

RED HAT ENTERPRISE VIRTUALIZATION

DATASHEET

RED HAT ENTERPRISE VIRTUALIZATION AT A GLANCE

- Provides a complete end-to-end enterprise virtualization solution for servers and desktops
- Provides an on-ramp to OpenStack® by sharing common networking, infrastructure, and storage services
- Combines the Red Hat Enterprise Virtualization hypervisor with a comprehensive enterprise-class management interface
- Delivers record-setting performance and scalability along with unmatched consolidation ratios¹
- Built from open standards and APIs with an active community of contributors
- Prevents proprietary vendor lock-in
- Provides the lowest TCO among enterprise virtualization platforms²
- Includes built-in self-service, automation, and detailed reporting



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OVERVIEW

Red Hat® Enterprise Virtualization is a complete virtualization management solution for virtualized servers and desktops. Created by the people who brought you Red Hat Enterprise Linux®, Red Hat Enterprise Virtualization takes you beyond bare metal to meet your critical business demands. It provides the performance advantages, competitive pricing, and the trusted, stable environment you expect from Red Hat.

Red Hat Enterprise Virtualization provides common underlying services and management technologies for traditional virtualization workloads while also providing an on-ramp to high-level cloud functionality based on OpenStack®.

And, in 2014, Red Hat Enterprise Virtualization was awarded “Best Virtualization and Server Consolidation” and “Best of Show” at VMworld Europe 2014.³

With Red Hat Enterprise Virtualization, you can:

- Take advantage of existing people skills and investments
- Decrease TCO and accelerate ROI.
- Automate time-consuming and complicated manual tasks
- Standardize storage, infrastructure, and networking services on OpenStack³

OPENSTACK INTEGRATION

Red Hat Enterprise Virtualization is the ideal platform to base large-scale, enterprise virtualization initiatives and private cloud deployments. Red Hat Enterprise Virtualization seamlessly integrates and shares common services with OpenStack’s Glance and Neutron components (currently in tech preview).

The Glance integration offers a library of images and instances that provide a common set of building blocks to be used by both Red Hat Enterprise Virtualization and OpenStack. The Neutron integration enables advanced networking capabilities, including the Open vSwitch distributed switch technology, and provides discovery and network provisioning functionality. This integration adds advanced functionality to your existing infrastructure while building compatibility for the future.

PERFORMANCE

The powerful Red Hat Enterprise Virtualization hypervisor, based on Kernel-based Virtual Machine (KVM) technology, has achieved record-setting virtualization benchmark results and unmatched consolidation ratios¹. With a fully featured enterprise management system, Red Hat Enterprise Virtualization, lets you centrally and effectively manage your entire virtual environment, including virtual datacenters, clusters, hosts, guest virtual servers and desktops, networking, and storage.

¹ Based on SPECvirt_sc2010 benchmark results as of January 8, 2015 - http://www.spec.org/virt_sc2010/results/specvirt_sc2010_perf.html

² Red Hat Enterprise Virtualization competitive pricing guide

³ <http://www.computerweekly.com/news/2240232393/Best-of-VMworld-Europe-2014-User-Awards-Winners>

- Complete portfolio of training and consulting services available

KEY RED HAT ENTERPRISE VIRTUALIZATION FEATURES INCLUDE:

NEW FEATURES, SUCH AS:

- NUMA support including host NUMA, NUMA guest pinning, and virtual NUMA
- oVirt optimizer integration
- Extended SLA/QoS support
- Self-hosted engine iSCSI support

ENTERPRISE MANAGEMENT WITH:

- Improved storage domain management for disaster recovery
- Enhanced network interfaces monitoring
- Red Hat Satellite integration
- Enhanced real-time data in the user interface
- Integration with OpenStack Glance and Neutron Services
- Hot-plug CPU
- High availability
- Live migration and snapshots
- Storage live migration
- Policy-based automated workload balancing
- Image management
- Thin provisioning
- Integrated virtual desktop infrastructure

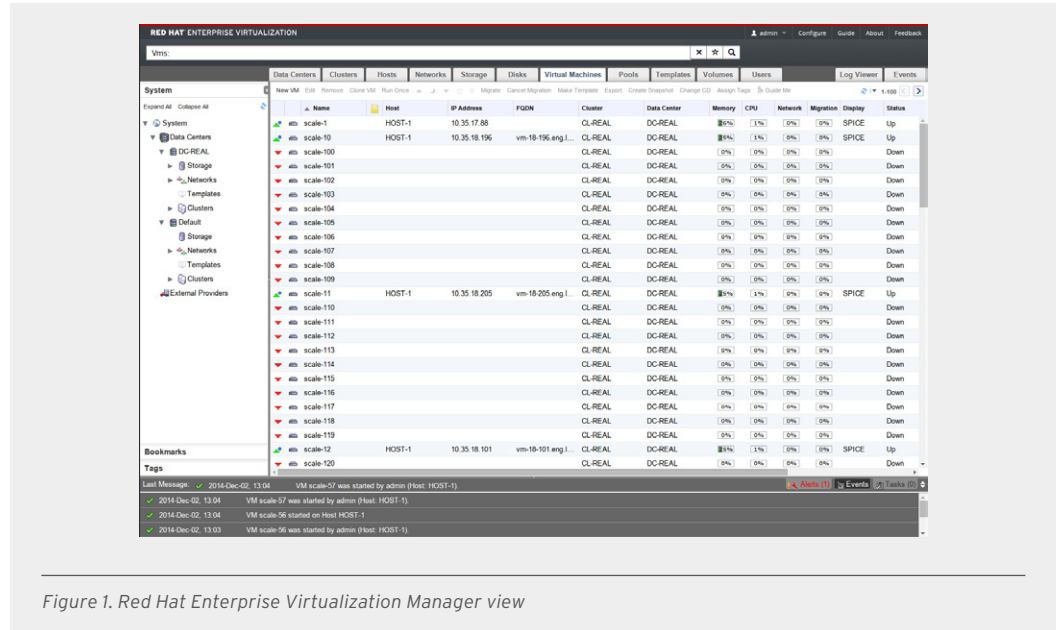


Figure 1. Red Hat Enterprise Virtualization Manager view

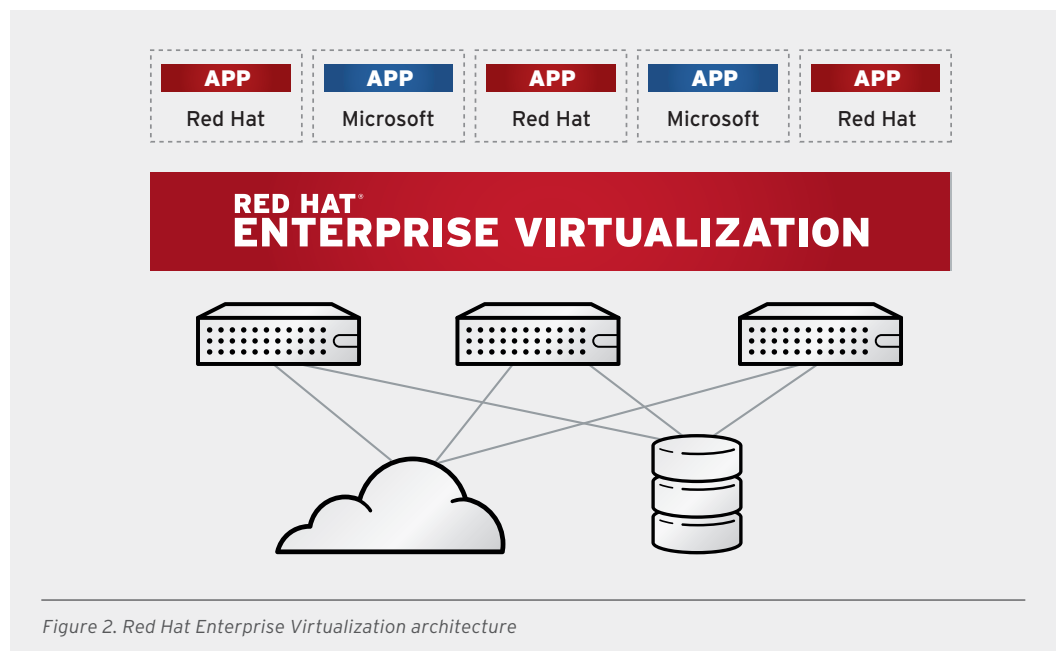


Figure 2. Red Hat Enterprise Virtualization architecture

“We see a clear ROI from our use of Red Hat Enterprise Virtualization, not only from the hardware savings, but also from manpower efficiencies due to how fast we can spin up clusters and deploy virtual machines. And our software licensing costs are dramatically less with Red Hat Enterprise Virtualization as well.”

MICHAEL WALTZ
UNIX/LINUX ENGINEERING GROUP
QUALCOMM

SERVER UTILIZATION AND COST SAVINGS

By transitioning workloads from physical servers to virtual machines (VMs), datacenter consolidation significantly increases the utilization and agility of computing resources while reducing operational costs with more efficient use of power and space. Capital cost savings in server hardware is the most immediate benefit and can range from a reduction of 40-75% ².

VMs can also be provisioned much more rapidly than physical servers. High availability and rapid recovery are built into the solution at a much lower cost than with physical servers, resulting in cost savings benefits for ongoing business continuity.

PREPARE FOR THE FUTURE OF IT

The integration of Red Hat Enterprise Virtualization and Red Hat Storage Server helps organizations extend their IT investments and streamline IT operations by minimizing complex SAN infrastructure costs and dependencies in virtual environments across heterogeneous hardware platforms. The integration also creates a flexible and modern infrastructure that can serve as the foundation for an open hybrid cloud approach.

KEY COMPONENTS, INTEGRATION, AND FEATURES

COMPONENTS	CAPABILITIES
Red Hat Enterprise Virtualization Hypervisor	<ul style="list-style-type: none"> • Provides an image-based, small-footprint hypervisor based on KVM • Increases performance and security • Provides support for VLANs, network bonding, and a wide range of network devices • Supports all storage systems certified on Red Hat Enterprise Linux
Red Hat Enterprise Virtualization Manager	<ul style="list-style-type: none"> • Provides a centralized management system with a search-driven graphical interface • Supports up to hundreds of hosts and thousands of VMs
Self-hosted engine	<ul style="list-style-type: none"> • Deploy Red Hat Enterprise Virtualization Manager engine as a VM on the host • Reduce hardware requirements • Enable built-in High Availability for Red Hat Enterprise Virtualization Manager
Self-service user portal	<ul style="list-style-type: none"> • End users can self-provision VMs, define templates, and administer their own environments. • Administrators can define per-user quotas for disk space, CPU usage, and memory.

² Red Hat Enterprise Virtualization competitive pricing guide

MANAGEMENT	CAPABILITIES
Advanced SLA manager	<ul style="list-style-type: none">• Provides increased quality of service• Users can define VM policies for CPU, memory, and network.• Policies ensure guaranteed quality of service.
Customized scheduler policies	<ul style="list-style-type: none">• Users can specify scheduling policies according their unique business requirements.
Affinity/anti-affinity groups	<ul style="list-style-type: none">• Users can define workload affinity policies on how VMs run either together on the same hosts or separately on different hosts.
Hot-plug CPU	<ul style="list-style-type: none">• Users can dynamically allocate virtual CPUs without restarting the VM (requires operating system support).
SNMP configuration service	<ul style="list-style-type: none">• Red Hat Enterprise Virtualization Manager can be integrated with preferred monitoring systems.
INTEGRATION	CAPABILITIES
OpenStack Glance	<ul style="list-style-type: none">• Advanced engine for storage of VM templates and ISO images• Use, import, export, and share templates and images with Red Hat Enterprise Linux OpenStack Platform (not included).
OpenStack Neutron	<ul style="list-style-type: none">• Advanced engine for network configuration• Enables IP address management (IPAM) with Red Hat Enterprise Virtualization based on Neutron subnets• Improves security and scalability of Neutron-provisioned networks• Open vSwitch distributed virtual switching support• Centralize network configurations with Red Hat Enterprise Linux OpenStack Platform (not included)
Red Hat Storage Server	<ul style="list-style-type: none">• Native support for Red Hat Storage Server, including a built-in GlusterFS Storage Domain and datacenter type that use Gluster as the storage back-end
oVirt Optimizer	<ul style="list-style-type: none">• Find optimal balance of existing VMs within a cluster• Determine optimal cluster placement for new VMs

<p>External applications</p>	<ul style="list-style-type: none"> • Partner ecosystem includes: <ul style="list-style-type: none"> • HP Insight Control Plug-in provides actionable and valuable insights on the underlying HP hardware • NetApp Virtual Console allows the discovery, provisioning, modification, and rapid cloning of NetApp NFS storage from Red Hat Enterprise Virtualization Manager • Symantec Veritas Cluster Server provides automated disaster recovery functionality to keep applications running 24x7x365
<p>Integrated virtual desktop infrastructure</p>	<ul style="list-style-type: none"> • Enables users to connect to VMs using either the SPICE or VNC protocols • Integrated feature/functionality for a virtual desktop infrastructure, including a connection broker, user access portal with optional self-provisioning, desktop pooling, automated provisioning, and support for native SPICE or RDP protocols • Smartcard/CAC support for Windows and Linux desktops • SPICE Proxy server support
FEATURES	
<p>Fully featured enterprise management</p>	<p>CAPABILITIES</p> <ul style="list-style-type: none"> • Live migration and storage live migration • Policy-based, automated workload balancing • High availability • Event monitoring • Cluster maintenance • Templating and thin provisioning
<p>Industry-leading performance and scalability</p>	<ul style="list-style-type: none"> • Hosts support up to 160 cores and 4TB of RAM • Guests support up to 160 vCPUs and 4TB of RAM • Clusters support up to 200 hosts • NUMA support for optimizing memory bandwidth in NUMA-aware host servers • Industry-leading SPECvirt_SC2010 results (10 of the top 15 results and the only published 8-socket and 16-socket server scores')

FEATURES**CAPABILITIES**

Support for both Windows and Linux VMs

- Red Hat support for Red Hat Enterprise Linux 3, 4, 5, 6, and 7, 32- and 64-bit
- Red Hat support for Windows Server 2003, 2003 R2, 2008, 2008 R2, and 2012, 32- and 64-bit
- Vendor support for SUSE Linux Enterprise Server 10 and 11
- Desktop operating systems support for Windows 7, 32- and 64-bit
- Desktop operating systems support for Red Hat Enterprise Linux Desktop 5 and later, 32- and 64-bit

Advanced kernel-based security

- Kernel-level security features providing VM and host intrusion detection and isolation using SELinux and sVirt

Enhanced disaster recovery

- Full support for third-party tools that offer backup, restore, and replication
- Configuration support for add/edit/delete storage connections to enable multi-pathing, hardware changes, simpler failover to remote sites, and array-based replication
- Migration of storage domains amongst different datacenters without needing to copy the data into and out of the export domain

Automation and customization

- RESTful API allows automation management and programmatic configuration
- Python-based command line interface allows for scripting and automation
- Hooks mechanism allows customized VM definitions or system commands

Detailed reports and monitoring

- Access to real-time data in user interface including progress bars for live migration status, and performance spark lines for hosts and VMs
- Detailed historical reporting capabilities, based on Jasper reports, are integrated into the base product to monitor historical usage, trending, and quality of service
- Numerous pre-built reports and dashboards included

FEATURES

Robust enterprise storage capabilities

CAPABILITIES

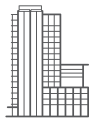
- Self-hosted engine iSCSI support
 - Supported storage includes iSCSI, Fibre Channel, NFS, local storage, Red Hat Storage Server, and other POSIX-compliant file systems
 - Share different storage protocol types (iSCSI, FCP, NFS, Posix, Gluster) within the same datacenter
 - Provides a choice of single disk snapshots such as the operating system or data disk
 - Provides customized snapshots with granular backup level such as ability to select just the current VM configuration
 - Supported features include: Storage live migration, shared disks, floating disks, VM disk hot plug/unplug, and direct LUN attach to VM
- Internationalization
- Administration and user portals support English, French, German, Hebrew, Japanese, Simplified Chinese, and Spanish

LEARN MORE

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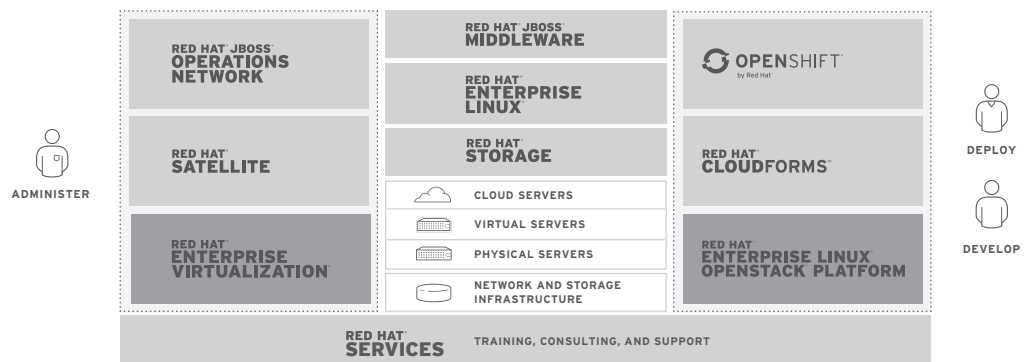
All benchmark comparisons are based on a benchmark addressing performance evaluation of data-center servers used in virtualized server consolidation at www.spec.org/virt_sc2010/ as of January 8, 2015. SPEC® and the benchmark name SPECvirt_sc® are registered trademarks of the Standard Performance Evaluation Corporation.



ABOUT RED HAT

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services. Red Hat is an S&P company with more than 70 offices spanning the globe, empowering its customers' businesses.

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NORTH AMERICA
1 888 REDHAT1

**EUROPE, MIDDLE EAST
AND AFRICA**
00800 7334 2835
europe@redhat.com

ASIA PACIFIC
+65 6490 4200
apac@redhat.com

LATIN AMERICA
+54 11 4329 7300
info-latam@redhat.com

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