

COMPETITIVE REVIEW

RED HAT VIRTUALIZATION AND VMWARE VSPHERE COMPARISON

Red Hat Virtualization offers a high-performance, highly available platform with built-in security for business-critical workloads.

RED HAT VIRTUALIZATION

Red Hat® Virtualization is an open, easy to use, efficient infrastructure and centralized management platform for virtualized Linux® and Windows workloads. Built on Red Hat Enterprise Linux and Kernel-based Virtual Machine (KVM) technologies, it allows customers to virtualize traditional applications and build a foundation for cloud-native and container-based workloads.

Red Hat Virtualization offers a high-performance, highly available platform with built-in security for business-critical workloads, providing a stable, scalable infrastructure. Offering integrated management with a self-service user portal, Red Hat Virtualization helps customers increase efficiency through consolidation and provides predictable, virtual infrastructure value and costs.

This document compares the technical features and pricing of Red Hat Virtualization 4.1 and VMware vSphere 6. It is not an exhaustive list for either product, but it explains features that are asked about most frequently.

VALUE OF A SUBSCRIPTION

A subscription to Red Hat Virtualization, or any Red Hat solution, goes beyond gaining access to the software. Red Hat's stable code is backed by a dedicated team of engineers who monitor, identify, and address risks to protect your data—and your customers' data—from meaningful security concerns. If you need to open a support case, it will be routed to a product specialist. Resolutions enable future updates to our products, making you an active participant in improving open source technology. In addition, Red Hat publishes thousands of solutions in our community-driven Knowledgebase so you can learn from others, resolve issues yourself, and proactively manage your systems.

Benefits of a subscription include:

- Technology—Security, stability, and reliability
- Assurance—Enterprise-grade certainty
- Expertise—Experience you can trust



facebook.com/redhatinc

[@redhatnews](https://twitter.com/redhatnews)

linkedin.com/company/red-hat

redhat.com

“The Red Hat solution has given us more confidence in terms of our work and a sense of security. We’re all able to get a good night’s sleep without worrying about our infrastructure.”

BENJAMIN LAU,
I.T. MANAGER,
CTOS DATA SYSTEMS SDN. BHD.¹

PRICING MODEL

When comparing Red Hat Virtualization to VMware vSphere, Red Hat Virtualization offers a number of benefits, as detailed in Figure 1, including:

- Significantly lower total cost of ownership (TCO).
- No capital expenses (CapEx).
- Operating expenses (OpEx) charged via subscription—VMware charges via support.
- Subscription sold per socket pair—VMware licenses are sold per single socket.
- No extra charges for management.

On top of VMware’s higher cost, customers also have to purchase licenses and subscriptions for operating systems. Red Hat provides you with the support you need at a much lower cost than what you would pay to get both the product and support from VMware.

VMware vSphere 6 Enterprise			Red Hat Virtualization 4			
	Total license Cost (CapEx)	Single-year support cost (OpEx)	3-year total cost of ownership (TCO) total	3-year support total (OpEx)	Single-year TCO total	3-year TCO total
Hypervisors (1000 x 2 socket)	\$4,195,000	\$1,398,400 (\$874x2x1000x20%)	\$6,817,000	\$3,416,000	\$1,398,400	\$3,416,000
Management servers (3)	\$10,791	\$4,497	\$24,282	\$0	\$0	\$0
	\$4,204,791	\$1,402,897	\$8,413,482	\$3,416,000	\$1,138,666	\$3,416,000
Total cost is licences of hypervisors and management plus 3 years of support				Total cost is 3 years of subscription price		
Support is typically 20% of license				Management does not cost extra		

Figure 1. VMware vSphere 6 Enterprise vs. Red Hat Virtualization 4 price comparison. Note: These are list prices only. Discounts would be applied depending on volume, length of contract, and other factors.

KEY DIFFERENTIATORS

LOWER TCO

Compared with other leading virtualization solutions, Red Hat Virtualization delivers a lower TCO year over year, helping to reduce OpEx budget pressure and concerns.

TCO results:²

- 103% return on investment (ROI)
- US \$447,665 net present value (NPV)
- 5.6 months payback period

IMPROVED SECURITY

Red Hat Virtualization includes sVirt and Security-Enhanced Linux® (SELinux), technologies in Red Hat Enterprise Linux that were specifically developed to detect and prevent complex security threats present in today’s IT environment.³

¹ Red Hat case study, “CTOS improves agility for faster business expansion with Red Hat.” <https://www.redhat.com/en/resources/ctos-case-study>

² Forrester, “Red Hat Virtualization increases efficiency and cost effectiveness of virtualization,” January 2017. <https://www.redhat.com/en/resources/forrester-virtualization-tei-study>

³ Red Hat whitepaper, “Secure virtualization with sVirt.” <https://www.redhat.com/en/resources/secure-virtualization-with-svirt>

“Red Hat’s open source solutions are compatible with all major standards, unlike proprietary solutions. This compatibility prevents vendor lock-in and helps us combine the different requirements of our departments more effectively.”

THOMAS WENNINGER,
DEPUTY HEAD, IT SERVICES,
UNIVERSITY OF SALZBURG

HIGH PERFORMANCE

Red Hat Virtualization has demonstrated consistent leadership in industry-accepted virtualization benchmarks—SPECvirt⁴—ensuring better virtual machine (VM) performance, faster management control, and greater scalability responsiveness.⁵

NO VENDOR LOCK-IN

Red Hat Virtualization provides freedom and flexibility to support your IT infrastructure. It is an open, software-defined solution. Community-designed with the continuous input and participation of Red Hat engineers, Red Hat Virtualization delivers on the value of a Red Hat subscription with a certified ecosystem of software and hardware partners. Provided application programming interfaces (APIs) and software development kits (SDKs) help to extend and support the Red Hat solution to your existing and preferred management tools.

FEATURE COMPARISON

FEATURE	VSPHERE	RED HAT VIRTUALIZATION	NOTE
User interface (UI)	vCenter	Red Hat Virtualization Manager	Red Hat Virtualization Manager is a secure, web UI built on Red Hat JBoss® Enterprise Application Platform (EAP) and Postgres.
Hypervisor or host	ESXi	Red Hat Virtualization Host	Red Hat Virtualization Host is built on Red Hat Enterprise Linux 7 and KVM technologies. It can be updated with third-party drivers and software while still retaining a smaller footprint as compared to a full operating system deployment.
Virtual machine (VM) migration	vMotion	Live migration	Red Hat Virtualization allows users to tune the VM migration policy.
Highly available (HA) virtual machines	Yes	Yes	Red Hat Virtualization also features “resource reservation” at the cluster level, guaranteeing that central processing unit (CPU) and random access memory (RAM) are available in the cluster for designated VMs so that the cluster does not become over-subscribed.

⁴ Standard Performance Evaluation Corporation benchmarks. https://www.spec.org/virt_sc2013/

⁵ Red Hat Enterprise Linux blog, “HPE and Red Hat virtualization: Speed is good. Speed is right. Speed works.” August 2017. <https://rhelblog.redhat.com/2017/08/17/hpe-and-red-hat-virtualization-speed-is-good-speed-is-right-speed-works/>

FEATURE	VSPHERE	RED HAT VIRTUALIZATION	NOTE
Resource management	DRS	Cluster scheduler and policies, affinity	Red Hat Virtualization supports load balancing, power management, VM placement, HA, and policies. These features are available for any cluster, not just specially designated clusters.
Security	ESXi Firewall, vShield Endpoint	sVirt, SELinux, firewall	Red Hat Virtualization provides pretuned configuration for SELinux and firewalld, set to protect VMs and hypervisors.
Live snapshots	Yes	Yes	Red Hat Virtualization also supports snapshot merge.
Role-based access control (RBAC), Active Directory (AD) integration, tiered access	Yes	Yes	Red Hat Virtualization has a long list of supported directory services that extend RBAC, including Active Directory and many others.
Automation and orchestration	Only with vRealize	Red Hat Ansible® Engine integration included, Red Hat CloudForms integration available	Red Hat Ansible Engine 2.3 integration is included in Red Hat Virtualization 4.1. CloudForms integration and orchestration is available.
Self-service portal	Via vRealize	Via Red Hat Virtualization (standard) or CloudForms (advanced)	Red Hat Virtualization provides a basic self-service portal for administrators and power users. A highly customizable portal is available via CloudForms.
Native disaster recovery (DR)	No—requires storage vendor integration via SRM	No—requires storage vendor integration via representational state transfer API (REST API).	Red Hat Virtualization backup and recovery API (REST API) available for custom and third-party use. Native DR solution targeted for Red Hat Virtualization 4.2
Native backup	Yes via vSphere Data Protection	Limited via backup and recovery API	Red Hat Virtualization backup and recovery API (REST API) available for custom and third-party use.

FEATURE	VSPHERE	RED HAT VIRTUALIZATION	NOTE
API and SDK	Web services API/ SDK, common information model (CIM), Perl, .NET, JavaTM SDKs,	REST API, Python command line (CLI), Hooks, Java SDK, Python SDK	Red Hat Virtualization provides a well-published REST API for ease of automation and orchestration as well as SDKs for integration.
Over-commit	Memory ballooning	Memory ballooning	Red Hat Virtualization Hypervisor can mark sections of a VM's RAM as not in use, reallocate the RAM to other VMs, or use the memory for other host processes.
Container support	Photon and vSphere Integrated Containers	Red Hat Enterprise Linux Atomic Host and Red Hat OpenShift Container Platform	Red Hat Virtualization has container insight into Red Hat Enterprise Linux Atomic Host-based containers by way of the Red Hat Virtualization guest agent.
Networking	Virtual LAN (VLAN) tagging, quality of service (QoS), Bonding, Jumbo Frames	VLAN tagging, QoS, Bonding, Jumbo Frames, IPv6, virtual network interface controller (vNIC) profiles	Red Hat Virtualization can streamline network configuration with profiles and tags.
Software-defined networking (SDN)	NSX	Neutron integration with Red Hat OpenStack® Platform, native SDN (open virtual network-OVN) in 4.2	Red Hat Virtualization can integrate with Red Hat OpenStack Neutron services. Open virtual network is targeted for general availability in Red Hat Virtualization 4.2
Hot add virtual devices	Disk, virtual central processing unit (vCPU), memory, network interface controller (NIC)	Disk, vCPU, memory, NIC	Red Hat Virtualization supports hot add and hot remove of vCPU, memory, NICs, and disks.

COMPETITIVE REVIEW Red Hat Virtualization and vSphere competitive review

FEATURE	VSPHERE	RED HAT VIRTUALIZATION	NOTE
Storage supported	Network file system (NFS) (v3, v4), storage area network (SAN) (internet small computer system interface-iSCSI, fibre channel over ethernet-FcoE, fibre	NFS (v3, v4), SAN (iSCSI, FCoE, FC) Red Hat Gluster Storage (NFS, Red Hat JBoss Fuse, Red Hat Hyperconverged Infrastructure), local	Red Hat Virtualization supports most modern storage protocols.

Table 1. VMware vSphere and Red Hat Virtualization feature comparison

LIMITS COMPARISON

VIRTUAL LIMITS	VSPHERE	RED HAT VIRTUALIZATION
Max RAM per host	12TB	12TB
Max hosts per cluster	64	200
Max vCPU per VM	128	240
Max RAM per VM	4TB	6TB

SUMMARY

Red Hat Virtualization is a complete infrastructure solution for virtualized servers and technical workstations. Built on the powerful Red Hat Enterprise Linux platform and KVM, Red Hat Virtualization provides ease of use, agility, and security for virtualized, resource-intensive workloads. It helps organizations optimize their IT infrastructure with better performance, competitive pricing, and a trusted Red Hat environment.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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
---------------------------------------	--	---	---

LEARN MORE

Visit the Red Hat Virtualization web page at <https://redhat.com/rhv>

Visit the IT optimization web page at <https://redhat.com/en/challenges/optimize-it>

Download analyst papers:
[IDC modern datacenter and the importance of virtualization whitepaper](#)

[Forrester total economic impact study of Red Hat Virtualization](#)



facebook.com/redhatinc
[@redhatnews](https://twitter.com/redhatnews)
linkedin.com/company/red-hat

redhat.com
#F10106_0318