



RED HAT ENTERPRISE VIRTUALIZATION 3.1

**THE PREMIER PLATFORM FOR
LINUX VIRTUALIZATION**



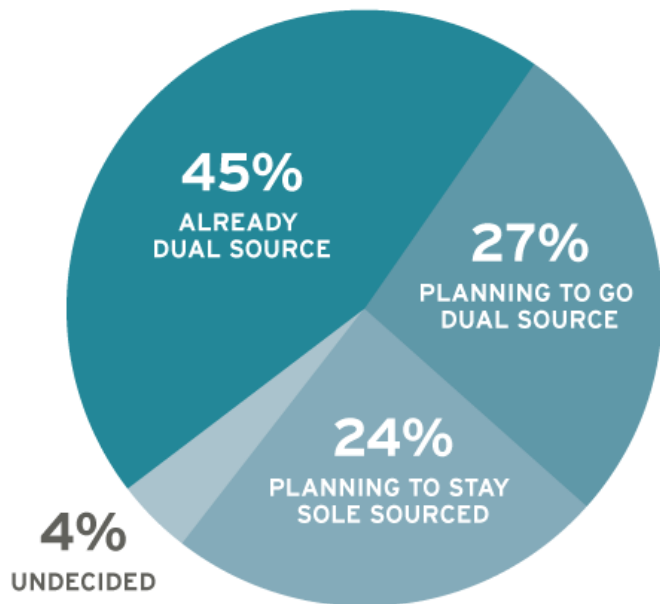
AGENDA

- **RHEV Background/Market Dynamics**
- Components of RHEV
- Advantages/Benefits of RHEV
- RHEV Use Cases
- Next Steps



VIRTUALIZATION DIVERSIFICATION: DUAL SOURCE REALITY...

Do you plan to utilize more than one virtualization vendor for your virtualization initiatives?



- Server virtualization is a mature technology – competition, innovation, choice...
- Over 70% of customers surveyed are either already deploying a dual virtualization vendor strategy, or have concrete plans to do so
- Customers using RHEV as second source to VMware

SOURCE: 2011 IDG Research study for Red Hat based on 78 qualified CIO Peer2Peer Research Panel members.

A MAJORITY OF ENTERPRISES ARE LOOKING FOR ALTERNATIVES TO VMWARE



YOU HAVE A CHOICE IN VIRTUALIZATION



“[RHEV 3.0] marks a significant upgrade on Red Hat’s enterprise virtualization capabilities. With so much of our cloud infrastructure deployed on open source products, **Red Hat has reminded CIOs and service providers that there is a technically accomplished and ultra-competitive alternative to proprietary virtualization products.**”

— *Techworld Awards 2012*, Techworld, September 2012



“As industry leaders focus on [a] multivendor approach to virtualization, **RHEV 3.0 is emerging as the first choice in terms of scalability, functionality, interoperability and performance.**”

— CIO Quick Pulse, December 2011



“RHEV is an emerging force in the virtualization market, that builds on the open source projects KVM and oVirt. **Red Hat's history of commercializing Linux and other open source software, positions it to be the leader in bringing KVM to enterprises.** Broad industry support and a growing ecosystem are evident in the early growth of the Open Virtualization Alliance. ”

— Red Hat Enterprise Virtualization Whitepaper, IDC, December 2011



THOUSANDS OF CUSTOMERS WORLDWIDE DEPLOY RHEV IN PRODUCTION TODAY

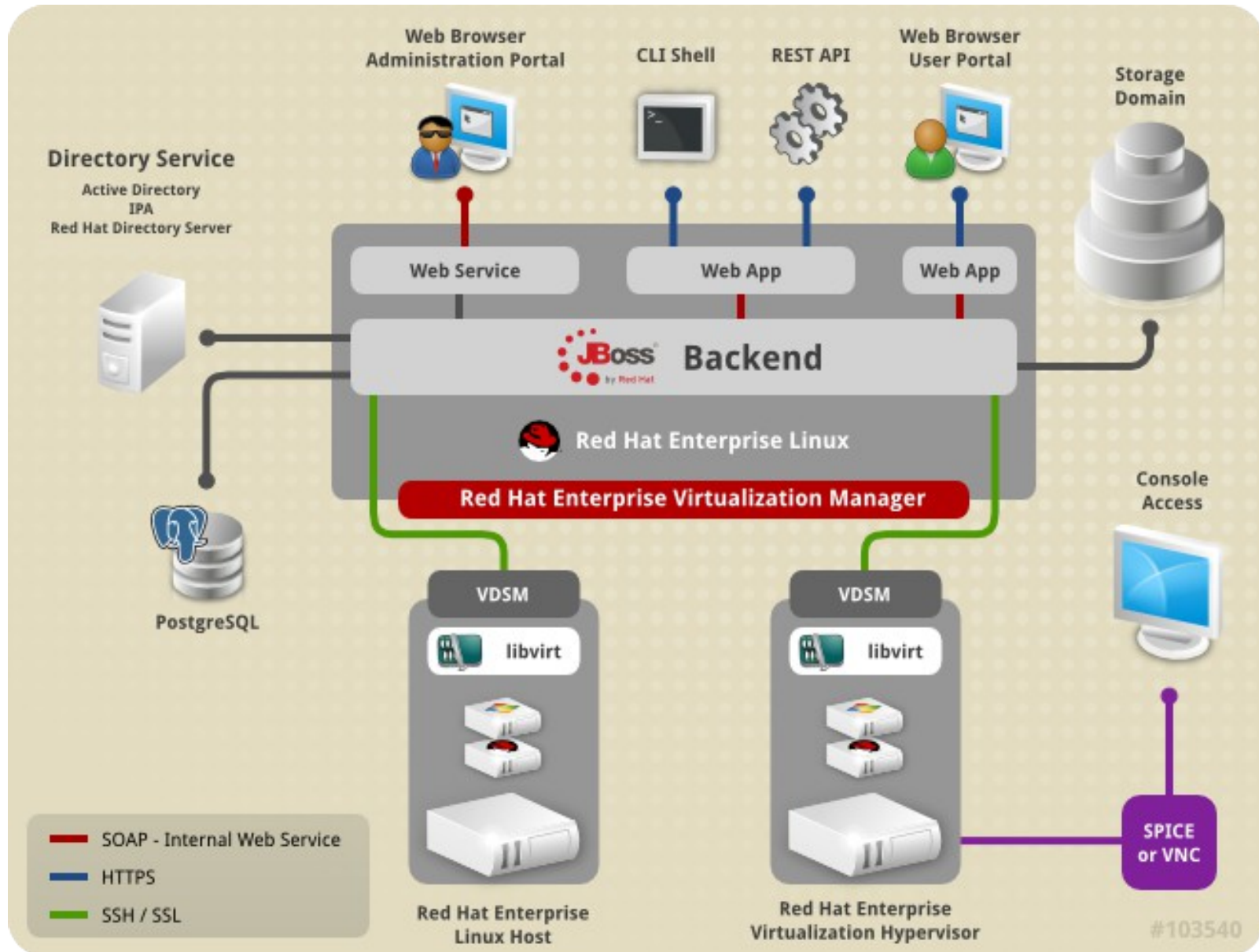


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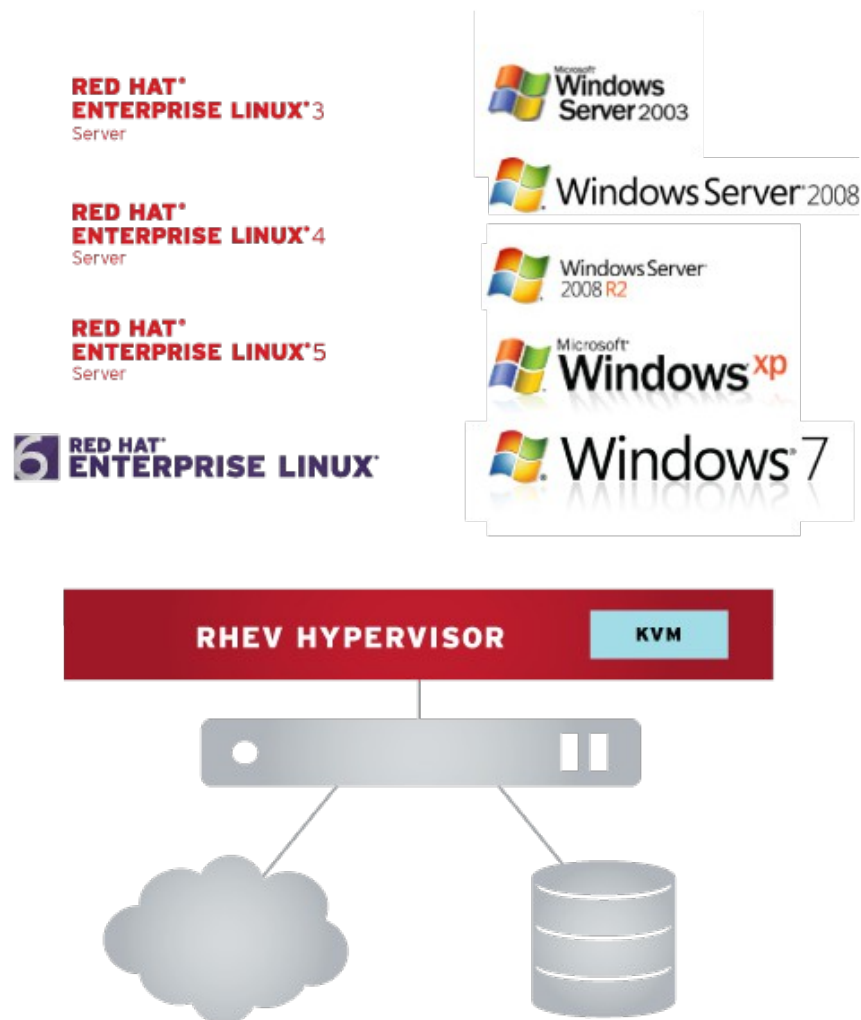


RHEV ARCHITECTURE



RHEV HYPERVISOR/KVM OVERVIEW

SMALL FORM FACTOR, SCALABLE,
HIGH PERFORMANCE



- Inherits performance, scalability, security and supportability of Red Hat Enterprise Linux
- Shares RHEL hardware and software ecosystem
- Host: 160 logical CPU (4,096 theoretical max), 2 TB RAM (64TB theoretical max)
- Guest: 160 vCPU, 2 TB RAM
- Supports latest silicon virtualization technology
- Microsoft SVVP certified



RHEV MANAGER OVERVIEW

Red Hat Enterprise Virtualization

Logged in user: admin@internal | Configure | Guide | About | Sign Out

Feedback

Search: DataCenter:

Data Centers Clusters Hosts Storage Disks Virtual Machines Pools Templates Users

New Edit Remove Force Remove Guide Me

| Name | Storage Type | Status | Compatibility Version | Description |
|---------|--------------|--------|-----------------------|-------------------------|
| Default | NFS | Up | 3.1 | The default Data Center |

Storage Logical Networks Clusters Permissions

Attach Data Attach ISO Attach Export Detach Activate Maintenance

| Domain Name | Domain Type | Status | Free Space | Used Space | Total Space |
|-------------|---------------|-------------|------------|------------|-------------|
| ISO_DOMAIN | ISO | Maintenance | < 1 GB | < 1 GB | < 1 GB |
| NFS | Data (Master) | Active | 10 GB | 25 GB | 35 GB |

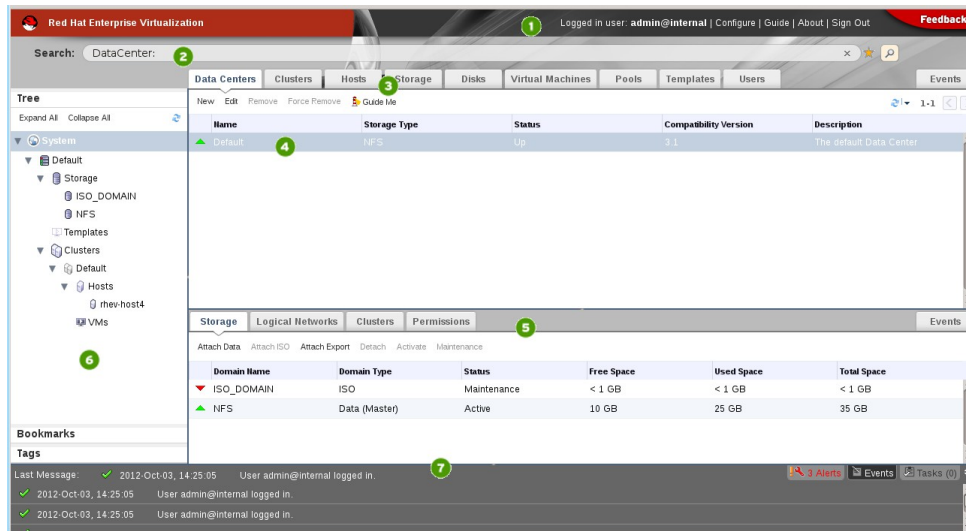
Last Message: 2012-Oct-03, 14:25:05 User admin@internal logged in.

3 Alerts Events Tasks (0)

- Centralized virtual infrastructure management (hosts, virtual machines, networking, storage, templates etc.)
- Designed for large scale – 500+ hosts and 10,000+ virtual machines
- Administrative interfaces: GUI, RESTful API with session support, Linux CLI, Python SDK



RHEV MANAGER FEATURES

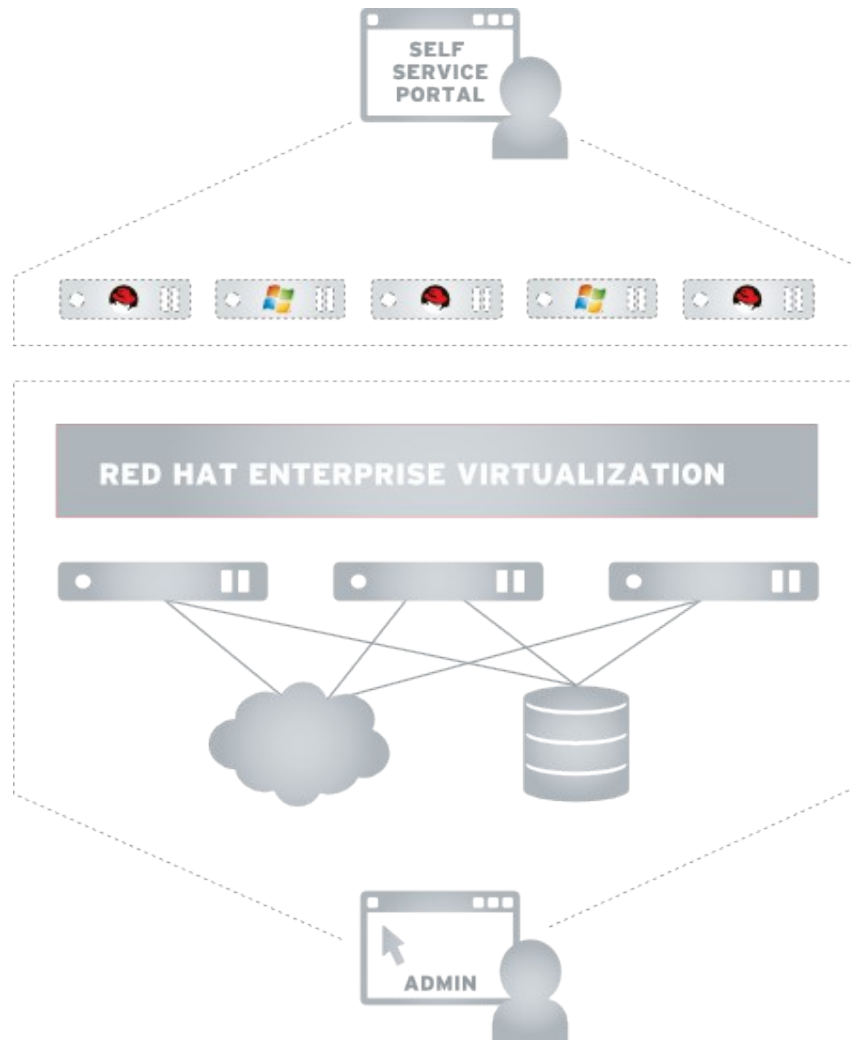


- High Availability
- Live Migration
- Storage Live Migration*
- Live Snapshots
- Load Balancing (DRS)
- Power Saver (DPM)
- Hot-plug disk and NIC
- Storage on local disk, FC, iSCSI, NFS, Red Hat Storage, IBM GPFS, POSIX or Direct LUN
- Self Service Portal with Quotas
- Integrated Red Hat Storage Management*
- Eco-system marketplace

* Tech Preview at GA



RHEV USER PORTAL



- Enables users to self provision virtual machines
- Create, edit, remove, etc. VMs
- Manage and monitor virtual infrastructure
- Tied to Microsoft Active Directory, Red Hat Identity Management, other LDAP
- Resource management with quotas and object/role security
- Essential internal cloud capability



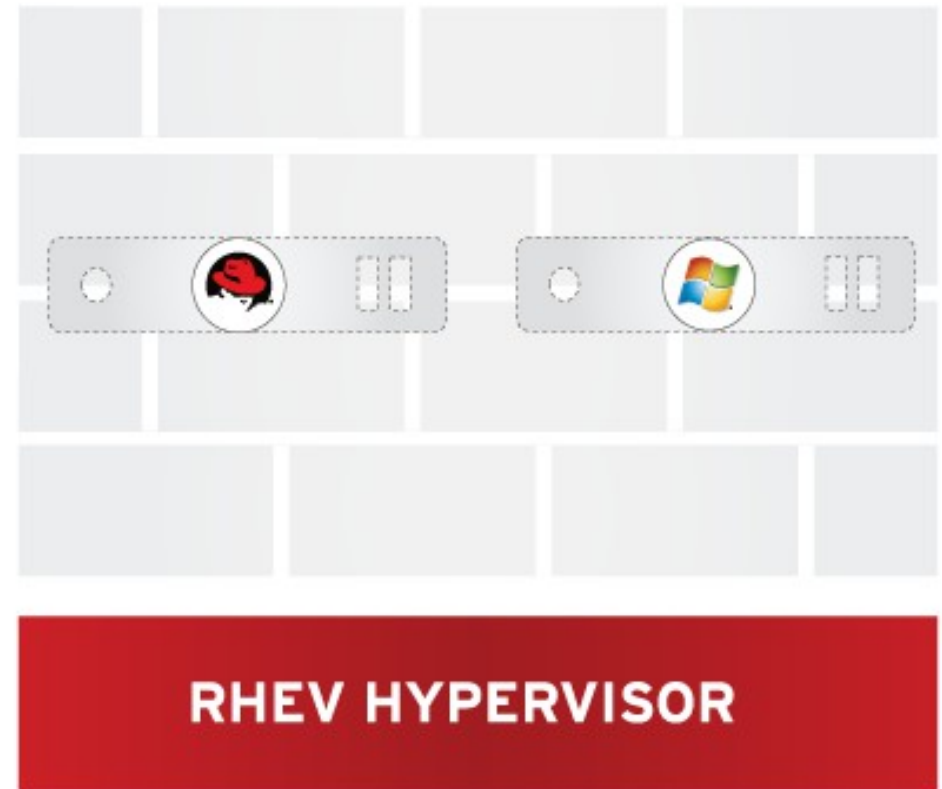
ADVANCED SECURITY FOR YOUR VIRTUALIZATION INFRASTRUCTURE

RHEV inherits the security features of Linux and RHEL

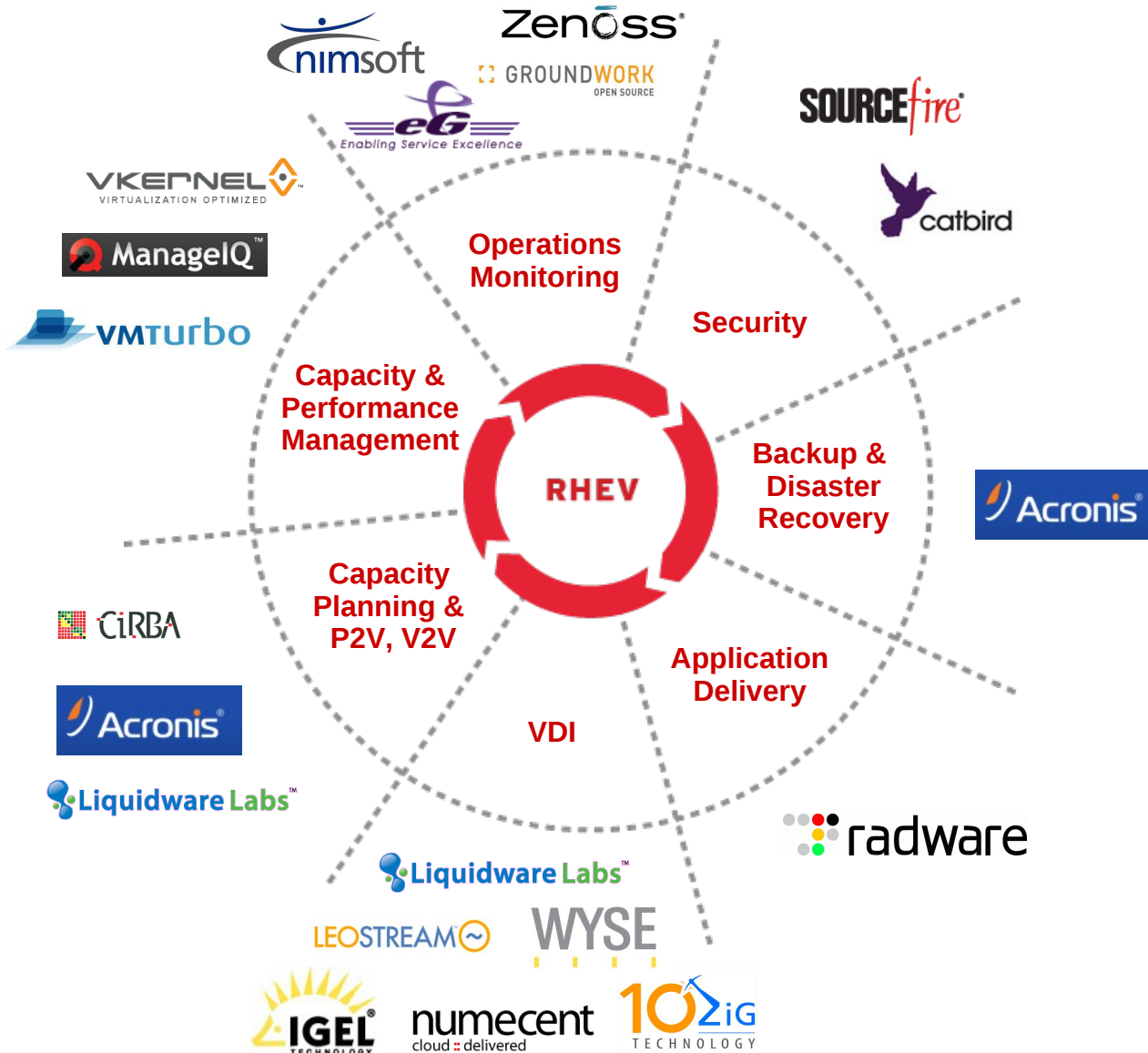
- Red Hat Enterprise Linux 6, the basis of the RHEV 3.x Hypervisor, achieved Common Criteria Certification at Evaluation Assurance Level (EAL) 4+ on 10/29/2012
- SELinux security policy infrastructure
- Provides protection and isolation for virtual machines and host
- Compromised virtual machine cannot access other VMs or host

sVirt Project

- Sub-project of NSA's SELinux community. Provides “hardened” hypervisor.
- Multi-level security. Isolate guests
- Contain any hypervisor breaches



RHEV ECOSYSTEM: PARTNERS THROUGH YOUR DEPLOYMENT LIFECYCLE



- Integrate through the RHEV API
- Certified by Red Hat to work with RHEV
- Free trials available via the RHEV Marketplace

marketplace.redhat.com

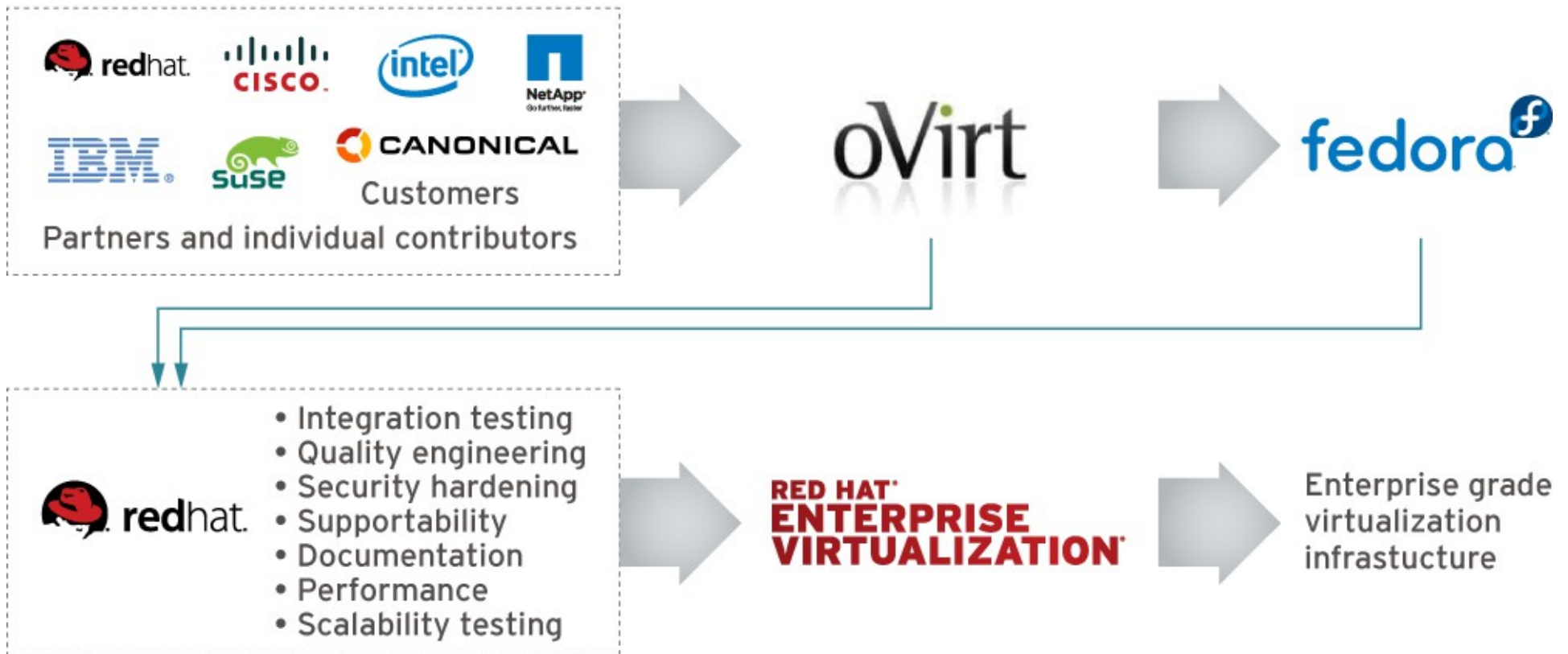


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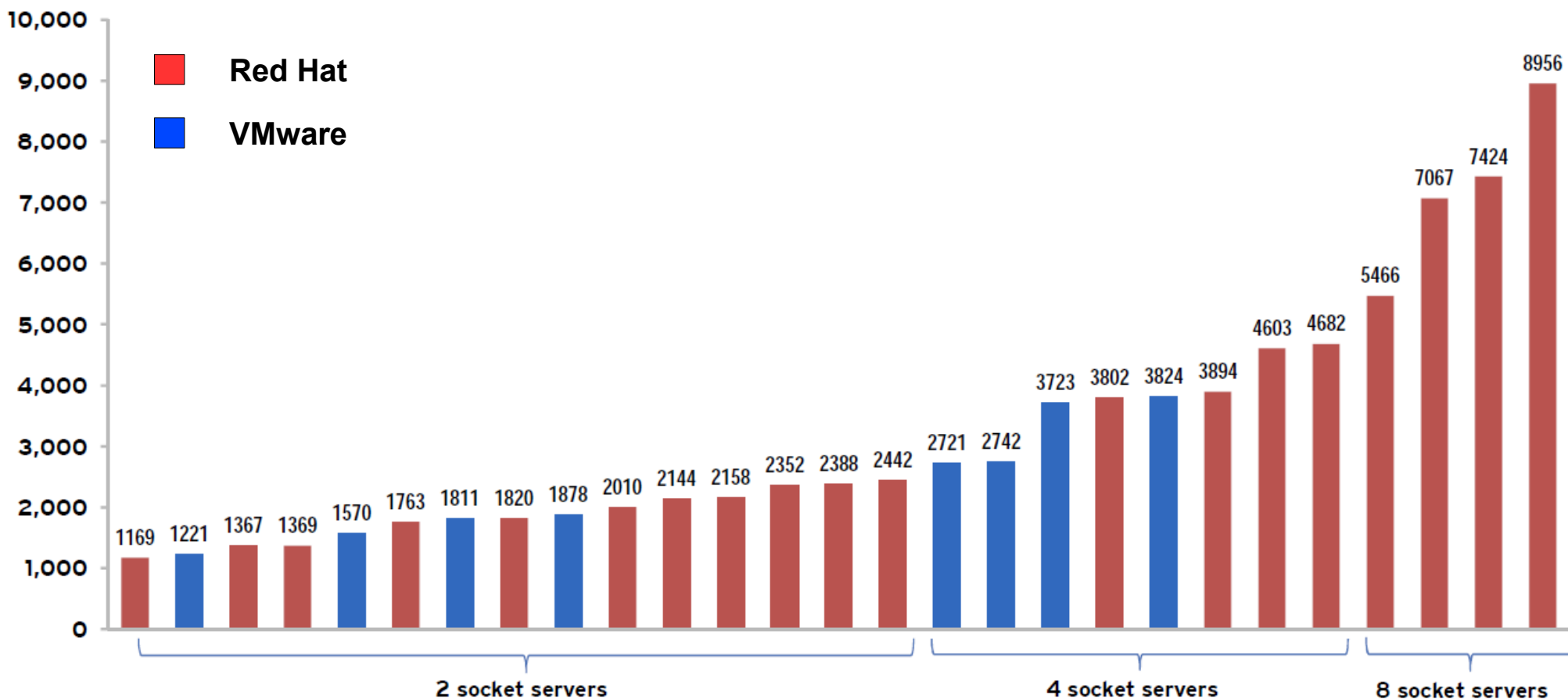
INDUSTRY LEADERSHIP: THE ONLY END-TO-END OPEN VIRTUALIZATION INFRASTRUCTURE



INDUSTRY LEADERS IN INFRASTRUCTURE,
NETWORKING, STORAGE ARE BACKING RHEV



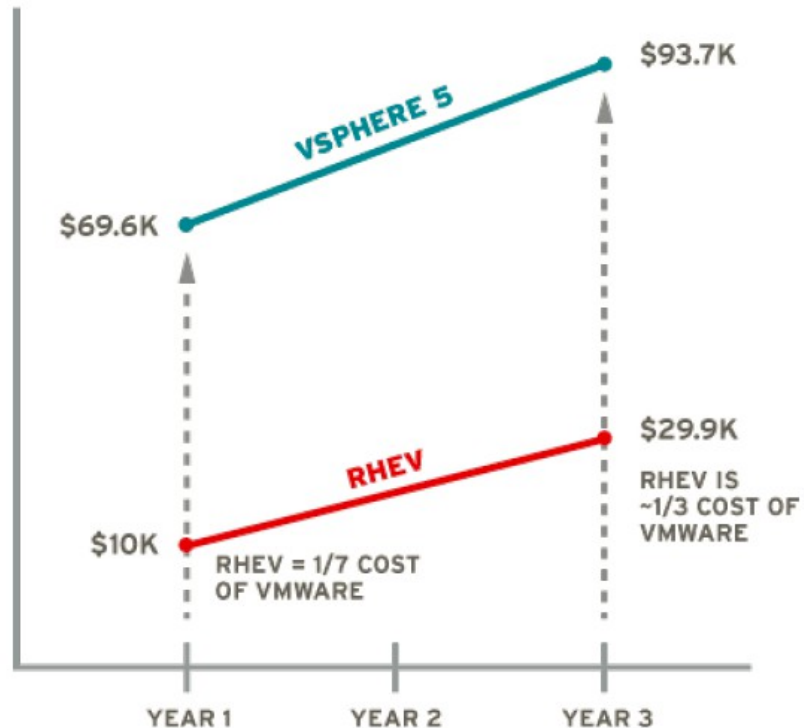
INDUSTRY LEADING VIRTUALIZATION PERFORMANCE



- **SPECvirt_sc2010:** As of November 15, 2012, RHEV claims top 7 results and the only 8-socket server scores



SIGNIFICANT COST ADVANTAGE FOR RED HAT

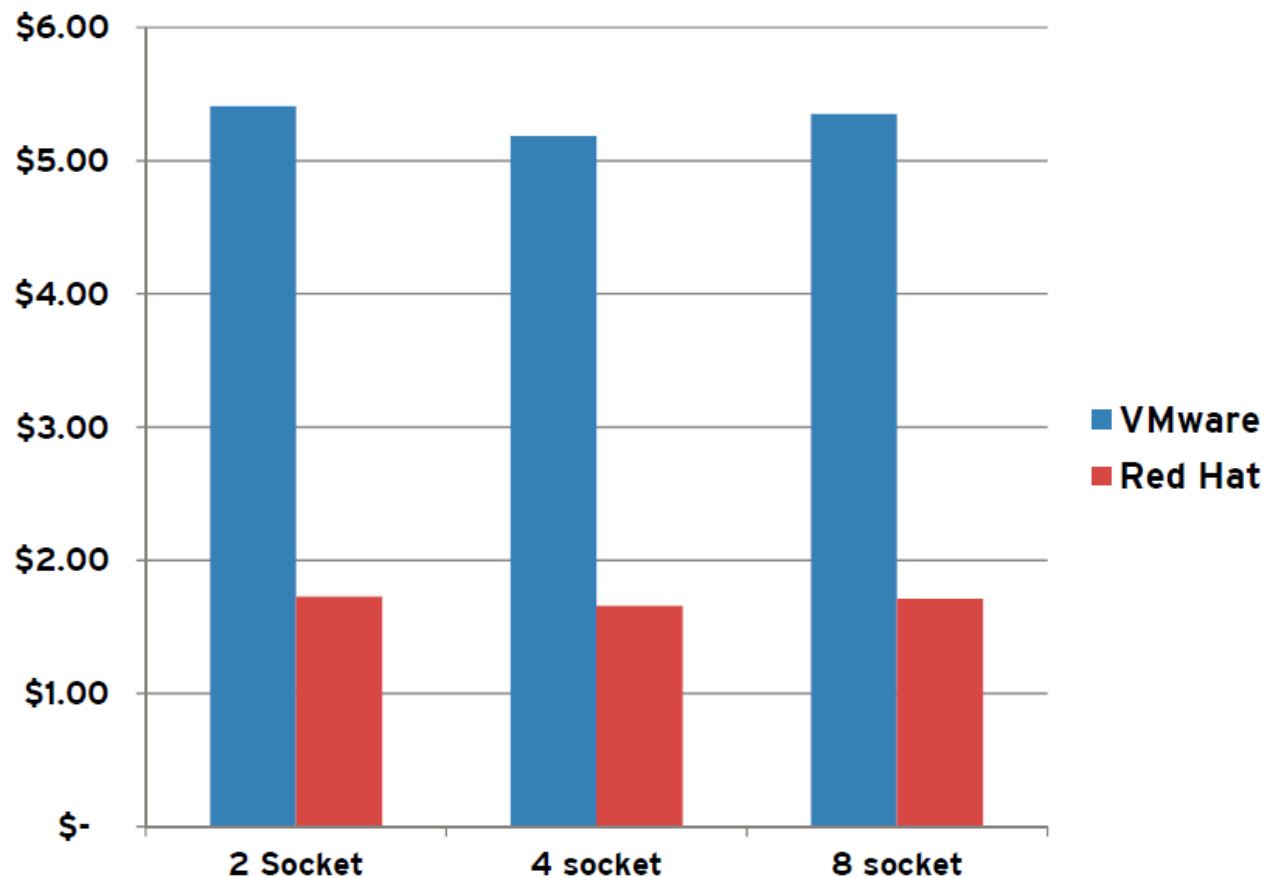


- Simple subscription pricing (\$499/ \$749) per socket per year
- Single comprehensive edition with all features
- Lower acquisition cost accelerates ROI
- New releases can be immediately incorporated at no additional cost

- 10 physical hosts (2 sockets)
- Same density across both



COST FOR PERFORMANCE OVER 3 YEARS (DOLLARS PER SPECVIRT_SC2010)



- VMware costs average \$5.33/SPECvirt_sc2010 over three years
- RHEV costs average \$1.70/SPECvirt_sc2010 over three years
- RHEV gives same or better performance, at less than 1/3 the cost



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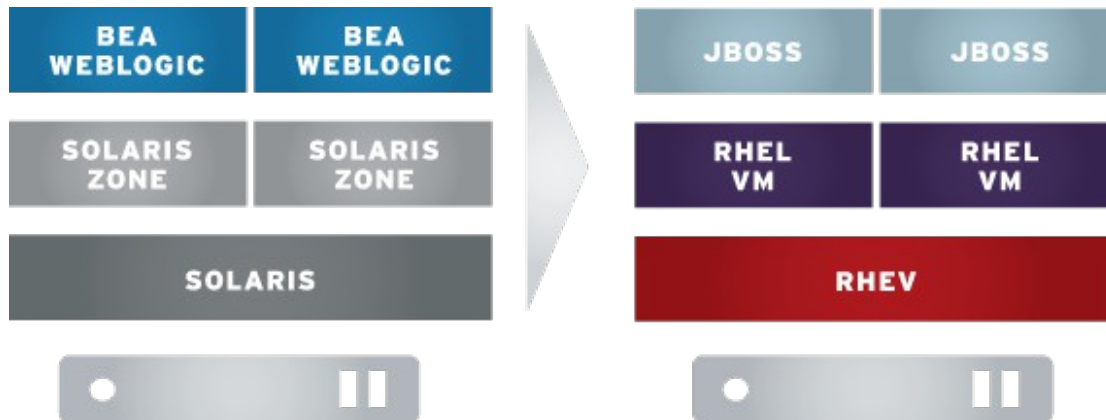
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UNIX TO LINUX MIGRATION



Financial trading/ on-line banking system that supports 1 million customers per day

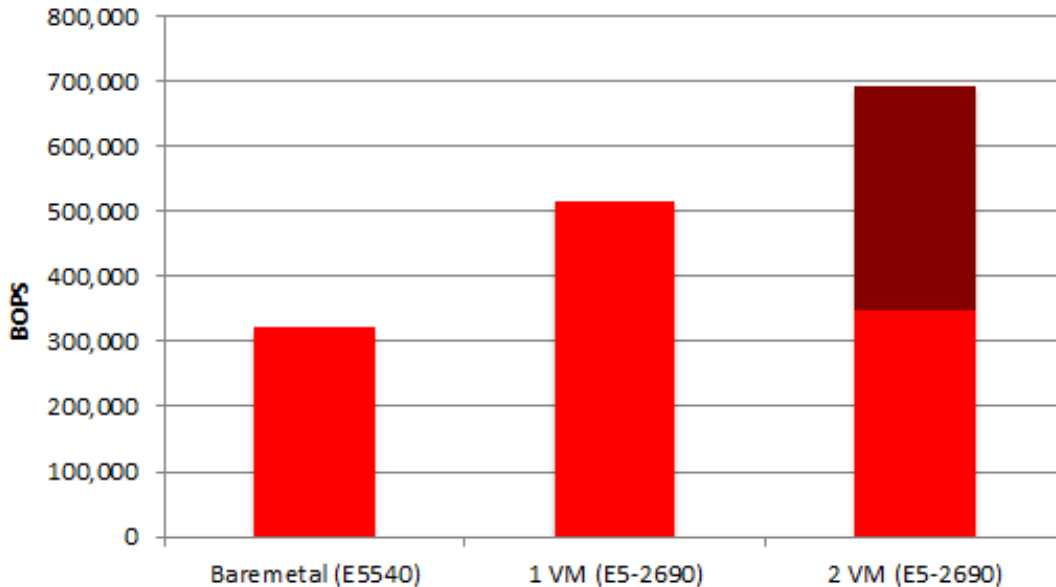


- Improve performance relative to old legacy UNIX hardware
- Tremendous cost savings by moving from proprietary stack to commodity/x86 based RHEL/RHEV stack
- Improved isolation, manageability and flexibility



LINUX HARDWARE REFRESH

Increase in RHEL 5.8 performance when moving a Java workload from legacy baremetal (E5540) to virtualized (E5-2690) on RHEV-H 3.0



The Java workload was SPECjbb 2005 on RHEL 5.8 with the OpenJDK 1.6.0-20 JVM, running on a whitebox (2x E5540 processors/8 cores, 2.53 GHz, 24GB PC3-10600 RAM). We directly transferred RHEL 5.8 and the Java workload to a VM running on RHEV-H 3.0 (2x E5-2690, 16 cores, 2.90 GHz, 64GB PC3-12800 RAM) and matched the baremetal memory and core count. The single VM result was 61% higher than the baremetal result while the 2VM result was 116% higher than baremetal or 8% higher per VM. Testing done by Principled Technologies, Inc. October 2012 (Full report to follow.)

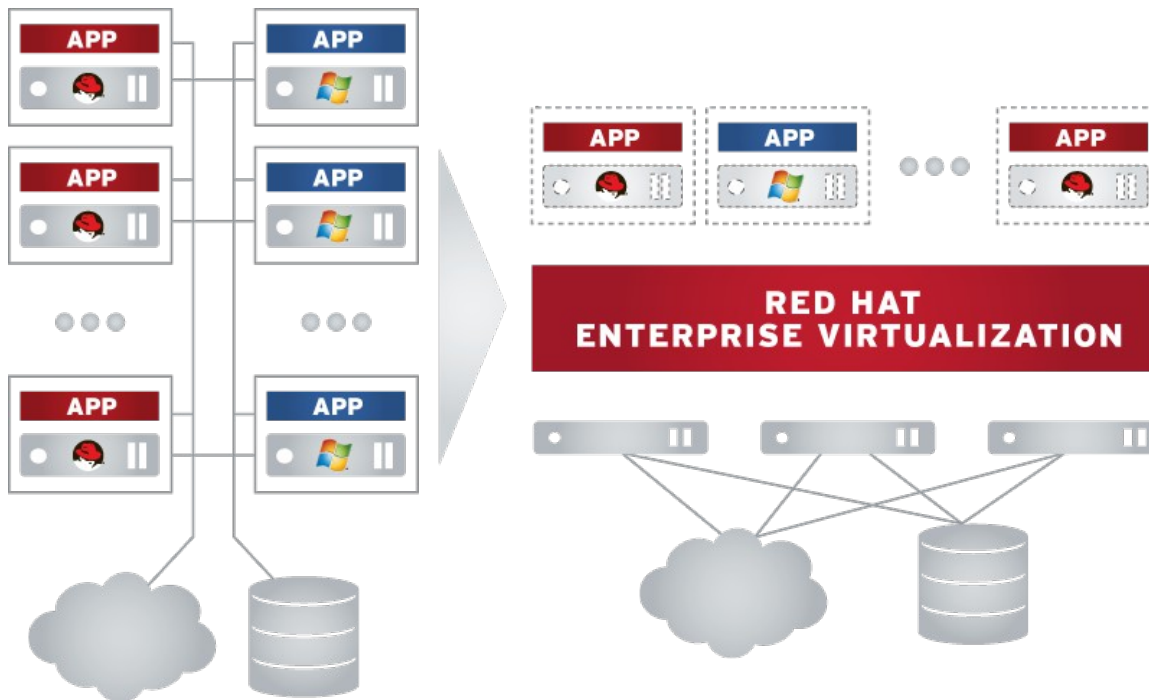
- Virtualize RHEL workloads without replatforming
- Gain performance on workloads by P2V and running on RHEV on new hardware
- Run multiple workloads on new hardware to take advantage of server consolidation



MISSION CRITICAL APPLICATIONS



Consolidation of Oracle Financials, database and other mission critical applications on RHEV



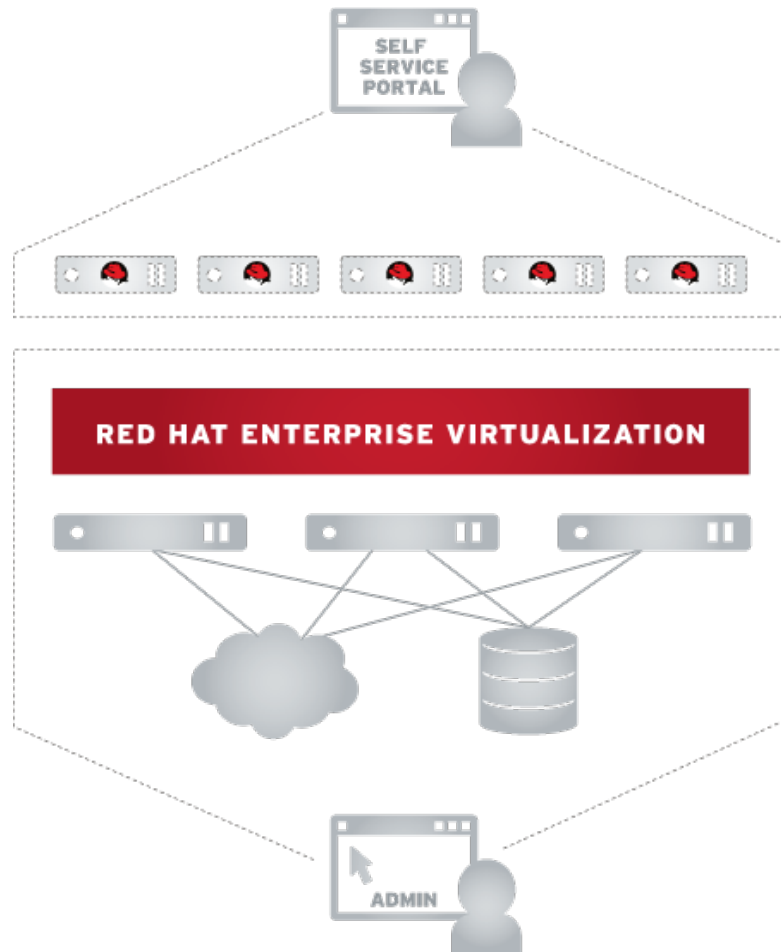
- Virtualize mission critical applications without sacrificing performance
- Monster VM sizes enable better virtualized performance on RHEV
- ISV certifications on RHEL transfer to RHEL on RHEV



TEST/DEV ENVIRONMENTS



Private cloud for Linux application development and hosting

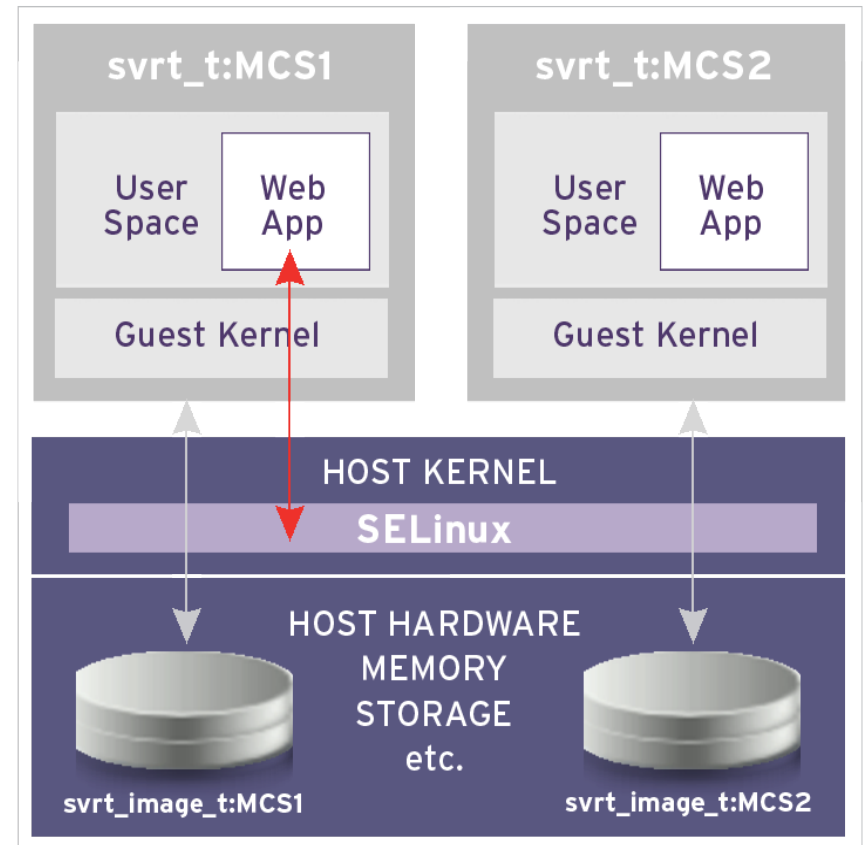


- Provide self-service for test/dev environments with Power User Portal
- Quotas and permissions for effective resource management
- Linux CLI, advanced REST-API, session support for customization and extension



SECURE VIRTUALIZATION

- SELinux and sVirt: applying security labels to individual guest virtual machines and their resources
 - Guest isolation achieved with SELinux Mandatory Access Controls (MAC)
 - Protects against untrusted guest virtual machine
 - Protects against host misconfiguration
 - Prevents unauthorized access of guests/host



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TRY RHEV FOR 60 DAYS redhat.com/testdrive



GET READY TO BLAZE NEW TRAILS IN VIRTUALIZATION PERFORMANCE.

Security. Power. Flexibility. It's all here, and it's all yours to try free for 60 days, with our fully supported RHEV3 trial.

What do you have to look forward to? Pretty much the best of everything.

- **Enterprise-grade performance.** Red Hat Enterprise Virtualization 3 includes the enterprise features you need to virtualize your most challenging workloads.
- **Speed and scalability.** You'll get the top virtualization benchmarks for performance and scalability to power your virtual machine workloads.
- **Security and extensibility.** This is the industry's most comprehensive security, co-developed with the National Security Agency. Yet it still plays nice with a growing list of software partners whose solutions integrate with Red Hat Enterprise Virtualization.
- **Refreshing openness.** No lock-in. Not ever. (A nice perk that comes free with the only enterprise-ready open source virtualization solution.)
- **Remarkable affordability.** It's the most affordable solution available, with lower TCO and faster ROI and all those other things beloved by CFOs.

"We've seen improvements in how we can provide on-demand resources to our artists by leveraging open source and working with Red Hat."

- Lars Carstensen, principal engineer, DreamWorks Animation

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| State or Region: | <input type="text" value="Select one"/> |
| Company: | <input type="text"/> |
| Title: | <input type="text"/> |
| <input type="button" value="Download your trial"/> | |
| <small><i>Bold type indicates required field</i></small> | |



RHEV ON RED HAT CUSTOMER PORTAL

The screenshot shows the Red Hat Customer Portal interface. At the top, there is a navigation bar with the Red Hat logo, the text "CUSTOMER PORTAL", a search box, and links for "Help" and "Register or Log In". Below this is a secondary navigation bar with tabs for "Knowledge", "Groups", "Support", "Downloads", "Security", and "Subscriptions". The main content area features a large banner for "RED HAT ENTERPRISE VIRTUALIZATION 3" with the tagline "THE PATH TO FREEDOM IS RIGHT IN FRONT OF YOU." and a large red "V" logo. Below the banner is a sub-navigation bar with tabs for "Overview", "Knowledge", "Evaluations", "Track A: Standard Setup", "Track B: Minimal Setup", and "Troubleshooting". The "Overview" tab is selected. The main text describes Red Hat Enterprise Virtualization as a complete virtualization solution with leading performance, security, manageability, and much more. It is fully open source software, based on the Kernel-based Virtual Machine (KVM) hypervisor technology, the Red Hat Enterprise Linux kernel, and the oVirt.org virtualization management project. The platform consists of one or more hosts and at least one manager. The virtual machines reside on the hosts, and the infrastructure and all its components are managed through a centralized management system. A section titled "Red Hat Enterprise Virtualization Manager" describes it as a centralized management system allowing system administrators to view and manage virtual machines and images, providing a graphical interface. To the right, there are two sections: "Start Here" with links for "Begin Your 60-Day Evaluation", "Plan and Deploy Red Hat Enterprise Virtualization", and "Activate a New Subscription"; and "Knowledge Deep Dives" with links for "Complete Overview", "Complete Guide to Planning", "Complete Guide to Deploying", "Complete Guide to Maintaining", and "Complete Guide to Troubleshooting". A small screenshot of the RHEV Manager GUI is shown at the bottom left.



ENTERPRISE VIRTUALIZATION FROM THE PEOPLE WHO BROUGHT YOU ENTERPRISE LINUX

RHEV COMPLETE VIRTUAL INFRASTRUCTURE SOLUTION



RED HAT ENTERPRISE VIRTUALIZATION



- **Leading performance:** Top virtualization benchmarks for performance and scalability
- **Affordable:** Lower TCO and higher ROI than competitive platforms
- **Enterprise-ready:** Powerful mix of enterprise features and a rich set of partners
- **Open:** Offers choice and interoperability with no proprietary lock-in.
- **Cross-platform:** Optimized for Microsoft Windows and Linux guests





THANK YOU

