisation choice for Power scale-out Linux Systems

IBM PowerKVM provides an open virtualisation choice for IBM scale-out Linux systems based on the POWER8 technology. This solution includes the Linux open source technology of KVM virtualisation and is designed to complement the performance, scalability and security qualities of Linux. This provides an open extendable solution for running virtual machines (VMs) on Linux scale-out servers that enables cloud deployments, scale-out processing and big data solutions reducing complexity and cost.

Processor virtualisation

Using the combination of PowerKVM virtualisation and Power scale-out Linux servers, you have the performance and flexibility to address the requirements of multiple differing Linux workloads while reducing cost. PowerKVM supports running a large number of VMs on a single scale-out Linux server. Processor resources are scheduled out of a shared pool of resources for the VMs running on the virtualised host. Processor virtualisation also exploits POWER8 features like ‘Micro-Threading’ and ‘Symmetric Multi-threading’ with a choice of 1, 2, 4 or 8 threads per core, providing more flexibility in resource allocation and enhanced performance. Using PowerKVM’s processor virtualisation allows businesses to reduce costs by deploying fewer systems to run more workloads, sharing resources and improving service levels.

Memory virtualisation

PowerKVM virtualisation also has extraordinary features to optimise real memory utilisation. The memory given to a guest VM is virtualised memory that is managed just like in a normal Linux system so that



memory can be overcommitted and swapped out when inactive. In addition, to this basic memory management, PowerKVM has a facility called Kernel same-page Merging (KSM). This function merges duplicate memory pages and links them to a single copy of the page to optimise memory.

I/O virtualisation

PowerKVM Input/Output (I/O) virtualisation supports a broad array of virtualised I/O configurations including Internet small computer system interface (iSCSI), Network File System (NFS), local and Fibre Channel (FC) connected storage and network Ethernet configurations. Peripheral Component Interconnect (PCI) passthrough allows dedicated device access for VMs. This provides a broad set of configuration choices for I/O virtualisation which improves I/O resource sharing.

Live VM migration

Application availability is one of the key requirements for today's modern workloads. PowerKVM supports live migration of VMs between servers virtualised with the PowerKVM technology allowing businesses applications to remain active while they are relocated for either load balancing or scheduled downtime.

Systems management

Since PowerKVM virtualisation is built from a Linux base, normal Linux open administration tools can be used to administer virtualisation on Power scale-out Linux servers. PowerKVM supports the libvirt Application Program Interfaces (APIs) so that open tools that support these APIs can be used. IBM advanced virtualisation and cloud administration solutions like IBM PowerVC and IBM Cloud Manager with OpenStack are available to manage PowerKVM servers.

Kimchi is provided with PowerKVM and is a simple point and click administration tool that is available for basic virtualisation management for smaller non-cloud deployments and for initial host configuration.

For more information

To learn more about the IBM PowerKVM please contact your IBM representative or IBM Business Partner (BP), or visit the following website: ibm.com/systems/power/software/linux/powerkvm



IBM United Kingdom Limited

PO Box 41
North Harbour
Portsmouth
Hampshire
PO6 3AU
United Kingdom

IBM Ireland Limited

Oldbrook House
24-32 Pembroke Road
Dublin 4

IBM Ireland Limited registered in Ireland under company number 16226.

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