



RED HAT ENTERPRISE VIRTUALIZATION FOR SERVERS: PRICING & LICENSING GUIDE



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INTRODUCTION TO RED HAT ENTERPRISE VIRTUALIZATION

Server virtualization offers tremendous benefits for enterprise IT organizations – server consolidation, hardware abstraction, and internal clouds deliver a high degree of operational efficiency. However, today, server virtualization is not used pervasively in the production enterprise datacenter. Some of the barriers preventing wide-spread adoption of existing proprietary virtualization solutions are performance, scalability, security, cost, and ecosystem challenges.

The Red Hat Enterprise Virtualization portfolio is an end-to-end virtualization solution, with use cases for both servers and desktops, that is designed to overcome these challenges, enable pervasive datacenter virtualization, and unlock unprecedented capital and operational efficiency. The Red Hat Enterprise Virtualization portfolio builds upon the Red Hat Enterprise Linux platform that is trusted by millions of organizations around the world for their most mission-critical workloads. Combined with KVM, the latest generation of virtualization technology, Red Hat Enterprise Virtualization delivers a secure, robust virtualization platform with unmatched performance and scalability for Red Hat Enterprise Linux and Windows guests.

Red Hat Enterprise Virtualization for Servers consists of the following components:

Red Hat Enterprise Virtualization Manager for Servers: A feature-rich server virtualization management system that provides advanced management capabilities for hosts and guests, including high availability, live migration, storage management, system scheduler, and more.

Red Hat Enterprise Virtualization Hypervisor: A modern hypervisor based on KVM which can be deployed either as:

- A standalone, small footprint, high-performance, secure hypervisor based on the Red Hat Enterprise Linux kernel (included with Red Hat Enterprise Virtualization for Servers).

Or

- **Red Hat Enterprise Linux 5.4:** The latest Red Hat Enterprise Linux platform release (purchased separately) that integrates KVM hypervisor technology, allowing customers to increase their operational and capital efficiency by leveraging the same hosts to run both native Red Hat Enterprise Linux applications and virtual machines running supported guest operating systems.

RED HAT ENTERPRISE VIRTUALIZATION SUBSCRIPTION PRICING

Red Hat Enterprise Virtualization subscription pricing is based on number of managed sockets, providing customers with a straightforward model for ordering, deployment, and capacity planning. Customers familiar with Red Hat Enterprise Linux subscription pricing should find Red Hat Enterprise Virtualization subscription pricing easy to understand and implement.



Red Hat Enterprise Virtualization for Servers pricing

Red Hat Enterprise Virtualization for Servers is priced based on the number of physical CPU sockets in the virtualization cluster. There are no licensing limitations on the total number of sockets or the total number of cores per host. Red Hat Enterprise Virtualization Manager for Servers requires an x86 server, Windows Server 2003 SP2 or higher and Microsoft .Net 3.0 or higher.

- Red Hat Enterprise Virtualization for Servers Standard (12x5) subscription is available for \$499/socket/year.
- Red Hat Enterprise Virtualization for Servers Premium (24x7) subscription is available for \$749/socket/year.

RED HAT ENTERPRISE VIRTUALIZATION HYPERVISOR PRICING

Red Hat Enterprise Virtualization Hypervisor is available in two editions.

Red Hat Enterprise Virtualization Hypervisor (RHEV-H)

RHEV-H is a small-footprint, bare metal hypervisor that is included in the Red Hat Enterprise Virtualization for Servers subscription. Red Hat Enterprise Virtualization Hypervisor is the best choice for deployments where the full Red Hat Enterprise Linux operating system on the host is unnecessary, and for customers who are most comfortable managing their virtual machines from Red Hat Enterprise Virtualization Manager for Servers on Windows.

- Red Hat Enterprise Virtualization Hypervisor subscription (1 socket/unlimited guests) is included with each Red Hat Enterprise Virtualization for Servers subscription.

Red Hat Enterprise Linux as a hypervisor

For customers who want to host Red Hat Enterprise Virtualization on a full Red Hat Enterprise Linux instance, Red Hat Enterprise Linux or Red Hat Enterprise Linux Advanced Platform can be used as a host for virtual machines. A Red Hat Enterprise Linux or Red Hat Enterprise Linux Advanced Platform subscription is required for each host in this model, in addition to the Red Hat Enterprise Virtualization for Servers subscription.

Red Hat Enterprise Linux is limited to two (2) socket hosts and up comes with four (4) Red Hat Enterprise Linux virtual machine guests per host. **Red Hat Enterprise Linux Advanced Platform** can use hosts with unlimited sockets and comes with unlimited Red Hat Enterprise Linux virtual guests per host.

- Please see Red Hat Enterprise Linux pricing for the latest subscription pricing for Red Hat Enterprise Linux as a hypervisor.

RED HAT ENTERPRISE LINUX VIRTUAL GUEST PRICING

For Red Hat Enterprise Virtualization customers who plan to run Red Hat Enterprise Linux virtual guests, there are four choices:



1. Purchase one **Red Hat Enterprise Linux** subscription for each virtual machine. The entitlement to run each Red Hat Enterprise Linux guest resides in the guest subscription, and there is no restriction on migration to another host. This is the same license that is purchased for bare metal servers, so it can be used for bare-metal installs as well. This is the most cost-effective option for a small total number of Red Hat Enterprise Linux guests.
2. Purchase one **Red Hat Enterprise Linux Advanced Platform** subscription to run as a hypervisor for each host. Red Hat Enterprise Linux Advanced Platform comes with unlimited guest entitlements per host. The entitlement to run each Red Hat Enterprise Linux guest resides in the host subscription. Guests can only be migrated or moved to other hosts with Red Hat Enterprise Linux Advanced Platform installed on the host. This is the most cost effective option for high densities of Red Hat Enterprise Linux guests on all or some of your virtualization servers.
3. Purchase **Red Hat Enterprise Linux as a Virtual Guest 4 Packs (Per Host)**. If your environment requires a relatively low density of Enterprise Linux guests (4 per host or less), the Red Hat Enterprise Linux Virtual Guest 4 Packs are a good choice. You must purchase one 4 pack for each host. You can pool among licensed hosts, but you cannot have an average density more than 4 Red Hat Enterprise Linux guests per host—you must either entitle additional hosts or move to the 100 pack (see below). This option allows you to run a low density of Red Hat Enterprise Linux while still using the small footprint Red Hat Enterprise Virtualization Hypervisor included with Red Hat Enterprise Virtualization for Servers.
 - Red Hat Enterprise Linux as a Virtual Guest 4 Pack (per host), Standard Support (12x5) subscription is \$799/host/year.
 - Red Hat Enterprise Linux as a Virtual Guest 4 Pack (per host), Premium Support (24x7) subscription is \$1,299/host/year.
4. Purchase **Red Hat Enterprise Linux as a Virtual Guest 100 Packs (Per Socket)**. If your environment has a high density of Enterprise Linux guests, or if you are clustering your Enterprise Linux guests together to create a high density, you can use Red Hat Enterprise Linux Virtual Guest 100 Packs. One 100 pack must be purchased for each socket on each host you wish to enable for Red Hat Enterprise Linux virtual guests. This option allows you to run a high density of Red Hat Enterprise Linux while still using the small footprint Red Hat Enterprise Virtualization Hypervisor included with Red Hat Enterprise Virtualization for Servers, as an alternative to Option 2 above.
 - Red Hat Enterprise Linux as a Virtual Guest 100 Pack (per socket), Standard Support (12x5) subscription is \$1,750/socket/year.
 - Red Hat Enterprise Linux as a Virtual Guest 100 Pack (per socket), Premium Support (24x7) subscription is \$2,250/socket/year.

OTHER OPERATING SYSTEM GUEST PRICING

Pricing for Windows and other supported operating system guests is available through your authorized reseller.



ADVANTAGES OF RED HAT ENTERPRISE VIRTUALIZATION SUBSCRIPTION PRICING

Red Hat Enterprise Virtualization brings the benefits of subscription pricing that users of Red Hat Enterprise Linux have enjoyed to the enterprise virtualization market. These include:

- **Low upfront costs:** Other virtualization solutions consist of a high-cost perpetual license, and added subscription costs for ongoing support and updates. Red Hat Enterprise Virtualization pricing is based on an annual subscription cost for support and updates, and has no high upfront cost. This allows customers to virtualize many more servers in the first year of ownership at a lower cost than other solutions.
- **Predictable long-term costs:** Version upgrades are included in the subscription cost, so there is no risk of high cost upgrades later on.
- **Simplicity:** Unlike other solutions with seven different editions each with a different mix of features, with Red Hat Enterprise Virtualization you get all of our enterprise virtualization management features. The only choices are what level of support your environment needs, and whether you want bare-metal Red Hat Enterprise Virtualization Hypervisor or a full instance of Red Hat Enterprise Linux on your virtual machine hosts. Hosts are licensed on a per-socket basis, resulting in straightforward pricing.

RED HAT ENTERPRISE VIRTUALIZATION FOR SERVERS FEATURES

Red Hat Enterprise Virtualization for Servers is available in a single, enterprise-ready edition with your choice of mission-critical or business-hours support. Red Hat Enterprise Virtualization for Servers delivers the following management features for server virtualization:

- High availability
- Live migration
- System scheduler
- Maintenance manager
- Image management
- Monitoring and reporting



PRICING EXAMPLES

Red Hat Enterprise Virtualization pricing is based on the number of managed sockets in your virtual environment, making pricing and forecasting simple. Please note that Windows licensing costs shown below are only estimates based on undiscounted volume license pricing. These scenarios are for information only.

In all cases, we assume that when there are multiple choices in how to license a product, the customer will choose the lowest price option. This may not always be optimal for your environment. For example, you may need the flexibility of Red Hat Enterprise Linux as a hypervisor host in a Red Hat Enterprise Virtualization for Servers scenario where the lowest cost option is to use the free RHEV-H hypervisor. This information is not captured in Red Hat's calculations, and should be something you discuss with your reseller or salesperson.

The following are the major assumptions behind our pricing logic:

Red Hat Enterprise Virtualization Hypervisor Pricing

For **Red Hat Enterprise Virtualization for Servers**, the customer has three options for the hypervisor installed on each host. Our models will calculate all three options and then choose the least expensive option:

1. Use the **RHEV-H** bare metal hypervisor that comes included with the Red Hat Enterprise Virtualization for Servers product. This option costs nothing additional, but does not include guest licenses for Red Hat Enterprise Linux.
2. Purchase **Red Hat Enterprise Linux** for use as a hypervisor. This product is limited to two (2) socket servers, so will not be chosen in four socket configurations. It includes four (4) Red Hat Enterprise Linux virtual guest licenses per node, and additional licenses must be purchased separately.
3. Purchase **Red Hat Enterprise Linux Advanced Platform** for use as a hypervisor. This product can be used with any server with any number of sockets. It includes unlimited Red Hat Enterprise Linux virtual guest licenses per node.

Depending on the pricing scenario, the recommended configuration may use the RHEV-H hypervisor or one of the Red Hat Enterprise Linux products as a hypervisor, based on whichever option yields the lowest cost of Red Hat Enterprise Linux guest licenses. At low density and low number of Red Hat Enterprise Linux guests, the recommendation will usually be to use the free RHEV-H hypervisor that comes with Red Hat Enterprise Virtualization for Servers. At higher densities of Red Hat Enterprise Linux guests, the recommendation will be to use Red Hat Enterprise Linux Advanced Platform as the hypervisor.

Red Hat Enterprise Linux Guest Pricing

For the pricing of **Red Hat Enterprise Linux** guests for virtualized environments, there are four options:

1. Purchase one standalone license of **Red Hat Enterprise Linux** for each guest. This scenario is chosen when there is a very low density and number of Red Hat Enterprise Linux guests in the environment.



2. Purchase the **Red Hat Enterprise Linux as a Virtual Guest 4 Pack** to enable hosts for Red Hat Enterprise Linux guests. Customers must purchase one 4 pack for each host, and are limited to an average density of 4 Enterprise Linux guests or less. This is the usual choice for VMware and Hyper-V environments with a low density of Red Hat Enterprise Linux guests, and is also an option for Red Hat Enterprise Virtualization for Servers customers.
3. Purchase the **Red Hat Enterprise Linux as a Virtual Guest 100 Pack** to enable hosts for Red Hat Enterprise Linux guests. Customers must purchase at least one 100 pack for each socket on each host. This is the usual choice for VMware and Hyper-V environments with a high density of Red Hat Enterprise Linux guests, and is also an option for Red Hat Enterprise Virtualization for Servers customers.
4. **Red Hat Enterprise Virtualization for Servers** customers have the option to purchase **Red Hat Enterprise Linux Advanced Platform** as a hypervisor and make use of its unlimited number of virtual guests per node. This is the option chosen for environments with a very high density of Red Hat Enterprise Linux guests.

Windows Server Guest Licensing

Windows Server guest licensing is a bit more complicated, and depends on whether you are using Hyper-V as your virtualization platform or not. Microsoft may also offer certain customers different licensing entitlements in an enterprise license agreement. This document only uses the entitlements and licensing rules for generally available volume license versions of Windows Server 2008 R2.

There are three flavors of Windows Server considered here: Standard, Enterprise, and Datacenter. Our calculations assume that customers will choose either Enterprise or Datacenter for use a hypervisor host operating systems to be able to use advanced features such as live migration and high availability, but that a minimum of Windows Server Standard is fine for guest operating systems. We do not use the free Hyper-V Server 2008 product as a host, since it is equivalent to Windows Server 2008 Standard and does not enable enterprise virtualization features.

For **Red Hat Enterprise Virtualization for Servers**, our calculations use the minimum of the cost of:

1. Purchase **Windows Server 2008 Standard or Enterprise** licenses individually and float them in the environment. When used in this manner, the licenses are more expensive per unit, but the right to use lives inside the virtual machine and therefore it can be live migrated anywhere in the environment. This scenario is chosen for low density and low total number of Windows guests.
2. Purchase **Windows Server 2008 Enterprise** licenses for each host, which entitles you to 4 Windows guests on that host, and if necessary stack additional Enterprise licenses to get to your average density. When used in this manner, licenses can be less expensive, but the customer is responsible for ensuring that the number of Windows guests on each host is sized for peak demand, which may cause limitations in implementation.
3. Purchase **Windows Server 2008 Datacenter** licenses for each socket on every host. This gives all the hosts the right to unlimited Windows guests, and allows live migration to any host without



licensing issues. This is generally the most expensive option, and chosen when there is a high number and a high density of Windows guests.

4. Purchase **Windows Server 2008 Datacenter** licenses for each socket on a subset of the total hosts, which will then be placed in a Windows-only cluster. This gives all the hosts within the cluster the right to unlimited Windows guests. This option is recommended where there is a high number of Windows guests, but not high enough that Datacenter licenses for all hosts is warranted.



100 Red Hat Enterprise Linux Guests

In an environment of 100 Red Hat Enterprise Linux guests, there is the option of using either Red Hat Enterprise Virtualization Hypervisor or Red Hat Enterprise Linux Advanced Platform as the hypervisor. For customers with Red Hat Enterprise Linux experience, using Red Hat Enterprise Linux Advanced Platform as the host makes more sense economically.

Product	Unit Price	Qty	Extended
2 Sockets (quad core) 32GB server	\$7,500	9	\$67,500
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	9	\$22,491
First year total			\$110,898
Year 2			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	9	\$22,491
Year 3			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	9	\$22,491
Total 3-year cost			\$197,694



100 Windows Guests

In a virtual environment with 100 Windows guests, and with administrators with little Red Hat Enterprise Linux experience, we recommend using the Red Hat Enterprise Virtualization Hypervisor included with the Red Hat Enterprise Virtualization for Servers subscription.

Our recommended solution using two-socket quad-core Xeon servers with 32 GB of RAM each is nine (9) physical servers. At this density, Windows Server Datacenter licenses are slightly cheaper than standalone licenses and give the flexibility of unlimited Windows Server guests on each node.

Total cost for the solution:

Product	Unit Price	Qty	Extended
2 Sockets (quad core) 32GB server	\$7,500	9	\$67,500
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Server Datacenter	\$2,405	18	\$43,290
Windows Software Assurance	\$10,823	1	\$10,823
First year total			\$142,520
Year 2			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Software Assurance	\$10,823	1	\$10,823
Year 3			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Software Assurance	\$10,823	1	\$10,823
Total 3-year cost			\$205,979



Mixed Guest Environment: 50 Windows Guests and 50 Red Hat Enterprise Linux Guests

With a mixed guest environment of 50 Windows guests and 50 Red Hat Enterprise Linux guests, we recommend 9 physical servers: 4 in a purely Windows cluster, 4 in a purely Red Hat Enterprise Linux guest cluster, and 1 in a mixed cluster licensed for both Windows and Red Hat guests. For Red Hat Enterprise Linux guest licensing, it is less expensive in this scenario to use Red Hat Enterprise Linux Advanced Platform for the 5 Enterprise Linux hosts. For Windows licensing, it is least expensive to purchase Windows Datacenter for the 5 servers in the Windows cluster.

Our total cost is:

Product	Unit Price	Qty	Extended
2 Sockets (quad core) 32GB server	\$7,500	9	\$67,500
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Server Datacenter	\$2,405	10	\$24,050
Windows Software Assurance	\$6,013	1	\$6,013
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	5	\$12,495
First year total			\$130,965
Year 2			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Software Assurance	\$6,013	1	\$6,013
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	5	\$12,495
Year 3			
Hardware support	\$825	9	\$7,425
Red Hat Enterprise Virtualization for Servers (Premium)	\$749	18	\$13,482
Windows Software Assurance	\$6,013	1	\$6,013
Red Hat Enterprise Linux Advanced Platform (as Hypervisor) (PREMIUM)	\$2,499	5	\$12,495
Total 3-year cost			\$209,794



PART NUMBERS AND ORDERING INFORMATION

Part number	Description	List price
Red Hat Enterprise Virtualization for Servers		
MCT1786	Red Hat Enterprise Virtualization for Servers, Standard Support (12x5) per socket, 1-Year (includes Manager and small footprint Hypervisor)	\$499
MCT1786F3	Red Hat Enterprise Virtualization for Servers, Standard Support (12x5) per socket, 3-Year (includes Manager and small footprint Hypervisor)	\$1,422
MCT1787	Red Hat Enterprise Virtualization for Servers, Premium Support (24x7) per socket, 1-Year (includes Manager and small footprint Hypervisor)	\$749
MCT1787F3	Red Hat Enterprise Virtualization for Servers, Premium Support (24x7) per socket, 3-Year (includes Manager and small footprint Hypervisor)	\$2,135
Red Hat Enterprise Linux as a Virtual Guest (4 guests per host)		
MCT1851	Red Hat Enterprise Linux as a Virtual Guest (4 guests per host), Standard Support (12x5), 1-Year	\$799
MCT1851F3	Red Hat Enterprise Linux as a Virtual Guest (4 guests per host), Standard Support (12x5), 3-Year	\$2,277
MCT1852	Red Hat Enterprise Linux as a Virtual Guest (4 guests per host), Premium Support (24x7), 1-Year	\$1,299
MCT1852F3	Red Hat Enterprise Linux as a Virtual Guest (4 guests per host), Premium Support (24x7), 3-Year	\$3,702
Red Hat Enterprise Linux as a Virtual Guest (100 guests per socket)		
MCT1862	Red Hat Enterprise Linux as a Virtual Guest (100 guests per socket), Standard Support (12x5), 1-Year	\$1,750
MCT1862F3	Red Hat Enterprise Linux as a Virtual Guest (100 guests per socket), Standard Support (12x5), 3-Year	\$4,987
MCT1863	Red Hat Enterprise Linux as a Virtual Guest (100 guests per socket), Premium Support (24x7), 1-Year	\$2,250
MCT1863F3	Red Hat Enterprise Linux as a Virtual Guest (100 guests per socket), Premium Support (24x7), 3-Year	\$6,412
Red Hat Enterprise Linux Individual Guest Licenses		
MCT0346	Red Hat Enterprise Linux, Standard Support (12x5), 1-Year	\$799
MCT0346F3	Red Hat Enterprise Linux, Standard Support (12x5), 3-Year	\$2,277
MCT0798	Red Hat Enterprise Linux, Premium Support (24x7), 1-Year	\$1,299
MCT0798F3	Red Hat Enterprise Linux, Premium Support (24x7), 3-Year	\$3,702
MCT0982	Red Hat Enterprise Linux Advanced Platform, 12x5 Support, 1-Year	\$1,499



MCT0982F3	Red Hat Enterprise Linux Advanced Platform, 12x5 Support, 3-Year	\$4,272
MCT0983	Red Hat Enterprise Linux Advanced Platform, Premium Support (24x7), 1-Year	\$2,499
MCT0983F3	Red Hat Enterprise Linux Advanced Platform, Premium Support (24x7), 3-Year	\$7,122

To assist customers in sizing and ordering the correct number of licenses, Red Hat has developed a web-based configurator for Red Hat Enterprise Virtualization. With it, you can enter the number of type of virtual machines you need to virtualize, and the configurator will calculate the number of hosts and a bill of materials for Red Hat Enterprise Virtualization and Red Hat Enterprise Linux products. For more information, see <http://www.redhat.com/rhev/server/cost>

The Red Hat Enterprise Linux and Red Hat Enterprise Virtualization product offerings, pricing, terms and conditions are based on United States published retail pricing, are accurate as of October, 2009 and are subject to change and local pricing. Pricing for non-Red Hat guest operating systems is based on published retail pricing in the United States and is subject to change and local pricing.

For more information on Red Hat Enterprise Virtualization pricing and configuration, please contact your local Red Hat sales office or Red Hat authorized reseller.

SUMMARY

The subscription pricing and licensing for Red Hat Enterprise Virtualization has been designed to simplify the specification and purchasing of your server virtualization solution. The Red Hat subscription model offers benefits to both new and existing Red Hat customers, and the straightforward per-socket management subscription and single enterprise-ready edition of Red Hat Enterprise Virtualization for Servers make specification and cost forecasting easy.