RED HAT ENTERPRISE VIRTUALIZATION: COMPETITIVE PRICING GUIDE

AT A GLANCE

- Buy RHEV for Servers on a per managed-socket per year subscription

- No costly "Editions" that force you into expensive upgrades to get a feature you need

- No "vRAM" licensing or limits – Use as much RAM in your virtual machines as you need without paying more

- RHEV Manager included with subscription – no need to purchase separately; deploy as many as you need

- Just count your hypervisor sockets, choose your SLA, and go!

EXECUTIVE SUMMARY

This document compares the pricing of Red Hat Enterprise Virtualization (RHEV) with the pricing of VMware vSphere5 for server virtualization. Both the RHEV for Servers subscription pricing and the VMware vSphere5 license and support pricing are explained prior to the detailed pricing comparisons for the use cases of 100 and 250 virtual servers. As the analysis reveals, a RHEV for Server solution costs 60-90% less than VMware vSphere5 solution. Or in other words, VMware can be up to five times more expensive. To focus on a true cost comparison, this analysis only considered the virtualization solution consisting of the hypervisor host and enterprise management system. Server hardware costs and virtual server operating system costs are not included since they would be identical for both solutions.

COMPARING RED HAT ENTERPRISE VIRTUALIZATION PRICING TO VMWARE PRICING

For Red Hat Enterprise Virtualization, Red Hat uses a pricing model which is different than the model used by VMware for vSphere 5. It is important to understand these differences to accurately compare costs across platforms. In a typical virtualization solution, you may have the following elements: hypervisor, management server, and management agent. For each element, you may also need to think about an upfront license fee and a subscription fee for maintenance and support.

RED HAT ENTERPRISE VIRTUALIZATION FOR SERVERS PRICING

All Red Hat products are offered under a subscription model that includes product access, all updates and product support. Rather than charging high, upfront license costs, Red Hat charges an annual subscription fee that costs the same each year and is based on the level of support you need.

The Red Hat Enterprise Virtualization (RHEV) for Servers subscription is priced on a per-socket basis (for each hypervisor) and includes the RHEV Manager and the RHEV Hypervisor (RHEV-H). RHEV-H is a bare metal, small foot-print Kernel-based Virtual Machine (KVM) hypervisor based on the full Red Hat Enterprise Linux kernel (RHEL). Alternatively, a customer can choose to deploy the full RHEL with KVM operating system on the hypervisor host server to be managed by RHEV-Manager. Each managed socket on a virtualization host requires one subscription of RHEV for Servers.

Note: Red Hat Enterprise Virtualization for Desktops subscription pricing is an add-on to the Red Hat Enterprise Virtualization for Servers product and is sold in groups of 25 desktops.

The subscription pricing and licensing for Red Hat Enterprise Virtualization have been designed to simplify the specification and purchasing of your virtualization solution. The straightforward subscription model and single, enterprise-ready edition of Red Hat Enterprise Virtualization make specification and cost forecasting predictable and easy benefiting both new and existing Red Hat customers.

Subscription	Includes
Red Hat Enteprise Virtualization (RHEV) for Servers	• Unlimited nodes of RHEV Manager • 1 socket of RHEV-H hypervisor • Support and updates • No vRAM limits • Entire RHEV for Server feature set (no editions)
RHEV for Server Support	Included in above base subscription Standard (Business hours) or Premium (24 x 7) level

Step-by-step process to calculate RHEV for Servers pricing.

1. Count sockets of hypervisor server hosts.

2. Choose support level (Standard or Premium)

3. Buy subscriptions for the number of sockets in managed hypervisor host servers.

VMWARE VSPHERE 5 PRICING

The VMware virtualization solution consists of vSphere nodes (hypervisor and vCenter management agent) and the vCenter Management server. Each vSphere node license includes a vCenter Management license. Pricing is based on a per-socket model with a vRAM entitlement for the vSphere nodes, and a per-server model for the vCenter Management Server. The vSphere product is packaged into the different "editions" of Standard, Enterprise and Enterprise Plus which differ by management functionality. In general, from a functionality comparison, Red Hat Enterprise Virtualization for Servers compares to the VMware vSphere 5 Enterprise Edition.

Depending on the edition, each vSphere 5.0 CPU license provides a base vRAM capacity entitlement. The vRAM entitlements of vSphere CPU licenses are pooled or aggregated across all CPU licenses of that edition at a customer site to form a total available or pooled vRAM capacity. Therefore, for each edition installed at a site, the customer will need to buy the maximum of (a) the total count of sockets running that Edition or (b) the total vRAM on the VMs running on that edition. The vRAM base entitlement for each VSphere5 edition is 32GB vRAM for Standard Edition, 64 GB vRAM for Enterprise Edition, and 96GB vRAM for Enterprise Plus.

In addition to the upfront license fees for the per-socket and vRAM entitlement, there is also an annual service and support contract called Support and Subscription or (SnS); which entitles the customer to support, patches, and upgrades. The customer must also purchase a VMware vCenter Management server license separately. While VMware markets its ESXi bare metal hypervisor as an effectively "free" product, ESXi does not include support, is limited to 32GB vRAM, and does not support advanced multinode management without "upgrading" it to one of the paid editions of vSphere 5.

For a typical environment, the customer will need to purchase the following:

Subscription	Includes
vCenter Management Server License	• 1 node of vCenter Management Server • No management agents • No hypervisor
vCenter Management Server Support Subscription	• Support and updates for above • Gold (Business hours) or Platinum (24 x 7) level
vSphere 5 License (editions include Standard, Enterprise, Enterprise Plus)	• 1 socket of ESXi hypervisor • 1 vRAM entitlement(32GB, 64GB, or 96GB depending on the edition) • 1 socket of vCenter Management Agent
vSphere 5 Support Subscription	• Support and updates for above • Gold (Business hours) or Platinum (24 x 7) level

Step-by-step process to calculate vSphere 5 pricing and licensing.

1. Buy a minimum of one vCenter Management Server license.

2. Choose Edition (Standard, Enterprise, Enterprise Plus), based on:

- Features (some features require moving to more expensive edition)
- Limits (vCPU/VM) (Standard and Enterprise only support 8 vCPU/VM, Enterprise Plus required for 9-32 vCPU/VM)
- vRAM entitlement (Standard: 32GB, Enterprise 64GB, Enterprise Plus 96GB)

3. Count sockets of hypervisor server hosts.

4. Add all the vRAM in all the running virtual machines planned for that vSphere 5 edition. Note that the maximum vRAM licensing charge for a single virtual machine is 96GB (i.e., a VM with 128GB of vRAM requires only a 96GB vRAM entitlement.)

5. Determine the number of licenses required for vRAM (vRAM entitlement /CPU: Standard=32GB, Enterprise=64GB, Enterprise Plus =96GB)

6. Buy the maximum of either (a) number of physical sockets OR (b) number of licenses needed for vRAM of vSphere

7. Determine the number of licenses required for vRAM (vRAM entitlement /CPU: Standard=32GB, Enterprise=64GB, Enterprise Plus =96GB)

8. Buy the maximum of either (a) number of physical sockets OR (b) number of licenses needed for vRAM of vSphere

9. Buy additional CPU licenses for additional sockets or for using additional vRAM on sockets already purchased as you grow.

For more information, see the document vSphere 5 Licensing Model at
http://www.vmware.com/files/pdf/vsphere_pricing.pdf

PRICING SCENARIOS

For each of these pricing scenarios, the first year cost of acquiring and supporting the virtualization management and hypervisor software and the three-year cost of ownership is examined. The costs for the hardware and for the guest operating systems have not been included since they are assumed to be the same for both a VMware and a RHEV virtualization deployment. From a functionality comparison, RHEV more closely matches the vSphere 5 Enterprise Edition and is compared to this edition. However, please note that due to the vSphere 5 vRAM entitlement licensing, there will be cases where the vSphere5 Enterprise Plus Edition with its 96GB vRAM entitlement can work out to have a lower solution price than the Enterprise Edition.

100 Virtual Machine Guests

The following table has the comparison of three year costs for Red Hat Enterprise Virtualization for Servers and VMware vSphere 5 Enterprise Edition. In this scenario 100 virtual machines are configured for small to medium workloads supporting IT and web infrastructure services. The average virtual server configuration is 2 vCPUs and 4 GB of vRAM.

Three year TCO analysis	Red Hat Enterprise Virtualization	VMware vSphere Enterprise Edition
Number of servers	6	6
Number of sockets	12	12
Total amount of vRAM	400 GB	400 GB
License costs (one-time)	$0	$39,495
Annual support /Subscription costs	$8,988	$9,877
Total First Year Costs	**$8,988**	**$49,372**
For the first year, VMware vSphere Enterprise is over 5 X more expensive than RHEV.		
Total Three Year Costs	**$26,964**	**$69,126**
Over 3 Years, VMware vSphere Enterprise is over 2.5 X more expensive than RHEV.		

This pricing scenario uses the following parameters and values.

Parameter	Value
Server processors	Two processors with 8 cores per processor.
Server memory capacity	Supports up to 256GB RAM
Target host utilization	75%
Virtual machines	Average of 2 vCPU and 4 GB vRAM
Total vCPU & vRAM	200vCPU and 400 GB vRAM
vCPU/pCore	3
vRAM/pRAM	1
Support	24x7

The following is a breakout of the above costs:

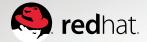| First Year Costs	Qty	Price	Total Price
RHEV for Servers Premium (24 x 7) (per socket)	12	$749	$8,988
VMware vSphere Enterprise (per socket)	12	$2,875	$34,500
VMware vSphere Enterprise SnS 24x7 (per socket)	12	$719	$8,628
VMware vCenter Server Standard	1	$4,995	$4,995
VMware vCenter Server SnS 24x7	1	$1,249	$1,249
Total VMware vSphere 5 first year cost			$49,372

250 Virtual Machine Guests

In this scenario, 250 virtual machines are configured for memory rich workloads such as decision support and business processing applications. These workloads tend to need higher amounts of memory with medium CPU processing capability. The average virtual server configuration is 2 vCPUs and 16GB of vRAM. Due to the way VMware licenses vRAM for vSphere 5 for each of its editions, it works out that the Enterprise Plus license with its 96 GB memory entitlement is the least expensive VMware vSphere 5 edition for the customer. So even though we do not need the features of Enterprise Plus, we will choose it solely because the vRAM is cheaper.

Three year TCO analysis	Red Hat Enterprise Virtualization	VMware vSphere Enterprise Edition
Number of servers	11	11
Number of sockets	22	22
Total amount of vRAM	4000 GB	4000 GB
√ License costs (one-time)	$0	$151,785
√ Annual support /Subscription costs	$16,478	$37,957
Total First Year Costs	$16,478	$189,742
For the first year, VMware vSphere Enterprise is over 5 X more expensive than RHEV.		
Total Three Year Costs	$49,434	$265,565
Over 3 Years, VMware vSphere Enterprise is over 5 X more expensive than RHEV.		

The following is a breakout of the above costs:

First Year Costs	Qty	Price	Total Price
RHEV for Servers Premium (24 x 7) (per socket)	22	$749	$16,478
VMware vSphere Enterprise Plus (per socket)	22	$3,495	$76,890
Additional Enterprise Plus needed for vRAM	20	$3,495	$69,900
VMware vSphere Enterprise Plus SnS 24x7	42	$874	$36,708
VMware vCenter Server Standard	1	$4,995	$4,995
VMware vCenter Server SnS 24x7	1	$1,249	$1,249
Total VMware vSphere 5 first year cost			$189,742

SUMMARY

In summary, RHEV for Servers virtualization solution offers compelling value by matching the VMware vSphere 5 offering with core functionality but at a price that can be 60-90% less expensive. 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 Manager for Servers make specification and cost forecasting easy.

To help you compare, Red Hat has developed an online TCO calculator and configurator for Red Hat Enterprise Virtualization. For more information, go to **http://www.redhat.com/rhev/server/cost**.

Red Hat product offerings, pricing, terms and conditions are accurate as of January 2012 and are subject to change and local pricing. Pricing for non-Red Hat virtualization platforms and guest operating systems are based on published retail or volume license pricing in the United States as of January 2012 and is subject to change and local pricing.

WHAT'S NEXT

For more information, please go to **http://www.redhat.com/rhev** or contact your local Red Hat sales office or Red Hat authorized partner.

ABOUT RED HAT

Red Hat, the world's leading provider of open source solutions and an S&P 500 company, is headquartered in Raleigh, NC with more than 70 offices spanning the globe. Red Hat provides high-quality, affordable technology with its operating system platform, Red Hat Enterprise Linux, together with cloud, virtualization, applications, management, storage and service-oriented architecture (SOA) solutions, including Red Hat Enterprise Virtualization and JBoss Enterprise Middleware. Red Hat also offers support, training and consulting services to its customers worldwide. Learn more: http://www.redhat.com.

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