RED HAT ENTERPRISE VIRTUALIZATION

DATASHEET

RED HAT ENTERPRISE VIRTUALIZATION AT A GLANCE

- Provides a complete end-to-end enterprise virtualization solution for servers and desktop
- 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 ratios[1]
- Built from open standards and APIs with an active community of contributors
- Prevents proprietary vendor lock-in

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.

Building on the powerful Red Hat Enterprise Virtualization hypervisor and the popular oVirt open virtualization management project, Red Hat Enterprise Virtualization is a true strategic virtualization alternative to proprietary virtualization platforms.

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®.

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 OpenStack[3]

- Provides the lowest TCO among enterprise virtualization platforms[2]
- Includes built-in self-service, automation and detailed reporting
- Complete portfolio of training and consulting services available

KEY RED HAT ENTERPRISE VIRTUALIZATION FEATURES INCLUDE:

- New features:
  - OpenStack network service (Neutron) and image service (Glance) integration[3]
  - A self-hosted Red Hat Enterprise Virtualization Manager engine
  - An advanced SLA Manager
  - Deeper integration with Red Hat Storage Server
  - Enhanced disaster recovery capabilities
  - Integrated external applications
- High availability
- Live migration and snapshots
- Storage live migration
- Policy-based automated workload balancing
- Image management
- Thin provisioning
- Integrated virtual desktop infrastructure

OPENSTACK INTEGRATION[3]

Red Hat Enterprise Virtualization is the ideal platform to base large-scale, enterprise virtualization initiatives and private cloud deployments. And unlike alternatives, Red Hat Enterprise Virtualization seamlessly integrates and shares common services with OpenStack's Glance and Neutron components.

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 ratios.[1] 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.

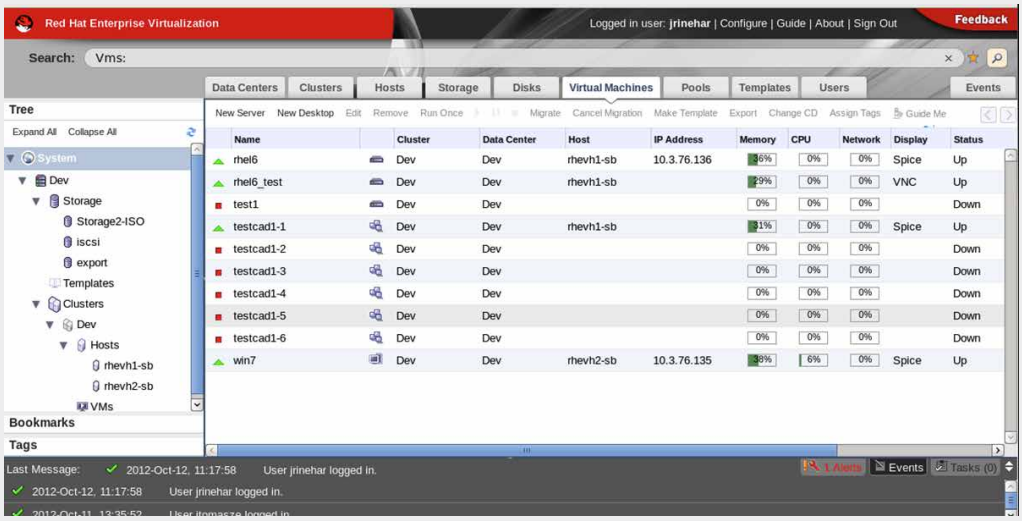

Figure 1. Red Hat Enterprise Virtualization Manager view

1 *Based on SPECvirt_sc2010 benchmark results as of November 2013 -* ***http://www.spec.org/virt_sc2010/results/specvirt_sc2010_perf.html***

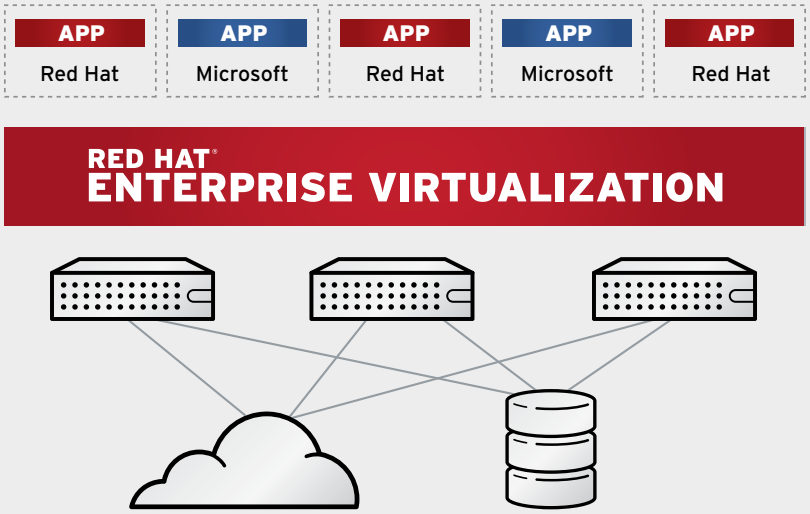

Figure 2. Red Hat Enterprise Virtualization architecture

"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."

MICHEAL 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]

The operations team also benefits from the reduced requirements for space and power and from the improved ongoing management of servers. For new server hardware, more can be done with less as multiple workloads (running on VMs) can more effectively use shared physical servers.

Virtual machines 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.

2 *Red Hat Enterprise Virtualization competitive pricing guide*

PREPARE FOR THE FUTURE OF IT

Furthermore, the integration of Red Hat Enterprise Virtualization and Red Hat Storage Server allows organizations to future proof 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.

KEY COMPONENTS, INTEGRATION, AND FEATURES

COMPONENTS	CAPABILITIES
Red Hat Enterprise Virtualization Hypervisor	• 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	• Provides a centralized management system with a search-driven graphical interface • Supports up to hundreds of hosts and thousands of VMs
Self-hosted engine	• 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
Advanced SLA Manager	• Increased quality of service • Users can define VM policies for CPU, memory, and network. Policies ensure guaranteed quality of service
Self-service user portal	• Enables end users to self provision VMs, define templates, and administer their own environments • Administrators can define per-user quotas for disk space, CPU usage, and memory

INTEGRATION	CAPABILITIES
OpenStack Glance[3]	• Advanced engine for storage of VM templates and ISO images • Use, export, and share templates and images with Red Hat Enterprise Linux OpenStack Platform (not included),
OpenStack Neutron[3]	• Advanced engine for network configuration • Open vSwitch distributed virtual switching support • Centralize network configurations with Red Hat Enterprise Linux OpenStack Platform (not included)
Red Hat Storage Server	• 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

External applications	• Partner ecosystem additions include:
	  • 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

Integrated virtual desktop infrastructure	• 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	CAPABILITIES
Fully featured enterprise management	• Live migration and storage live migration • Policy-based, automated workload balancing • High availability • Event monitoring • Cluster maintenance • Live snapshots, templating, and thin provisioning
Industry-leading performance and scalability	• Hosts support up to 160 cores and 2TB of RAM • Guests support up to 160 vCPUs and 2TB of RAM • Clusters support up to 200 hosts • Industry-leading SPECvirt_SC2010 results (10 of the top 15 results and the only published 8-socket and 16-socket server scores[1])
Support for both Windows and Linux VMs	• Red Hat support for Red Hat Enterprise Linux 3, 4, 5, and 6, 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 6, 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

FEATURES	CAPABILITIES
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	• 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
Storage	• Supported storage includes iSCSI, Fibre Channel, NFS, local storage, Red Hat Storage Server, and other POSIX-compliant file systems • Supported features include: storage live migration, live snapshots, shared disks, floating disks, VM disk hotplug/unplug, and direct LUN attach to VM
Internationalization	• Administration and user portals support English, French, German, Hebrew, Japanese, Simplified Chinese, and Spanish

3 OpenStack integration in Red Hat Enterprise Virtualization 3.3 is in tech preview

LEARN MORE

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All benchmark comparisons are based on a benchmark addressing performance evaluation of datacenter servers used in virtualized server consolidation at www.spec.org/virt_sc2010/ as of November 15th, 2013. SPEC® and the benchmark name SPECvirt_sc® are registered trademarks of the Standard Performance Evaluation Corporation.

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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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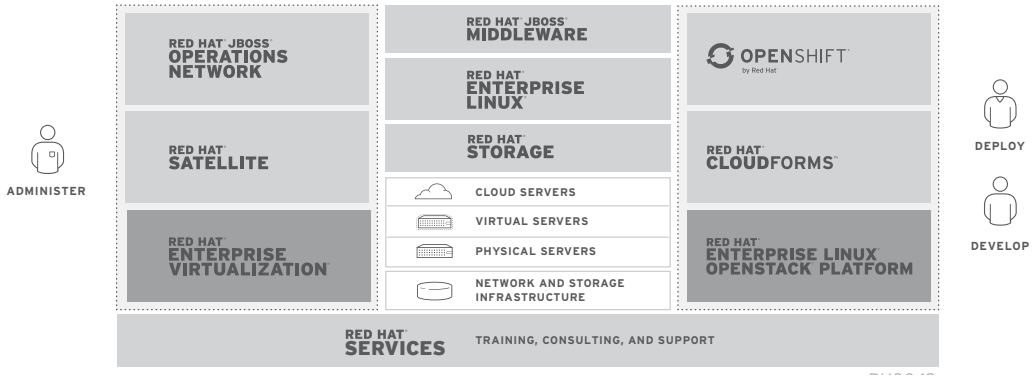

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