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# Cutting Costs with Red Hat Enterprise Virtualization

Chuck Dubuque  
Product Marketing Manager, Red Hat  
June 24, 2010

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# AGENDA

**RED HAT ENTERPRISE VIRTUALIZATION OVERVIEW**

**BENEFITS OF VIRTUALIZATION**

**RED HAT'S UNIQUE VALUE PROPOSITION**

**VIRTUALIZATION SUBSCRIPTION PRICING AND  
SAMPLE CONFIGURATIONS**

**TCO AND ROI CALCULATOR TOOLS**

**QUESTIONS**

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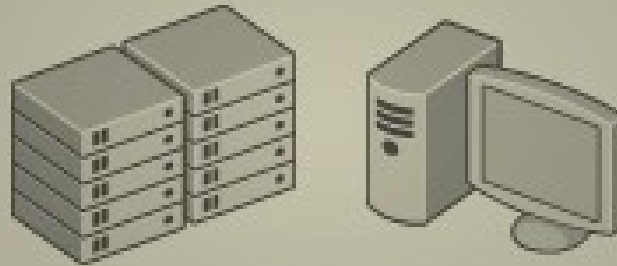
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# RED HAT ENTERPRISE VIRTUALIZATION

## RED HAT® ENTERPRISE VIRTUALIZATION 2.2

One platform for virtual servers and desktops



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# RED HAT ENTERPRISE VIRTUALIZATION

Enterprise grade, centralized management and hypervisor for server and desktop virtualization

Industry leading performance, scalability and security infrastructure

Ecosystem of thousands of hardware and software vendors

50-70% lower cost compared to other solutions



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# BENEFITS OF VIRTUALIZATION

- Server consolidation
- Hardware abstraction
- Increased utilization
- Increased manageability
- Increased agility

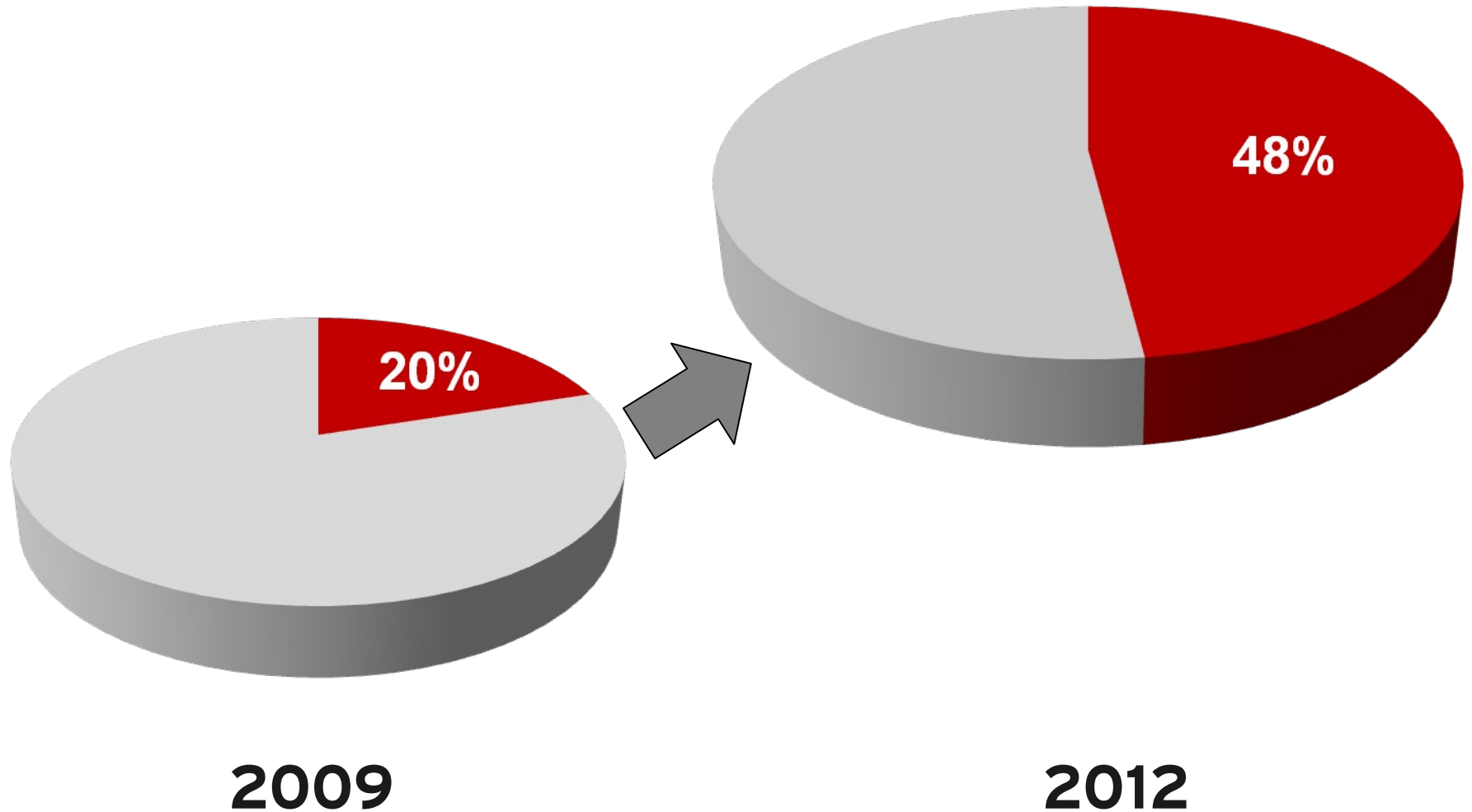
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# VIRTUALIZATION OF x86 WORKLOADS



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Gartner, Virtual Machines and Market Share Through 2012, Gartner ID#G00170437.

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# BARRIERS TO VIRTUALIZATION

- Performance
- Scalability
- Security
- Certification and support
- Cost and licensing

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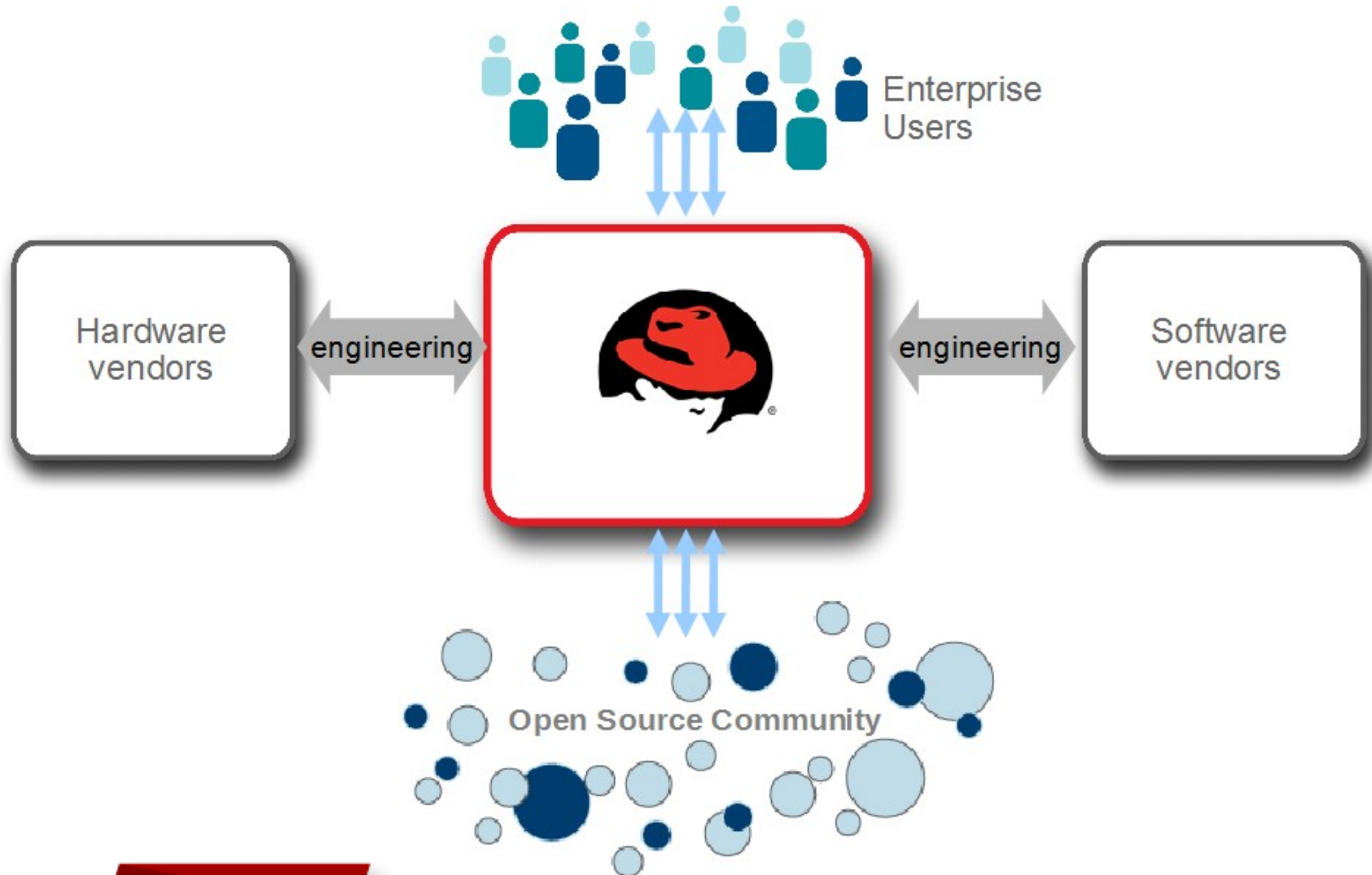
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# RED HAT BRINGS COMMUNITY, VENDORS, USERS TOGETHER



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# RED HAT SUBSCRIPTION BUSINESS MODEL

Provides continuous value and support for your virtualization infrastructure now and in the future

- Product Access
- Updates
- Patches
- Support options
- Certification

The subscription model .... a winning formula, one that more vendors should consider adopting.....

*Editor, CNET News  
October 20, 2009*



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# SIMPLE, SUBSCRIPTION PRICING MODEL FOR SERVER AND DESKTOP VIRTUALIZATION

## SERVER VIRTUALIZATION

Complete management feature set  
(high availability, live migration,  
system scheduler, power saver etc.)

High performance hypervisor

## DESKTOP VIRTUALIZATION

Add-on to RHEV infrastructure

SPICE, connection broker, desktop  
pools, etc.



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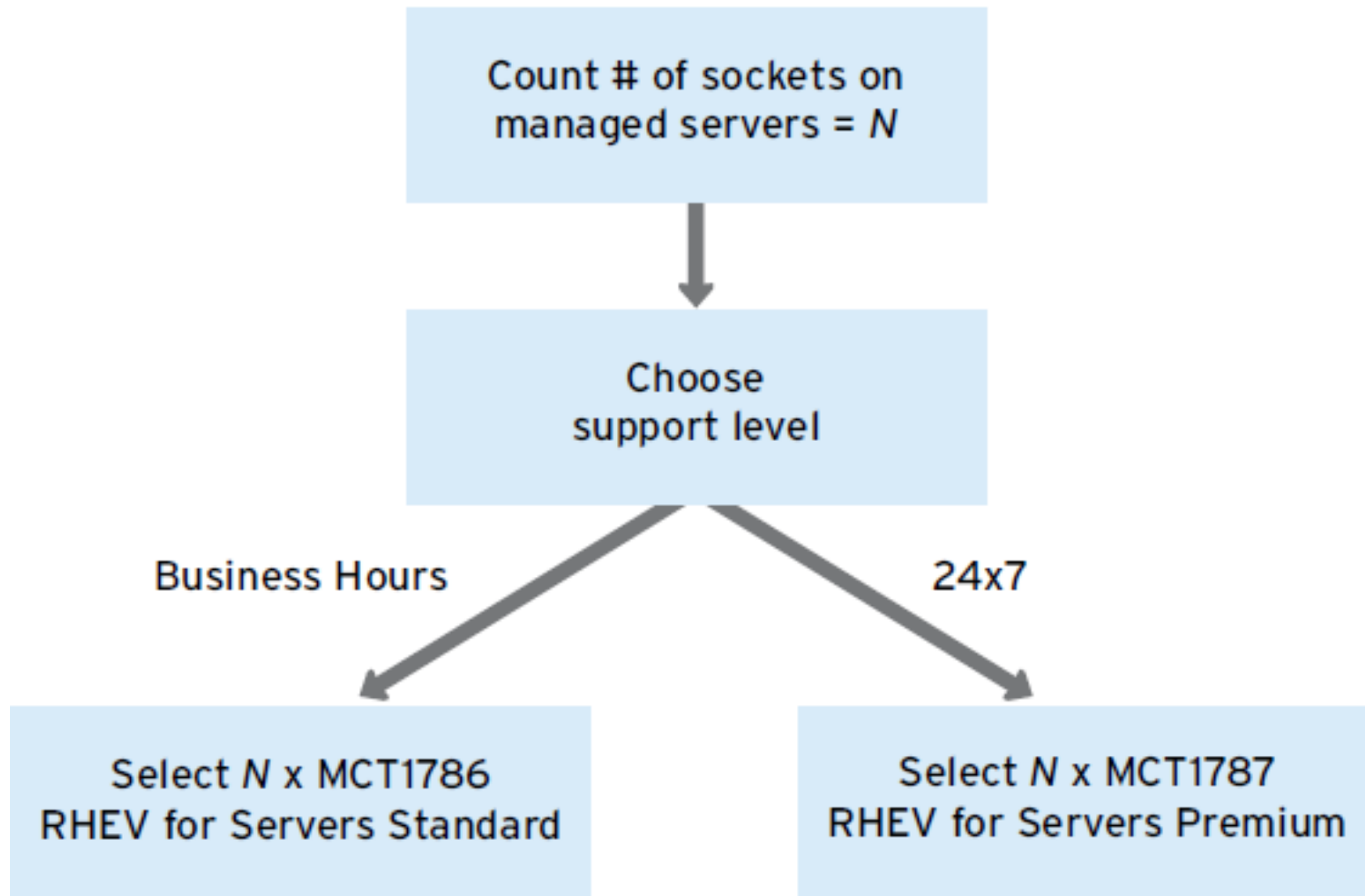
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# HOW DO I BUY RED HAT ENTERPRISE VIRTUALIZATION FOR SERVERS?



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# SERVER VIRTUALIZATION

	Red Hat	VMware	Microsoft
	Enterprise Virtualization for Servers 2.2	vSphere 4 Enterprise Edition	Windows Server 2008 R2 Hyper-V
1 year cost*	\$9,980	\$75,824	\$42,118
3 year cost*	\$29,940	\$102,482	\$58,972
Live Migration	√	√	√
System Scheduler	√	√	√
High Availability	√	√	X
Power Saver	√	√	X
Image Management	√	√	√
Memory Over Commit	√	√	X
Storage live migration	X	√	X
Max host configuration	96 core, 1TB RAM	64 core, 512 GB RAM	48 core, 1 TB RAM <small>*Based on 8-socket maximum</small>
Max guest configuration	16 vCPU, 256 GB RAM	8 vCPU, 255 GB RAM	4 vCPU 64 GB RAM <small>(1 vCPU Linux guests)</small>

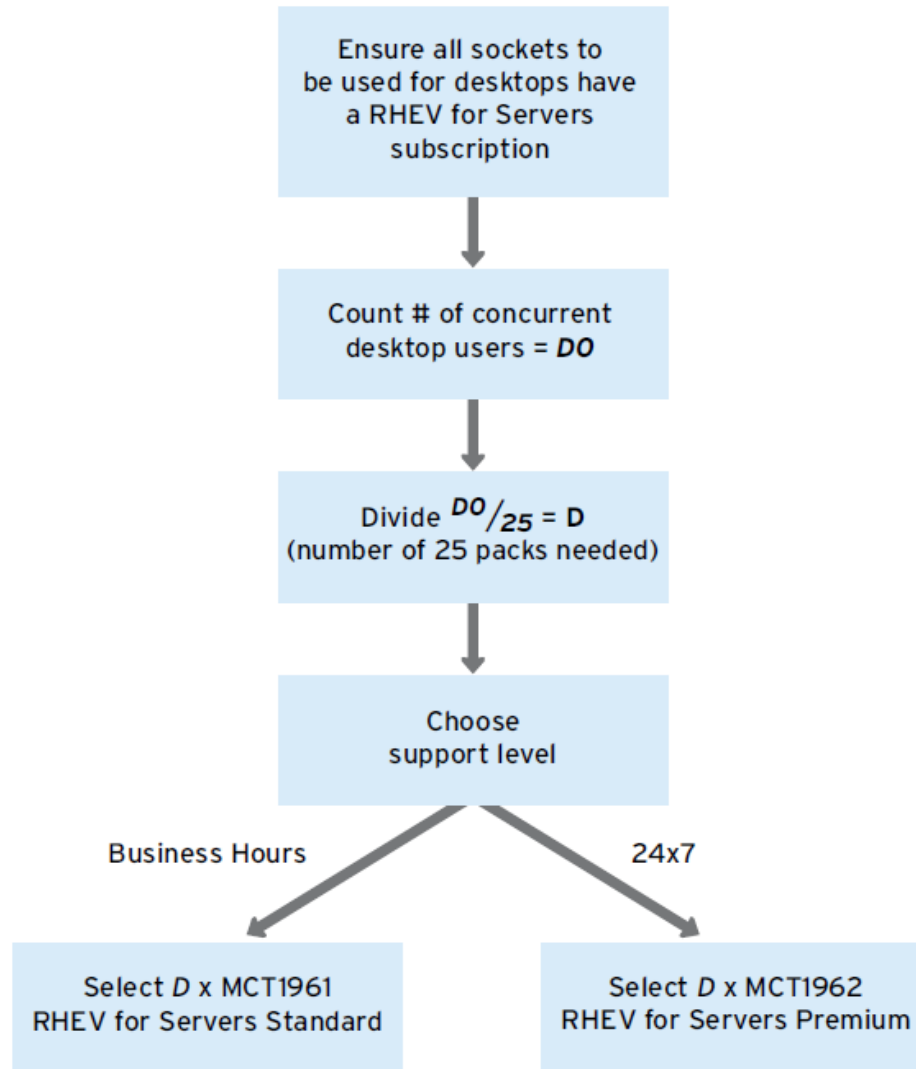
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# HOW DO I BUY RED HAT ENTERPRISE VIRTUALIZATION FOR DESKTOPS?



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# DESKTOP VIRTUALIZATION

	Red Hat	VMware	Citrix
	Enterprise Virtualization for Servers 2.2	View Enterprise	XenDesktop, VDI Edition
1 year cost*	\$4,494	\$18,750	\$19,500
3 year cost*	\$13,482	\$26,250	\$25,500
3 year cost w/hardware	\$30,282	\$43,050	\$59,100
Avg. cost/desktop/yr	\$101	\$144	\$197
Rich user experience	√ (SPICE)	√ (PCoIP)	√ (ICA/HDX)
Multiple monitors	√	√	√
Windows XP/7 guests	√	√	√
RHEL desktop guests	√	Partial	Partial
Desktop pooling	√	√	√
Memory over-commit/ high density	√	√	<b>NO</b>

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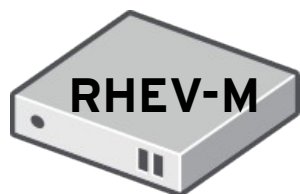
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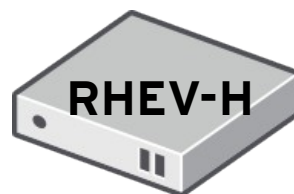
# CONFIGURATION 1: SERVERS ONLY

6 x Two Socket, Quad Core x86 Servers

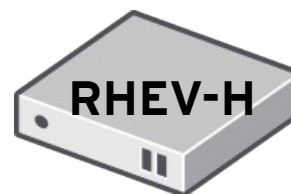
Server VMs only



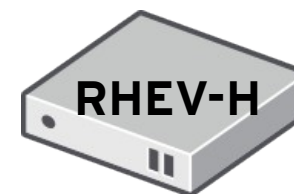
x86 Hardware



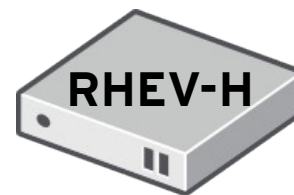
x86 Hardware



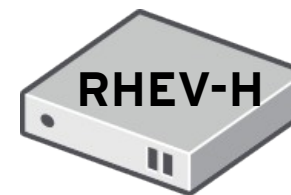
x86 Hardware



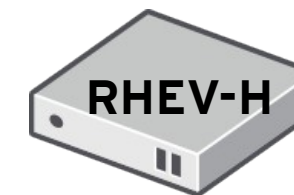
x86 Hardware



x86 Hardware



x86 Hardware



x86 Hardware



12 x Red Hat Enterprise Virtualization for Servers

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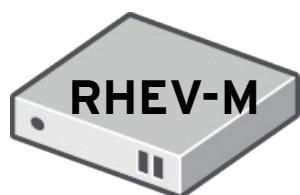


# CONFIGURATION 2: SERVERS AND DESKTOPS

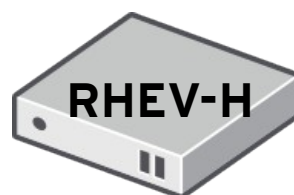
6 x Two Socket, Quad Core x86 Servers

100 Concurrent Desktops - Hosted on 3 Hosts

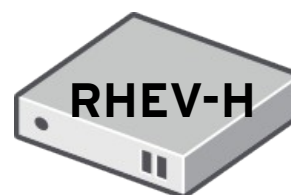
Server VMs on 3 Hosts



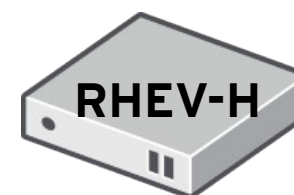
x86 Hardware



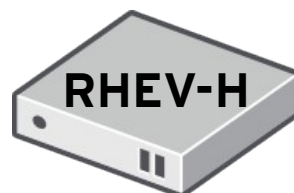
x86 Hardware



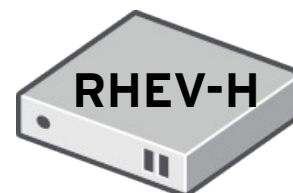
x86 Hardware



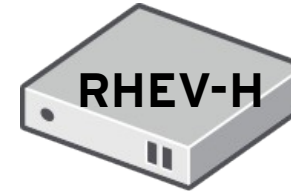
x86 Hardware



x86 Hardware



x86 Hardware



x86 Hardware



12 x Red Hat Enterprise Virtualization for Servers

4 x Red Hat Enterprise Virtualization for Desktops (25 pack)

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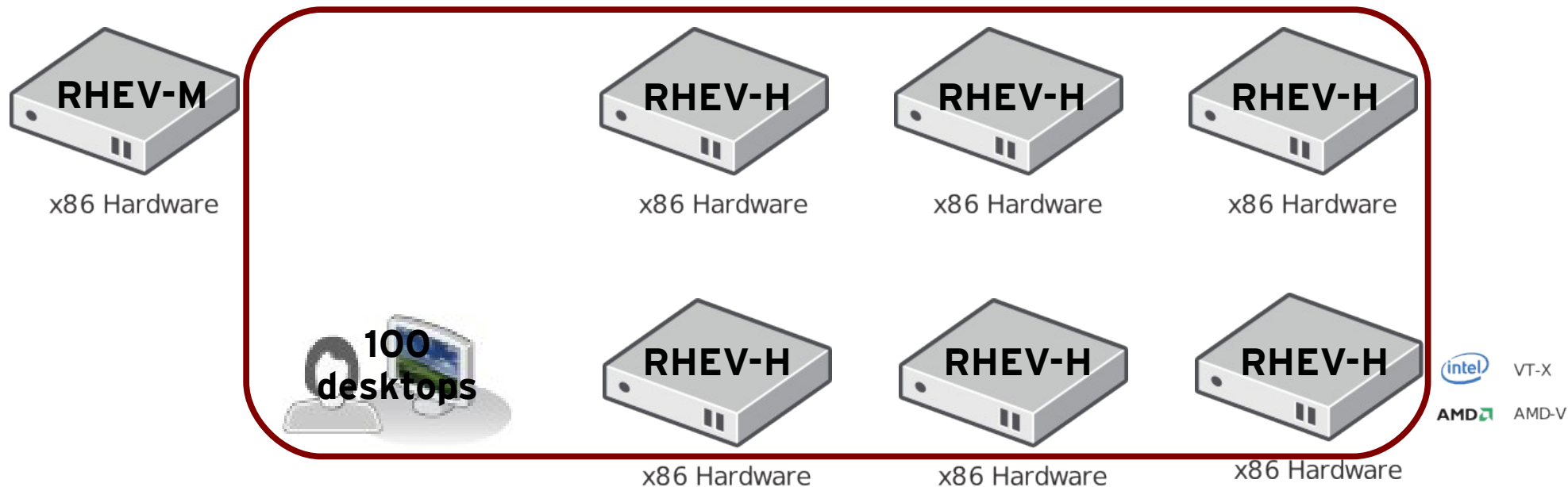
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# CONFIGURATION 3: SERVERS AND DESKTOPS

6 x Two Socket, Quad Core x86 Servers

100 Concurrent Desktops + Server VMs mixed



12 x Red Hat Enterprise Virtualization for Servers

4 x Red Hat Enterprise Virtualization for Desktops (25 pack)

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# THE VALUE OF THE RED HAT SUBSCRIPTION MODEL

- Lower upfront costs
  - Virtualize the same workload at lower cost
  - Virtualize more workloads for the same budget
  - More value-added projects with same or lower per unit cost
  - Achieve ROI breakeven sooner, so you can start your next virtualization project sooner
- Seat at the development table

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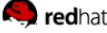
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# RED HAT ENTERPRISE VIRTUALIZATION TCO/ROI CALCULATORS

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## RED HAT ENTERPRISE VIRTUALIZATION

Overview Server Desktop

### LEARN

Features & Benefits  
Performance & Scalability  
Security  
Ecosystem  
Cost  
Competition  
Virtualizing RHEL Library

**BUY**  
Buy online

**USE**  
Support


### Red Hat Enterprise Virtualization for Servers: Pricing and licensing

Red Hat Enterprise Virtualization for Servers offers industry-leading performance, scalability, and lower total cost of ownership compared to other virtualization solutions.

Red Hat Enterprise Virtualization pricing is based on number of managed sockets to support streamlined 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. Each Red Hat Enterprise Virtualization for Servers subscription contains the following components:

- Red Hat Enterprise Virtualization Manager for Servers: A feature-rich server virtualization management system that provides advanced capabilities for hosts and guests, including high availability, live migration, storage management, system scheduler, and more.
- Red Hat Enterprise Virtualization Hypervisor: A modern standalone bare metal hypervisor. It is based on Kernel-based Virtual Machine (KVM) virtualization technology included with Red Hat Enterprise Virtualization for Servers. Optionally, users can use Red Hat Enterprise Linux (purchased separately) as a hypervisor managed by Red Hat Enterprise Virtualization Manager for Servers.

Virtual Guests: Red Hat also offers subscriptions and entitlements for Red Hat Enterprise



**CALCULATE YOUR SAVINGS**


RED HAT ENTERPRISE VIRTUALIZATION For Servers

Learn More

Flash Demos:

- Pricing Red Hat Enterprise Virtualization for Servers
- Competitive Pricing



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### Red Hat Enterprise Virtualization TCO Calculator

The Red Hat Enterprise Linux Migration Calculator was developed independently by leading ROI consultancy Alinean, Inc. This tool uses information provided by Red Hat as well as publicly available information to configure virtualized server environments using Red Hat Enterprise Virtualization technology and to compare the total cost of ownership for the Red Hat solution with other popular virtualization offerings.

Username:


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# RHEV TCO/ROI CALCULATORS

File View Options Help

Red Hat Enterprise Virtualization - Desktop Solution ROI Calculator v1.1.8 for BETA

Email a Report Create a Report

Desktop Profile ROI Analysis TCO Comparison

## Red Hat Enterprise Virtualization for Desktops - ROI Calculator™

This calculator was developed independently by leading ROI consultancy Alinean, Inc. to demonstrate the potential total cost of ownership savings and business value from implementing a Red Hat Enterprise Virtualization Desktop Solution. The calculator will collect information about your current desktop environment, develop a recommendation for migration, and quantify the value of the migration in reducing IT and business costs.

### Company Profile

Change Currency

Company Name: BETA

Primary or closest industry classification: Aerospace and Defense

Primary geographic location for desktop users: United States

### Desktop Profile

Total number of traditional desktops being converted to virtual desktops: 1,000

Percentage of desktops being replaced by thin client devices: 60.0%

Percentage of virtual desktop clients running Windows: 80.0%

Virtual desktop migration plan - update values, if desired

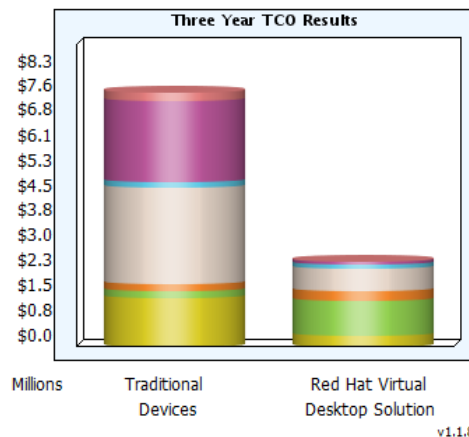
Desktop Operating System	Thin Client Devices	Browser Based PC VDI Clients	Total
Microsoft Windows	480	320	800
Red Hat Enterprise Linux	120	80	200
<b>Total</b>	<b>600</b>	<b>400</b>	<b>1,000</b>

Preferred server configuration: 4 Sockets (quad core) 128GB

Desired support level: Premium

Detailed Assumptions

<click on graph to expand for details>



[Disclaimer](#)

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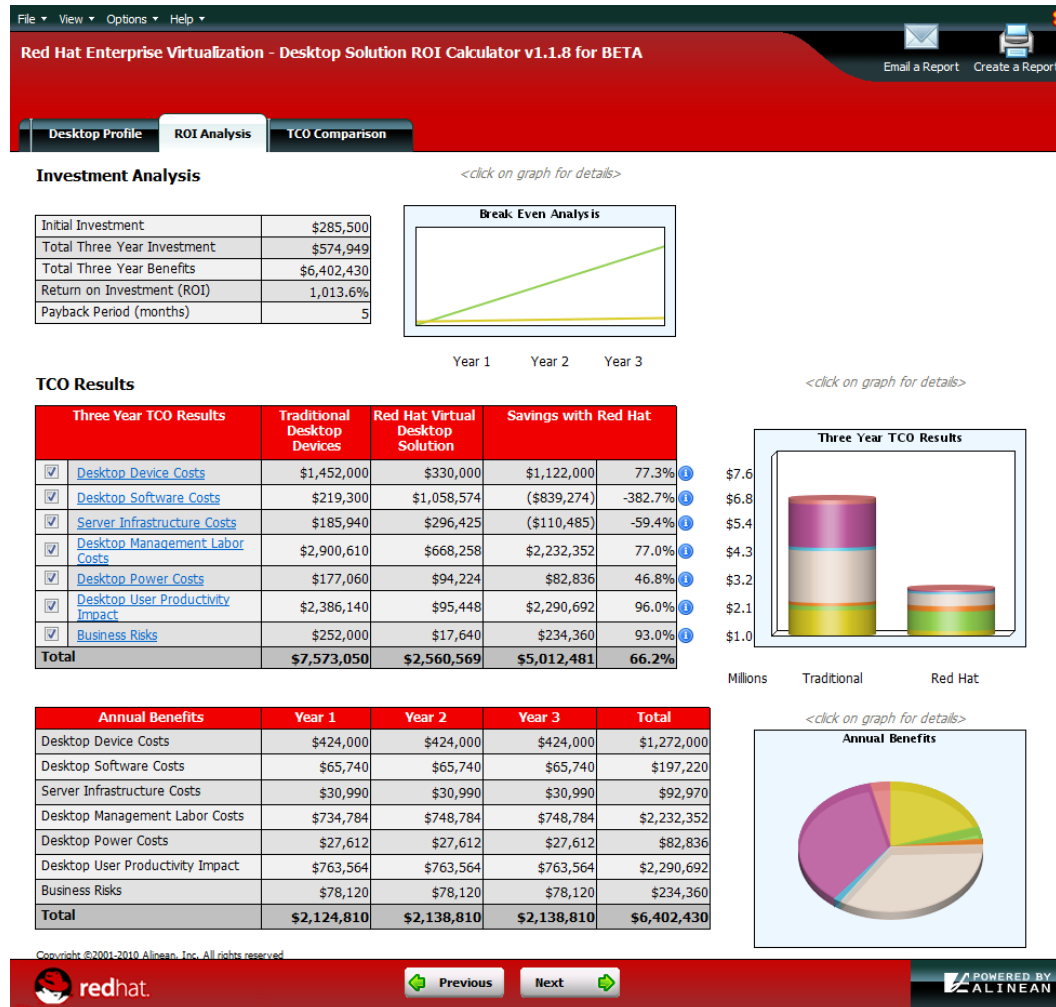
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# RHEV ROI vs. PHYSICAL DESKTOPS



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# RHEV TCO vs. COMPETITORS

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Red Hat Enterprise Virtualization - Desktop Solution ROI Calculator v1.1.8 for BETA

Email a Report Create a Report

Desktop Profile ROI Analysis **TCO Comparison**

Include memory sharing factor for desktop consolidation? Yes  [i](#) Click on the button to: [Request Follow Up from Red Hat](#)

<click on graph for details>

Three Year Virtualization Software Costs	Total Costs	Savings with Red Hat	Annual Cost per Desktop
Red Hat Enterprise Virtualization	\$98,940	N/A	\$32.98
vSphere Enterprise + View Enterprise	\$179,382	\$80,442	\$59.79
Citrix XenDesktop	\$312,000	\$213,060	\$104.00

Thousands

Virtualization Software Costs

Red Hat VMware Citrix

<click on graph for details>

Deselect items to exclude from analysis. Click on column titles for details.

Three Year TCO Analysis	Red Hat Enterprise Virtualization	VMware vSphere	Citrix XenDesktop
<b>Upfront (One Time) Costs</b>			
<input checked="" type="checkbox"/> Server Hardware	\$95,500	\$95,500	\$133,700
<input checked="" type="checkbox"/> External Storage	\$40,000	\$40,000	\$44,100
<input checked="" type="checkbox"/> Thin Client Devices	\$150,000	\$150,000	\$150,000
<input checked="" type="checkbox"/> Virtualization Software Licenses	\$0	\$102,495	\$156,000
<b>Total Upfront (One Time) Costs</b>	<b>\$285,500</b>	<b>\$387,995</b>	<b>\$483,800</b>
<b>Annual Support/Subscription Costs</b>			
<input checked="" type="checkbox"/> Hardware Maintenance	\$10,505	\$10,505	\$14,707
<input checked="" type="checkbox"/> Microsoft Windows VECD	\$48,000	\$48,000	\$48,000
<input checked="" type="checkbox"/> Red Hat Enterprise Linux Desktop	\$4,998	\$4,998	\$4,998
<input checked="" type="checkbox"/> Virtualization Software	\$32,980	\$25,629	\$52,000
<b>Total Annual Support/Subscription Costs</b>	<b>\$96,483</b>	<b>\$89,132</b>	<b>\$119,705</b>
<b>Total First Year Costs</b>	<b>\$381,983</b>	<b>\$477,127</b>	<b>\$603,505</b>
<b>Total Three Year Costs</b>	<b>\$574,949</b>	<b>\$655,391</b>	<b>\$842,915</b>
<b>Average Annual Cost per Desktop</b>	<b>\$191.65</b>	<b>\$218.46</b>	<b>\$280.97</b>

Thousands

Three Year TCO Analysis

Red Hat VMware Citrix

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# RHEV TCO: ALL HARD COSTS

Three Year TCO Analysis		Red Hat Enterprise Virtualization	VMware vSphere	Citrix XenDesktop
<b>Upfront (One Time) Costs</b>				
<input checked="" type="checkbox"/>	Server Hardware	\$116,900	\$116,900	\$217,100
<input checked="" type="checkbox"/>	External Storage	\$43,400	\$43,400	\$40,300
<input checked="" type="checkbox"/>	Thin Client Devices	\$150,000	\$150,000	\$150,000
<input checked="" type="checkbox"/>	Virtualization Software Licenses	\$0	\$85,245	\$156,000
<b>Total Upfront (One Time) Costs</b>		<b>\$310,300</b>	<b>\$395,545</b>	<b>\$563,400</b>
<b>Annual Support/Subscription Costs</b>				
<input checked="" type="checkbox"/>	Hardware Maintenance	\$12,859	\$12,859	\$23,881
<input checked="" type="checkbox"/>	Microsoft Windows VECD	\$48,000	\$48,000	\$48,000
<input checked="" type="checkbox"/>	Red Hat Enterprise Linux Desktop	\$4,998	\$4,998	\$4,998
<input checked="" type="checkbox"/>	Virtualization Software	\$28,486	\$21,315	\$52,000
<b>Total Annual Support/Subscription Costs</b>		<b>\$94,343</b>	<b>\$87,172</b>	<b>\$128,879</b>
<b>Total First Year Costs</b>		<b>\$404,643</b>	<b>\$482,717</b>	<b>\$692,279</b>
<b>Total Three Year Costs</b>		<b>\$593,329</b>	<b>\$657,061</b>	<b>\$950,037</b>
<b>Average Annual Cost per Desktop</b>		<b>\$197.78</b>	<b>\$219.02</b>	<b>\$316.68</b>

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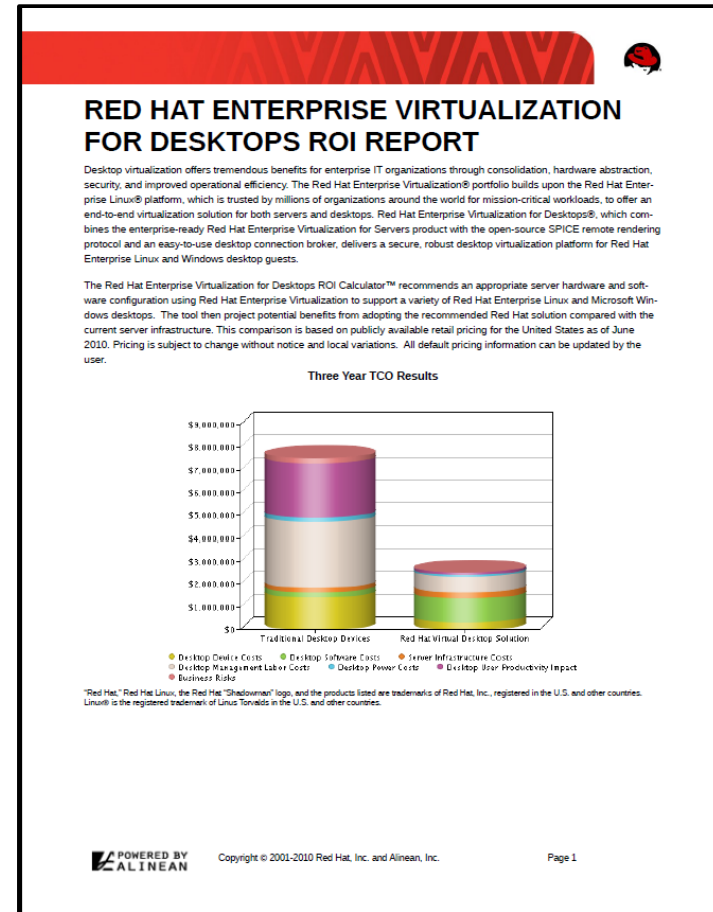
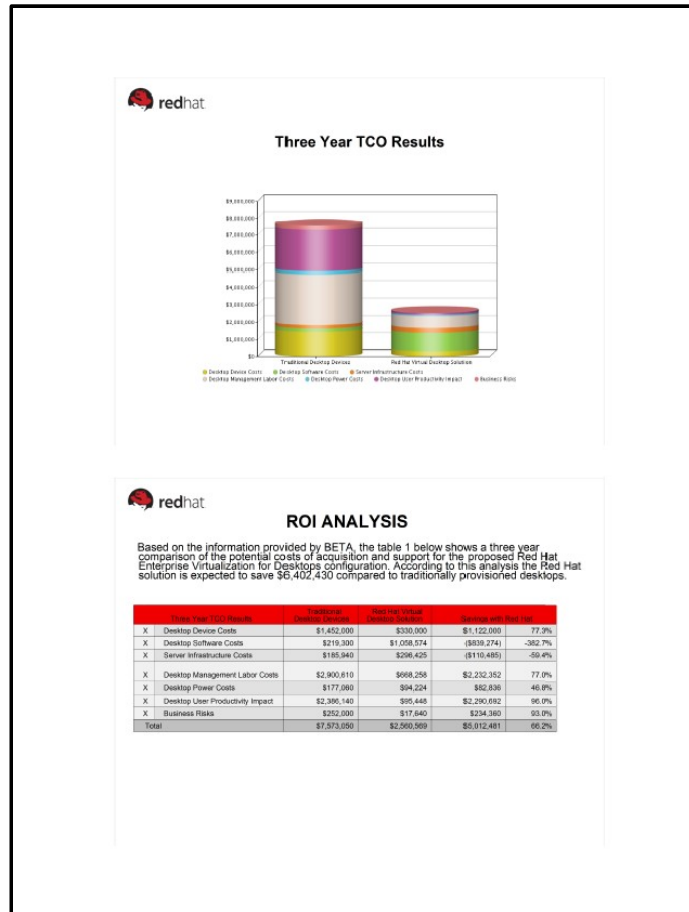
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# RHEV TCO/ROI OUTPUT

Presentation (OpenOffice Impress and Microsoft PowerPoint compatible)

Report (OpenOffice Writer and Microsoft Word compatible)



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# SUMMARY

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[www.redhat.com/rhev/server/cost](http://www.redhat.com/rhev/server/cost)

[www.redhat.com/rhev/desktop/cost](http://www.redhat.com/rhev/desktop/cost)

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# QUESTIONS?

## MORE RHEV-FOCUSED SESSIONS TODAY:

14:00 Virtualizing Windows & Linux Desktops Using Red Hat Enterprise Virtualization for Desktops

"" Virtualization - Consolidation & Performance Data to Help Maximize Server Utilization

15:10 Migrating to KVM Virtualization

16:20 Kernel Virtualization Optimizations for KVM

## AND FRIDAY JUNE 25:

9:45 Red Hat/Microsoft Virtualization Collaboration and Running Red Hat Enterprise Linux on Microsoft Hyper-V

11:00 Achieving Compliance in an Increasingly Virtual World

"" Smarter Work with Virtualization and Cloud

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