RED HAT ENTERPRISE VIRTUALIZATION

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# RED HAT ENTERPRISE VIRTUALIZATION

FREQUENTLY ASKED QUESTIONS

*"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."*

MICHEAL WALTZ
UNIX/LINUX ENGINEERING GROUP
QUALCOMM

## INTRODUCTION

Red Hat® Enterprise Virtualization provides technologies for traditional virtualization workloads while also providing an on-ramp to cloud functionality based on OpenStack®. In addition, Red Hat Enterprise Virtualization automates many time-consuming and complicated manual tasks, while allowing IT teams to use existing skills and investments to standardize storage, infrastructure, and networking services on OpenStack.[1]

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1 *OpenStack integration in Red Hat Enterprise Virtualization 3.4 is in tech preview*

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## NEW FEATURES

**QUESTION:** What are the new feature highlights of Red Hat Enterprise Virtualization 3.4?

**ANSWER:**

- Enhanced OpenStack network service (Neutron) integration: Advanced engine for network configuration[1]
- Enhanced OpenStack image service (Glance) integration: Advanced engine for storage of virtual machine (VM) templates and ISO images[1]
- Advanced multi-host network configuration capabilities
- Mixed storage domain types within a single datacenter
- Storage enhancements around virtual disk management for better backup and disaster recovery
- iSCSI multipathing
- Enterprise management with:
  - A power-saving workload policy to power down and power up hypervisors when not in use
  - Affinity/anti-affinity workload grouping
  - High availability virtual machine (VM) reservations
  - Template versioning
  - Hot-plug CPU
  - A SNMP configuration service
  - Improved search capabilities

**QUESTION:** What are the benefits of integrating Red Hat Enterprise Virtualization with OpenStack?

**ANSWER:** The integration of Red Hat Enterprise Virtualization and OpenStack[1] facilitates the transition to cloud-enabled workloads. It allows organizations to deploy both traditional and cloud-enabled workloads on common and shared services such as the Kernel-based Virtual Machine (KVM) hypervisor. The integration also eliminates duplication efforts and streamlines the architecture.

## PRODUCT OVERVIEW

**QUESTION:** What sets Red Hat Enterprise Virtualization apart from competitors?

**ANSWER:**

- Security: Red Hat Enterprise Virtualization provides unmatched, military-grade security with the hardened, kernel-level SELinux and sVirt security technologies. These technologies were developed in conjunction with the United States Department of Defense and ensure isolation between VMs and between each machine and the Red Hat Enterprise Virtualization Hypervisor.
- Choice with no proprietary lock-in: Red Hat Enterprise Virtualization is the only open source, enterprise-ready virtualization platform. Therefore, Red Hat Enterprise Virtualization customers are not limited to what one company believes they need and are not forced into vendor lock-in.
- Cost: Based on open source software and offered through a subscription model, the pricing of Red Hat Enterprise Virtualization is significantly less than other virtualization offerings. There are no complicated product editions or costly add-ons. All features and components are included in one simple subscription offering. Learn more at **redhat.com/products/virtualization**.
- Scalability and performance: Red Hat Enterprise Virtualization is an industry-leading platform capable of supporting the highest possible VM density (based on independent, public SPECvirt benchmarks).[2] As of November 15, 2013, Red Hat Enterprise Virtualization claims 10 of the top 15 results and the only 8-socket and 16-socket server scores[1]. This translates to fewer server hosts and lower infrastructure costs.
- Enterprise management: Red Hat Enterprise Virtualization offers a feature-rich server virtualization management system that provides advanced capabilities for hosts and guests, including high availability, live migration, storage live migration, storage management, system scheduler, and more.
- Integrated VDI: Red Hat Enterprise Virtualization integrates the features and functionality for deploying both virtualized servers and complete virtual desktop infrastructure (VDI) within the same cluster, at no additional cost. Choose to deploy both Linux® and Windows servers and/or desktops.
- OpenStack integration[1]: Deploy traditional and cloud workloads on shared common infrastructure with OpenStack—without sacrificing SLAs, features, or scalability.[2]

**QUESTION:** What guest operating systems does Red Hat Enterprise Virtualization support?

**ANSWER:**

- Red Hat Enterprise Linux 3 (32-bit and 64-bit)
- Red Hat Enterprise Linux 4 (32-bit and 64-bit)
- Red Hat Enterprise Linux 5 (32-bit and 64-bit)
- Red Hat Enterprise Linux 6 (32-bit and 64-bit)
- Red Hat Enterprise Linux 7 (32-bit and 64-bit)
- Windows XP Service Pack 3 and newer (32-bit)

*2 www.spec.org/virt_sc2010/results/specvirt_sc2010_perf.html*

- Windows 7 (32-bit and 64-bit)
- Windows 8 (32-bit and 64-bit)
- Windows Server 2003 Service Pack 2 and newer (32-bit and 64-bit)
- Windows Server 2008 (32-bit and 64-bit)
- Windows Server 2008 R2 (64-bit)
- Windows 2012 (32 and 64-bit)
- Vendor support for SUSE Linux Enterprise Server 10, 11

**QUESTION:** What are the scalability limits of Red Hat Enterprise Virtualization?

**ANSWER:**

- Up to 200 hypervisor hosts in one cluster
- Host supports up to 160 CPUs and 2TB of memory
- Guests support up to 160 vCPUs and 2TB memory

**QUESTION:** Is there a demo or evaluation version?

**ANSWER:** Yes, there are free 30- and 60-day downloadable evaluations, available at **redhat.com/promo/rhev.**

**QUESTION:** Does Red Hat offer training and certifications for Red Hat Enterprise Virtualization?

**ANSWER:** Yes, Red Hat offers a four-day course, "Red Hat Enterprise Virtualization" (RH318), that explores Red Hat Enterprise Virtualization features. Students acquire the skills and knowledge to effectively create, deploy, manage, and migrate Linux and Microsoft Windows VMs. Students who successfully complete this course are also prepared to take the Red Hat Enterprise Virtualization Certification Exam (EX318) and earn the Red Hat Certified Virtualization Administrator (RHCVA) certification.

**QUESTION:** Does Red Hat Enterprise Virtualization support third-party plug-ins?

**ANSWER:** Yes. Red Hat Enterprise Virtualization Manager supports a variety of plug-ins, including:

- HP Insight Control plug-in, which provides actionable and valuable insights on the underlying HP hardware.
- NetApp Virtual Storage Console, which allows the discovery, provisioning, modification, and rapid cloning of NetApp NFS storage from Red Hat Enterprise Virtualization Manager.
- Symantec Cluster Server powered by Veritas, which provides automated disaster recovery functionality to keep applications running 24x7x365.

**QUESTION:** What companies use Red Hat Enterprise Virtualization to support their business-critical applications?

**ANSWER:**Red Hat Enterprise Virtualization customers have seen improved performance, scalability, and security while cutting costs. These customers come from a range of industries and include many familiar enterprises and government organizations such as Sears, British Airways, Cigna, Qualcomm, DreamWorks, Department of Defense, IBM, Bonhams, and more. Read their stories at **redhat.com/customersuccess.**

**QUESTION:** My Red Hat Enterprise Linux subscription includes the KVM hypervisor. Can I use this subscription and not purchase Red Hat Enterprise Virtualization?

**ANSWER:** The virtualization technology included in Red Hat Enterprise Linux supports low-density virtualization running Red Hat Enterprise Linux VMs. While Microsoft Windows VM drivers are included, Microsoft does not recognize them as a supported configuration. As an alternative, Red Hat Enterprise Virtualization provides the certifications, third-party support, and advanced features required for large-scale and high density virtualization.

Storage live migration, live snapshots, and multi-node management capabilities and full Microsoft Windows support make Red Hat Enterprise Virtualization a high-performing, secure, and scalable hypervisor solution.

**QUESTION:** Does a Red Hat Enterprise Virtualization subscription include an operating system for use with all the VMs it manages?

**ANSWER:** No. A Red Hat Enterprise Virtualization subscription only includes the hypervisor and virtualization management tools. You need to buy a separate license for Windows or a separate subscription for Red Hat Enterprise Linux to use as the guest operating system for all the VMs it manages.

**QUESTION:** Does Red Hat offer an all-in-one subscription that provides a hypervisor, virtualization management tools, and a guest operating system?

**ANSWER:** Yes, Red Hat Enterprise Linux with Smart Virtualization. It provides you with the functionality of Red Hat Enterprise Virtualization (hypervisor and virtualization management tools) and the ability to run unlimited Red Hat Enterprise Linux guest workloads on Red Hat Enterprise Virtualization. This offering provides you with an enterprise-grade hypervisor, virtualization management tools, and guest operating system in one subscription at a very competitive price. Learn more at **www.redhat.com/promo/linux-virtualization**.

**QUESTION:** What applications are certified to run on Red Hat Enterprise Virtualization?

**ANSWER:** Any application that is certified for Red Hat Enterprise Linux is certified on Red Hat Enterprise Virtualization.

**QUESTION:** What is needed to run Red Hat Enterprise Virtualization?

**ANSWER:** A recommended minimum configuration includes:

Hypervisor host servers:

- Quad core or multiple dual-core processors
- Intel VT or AMD-V extensions
- 12GB internal storage
- Multiple NICs with minimum bandwidth of 1Gbps
- Red Hat Enterprise Virtualization Hypervisor (included) or the Red Hat Enterprise Linux 6 subscription (purchased separately)
- Administrator console with Red Hat Enterprise Linux 6 or Microsoft Windows XP, 7, or 2008/2008R2 or higher
- Firefox17 or higher or Internet Explorer 9 or higher

**QUESTION:** What is the self-service power user portal?

**ANSWER:** This portal is a cloud computing portal that is designed to provide self-provisioning capabilities to end users. Depending on permissions, the portal allows users to perform tasks that were previously available only through the administrator console. The portal enables administrators to configure specific access and maintain control over both virtual and physical infrastructure resources to users or groups based on their self-service requirements or needs. Empowering users to create, run, and test environments on their own time with restricted access to the needed environments reduces IT and administrator requests.

## CUSTOMIZATION CAPABILITIES

**QUESTION:** What is the purpose of the RESTful API?

**ANSWER:** The RESTful API allows users to integrate Red Hat Enterprise Virtualization Manager with their own applications. All management functionality is exposed in the API interface. A Python-based command line interface allows for scripting and automation and has been developed with the upstream community.

**QUESTION:** What are hooks?

**ANSWER:** Hooks are a mechanism for customization so that administrators can define scripts to modify VM definitions or run system commands. For example, administrators can use these hooks to add extra options such as CPU pinning, watchdog devices, direct LUN access, and more. Sample hooks of common custom features are included in the solution as examples.

**QUESTION:** What are the back-end storage requirements?

**ANSWER:** Red Hat Enterprise Virtualization uses a centralized storage system that can be NFS, IBM GPFS, iSCSI, or Fibre Channel storage protocols. Red Hat Enterprise Virtualization also supports Red Hat Storage Server, including a built-in GlusterFS storage domain and datacenter type that use Gluster as the storage back-end. Physical storage systems supported on Red Hat Enterprise Linux are also supported on Red Hat Enterprise Virtualization.

## MIGRATION PROCESS

**QUESTION:** Are there migration tools to migrate VMs from other vendors such as ESX/ESXi to Red Hat Enterprise Virtualization?

**ANSWER:** Yes, moving from one hypervisor to another requires a conversion, but there are virtual-to-virtual (V2V) migration tools that will do this work for Xen and VMware images, including the Virt-v2v tool. Learn more at **access.redhat.com/knowledge/docs/Red_Hat_Enterprise_Virtualization** (Red Hat customers only).

This tool can automatically export the VM image, pull out the disk image, and complete modifications to that image (e.g., move from the VMware vmdk format to a native KVM format, pull out VMware drivers, insert the KVM drivers, remove VMware tools, and insert Red Hat Enterprise Virtualization tools). There are also V2V migration tools available from some Red Hat partners, including Acronis. Visit **marketplace.redhat.com/rhev** to learn more about available migration tools.

## DESKTOP FUNCTIONALITY

**QUESTION:** What key desktop-related features are included in Red Hat Enterprise Virtualization?

**ANSWER:**

- Integrated connection broker to connect users to their desktops – whether for new desktops or existing ones
- Power user portal that provides self-publishing functionality to designated users to create, access, and manage virtual resources (VMs, templates, snapshots, storage, and more) based on configured privileges
- Support for Smartcard authentication into the Red Hat Enterprise Virtualization user portal, as well as virtual desktop
- Copy-and-paste support between guest VMs and the client
- Support for Windows and Linux virtual desktops from Windows or Linux clients (connect with any combination)
- SPICE remote-rendering protocol that provides a user experience comparable to a local desktop
- Automated policies and features for desktop pooling, templates, thin provisioning, user access, pre-starting VMs, and much more

## PRODUCT PRICING

**QUESTION:** How is Red Hat Enterprise Virtualization packaged and priced?

**ANSWER:** The Red Hat Enterprise Virtualization subscription includes both desktop and server virtualization. It is sold per managed hypervisor socket pair and costs $999/socket pair per year for business-hour (standard) support or $1,499/socket pair per year for 24x7x365 (Premium) support.

Red Hat Enterprise Virtualization Manager (enterprise management system), the Red Hat Enterprise Virtualization Hypervisor, all product features, and product support are included in the subscription fee.

Like all Red Hat products, there is no up-front license fee. Rather, Red Hat Enterprise Virtualization is sold on a subscription basis that costs the same each year and includes product access, support, updates, and patches. The Red Hat Enterprise Virtualization subscription comprises all product features, so there are no multiple editions, add-ons, or virtual RAM usage charges.

**QUESTION:** How do I purchase the Red Hat Enterprise Linux operating system to be deployed as a virtual guest in my Red Hat Enterprise Virtualization environment?

**ANSWER:** A Red Hat Enterprise Linux subscription is required for any guest virtual server running in a virtualization environment and is sold separately from Red Hat Enterprise Virtualization. Red Hat offers several Red Hat Enterprise Linux product SKUs for two-socket, four-socket, and eight-socket servers that entitle the customer to run one, four, or an unlimited number of Red Hat Enterprise Linux virtual instances. For more information, visit **redhat.com/store.**

## LEARN MORE

For more information, visit **redhat.com/virtualization**.

### 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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