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Red Hat Powered VDI: Setting a New Standard for Desktop Virtualization

Session#208

Jeff Jameson, Product Marketing Manager
Dave Simmons, Sr. Solutions Architect

May 5, 2011

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AGENDA

- VDI: Market Benefits & Barriers
- Solving Desktop Challenge
- Partner & ISV Community
- Feature overview
- The KVM Hypervisor
- Desktop Security
- Desktop Management
- SPICE
- Competitive Pricing

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“This is the year for VDI!”

....Isn't it?

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VDI: MARKET BENEFITS AND BARRIERS

BENEFITS

Desktop
Management

Data Security

Resource
Flexibility &
Efficiency (cloud)

Reduce costs

PENETRATION

Mission critical,
company-wide
desktops

~ 8-10%

Unique use
cases, test and
development

BARRIERS

Cost & licensing

User experience
and scalability

Security

Application
support

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SOLVING DESKTOP CHALLENGES: RED HAT ENTERPRISE VIRTUALIZATION FOR DESKTOPS

- Advanced KVM hypervisor technology
- Refined **centralized management**
- Industry leading **scalability** and **VM density**
- Highest kernel-level **security** and isolation with SELinux
- Incredible **end-user experience**, including bi-directional audio & video
- Choice of **client device**
- **Up to 75% cost savings** relative to VMware!



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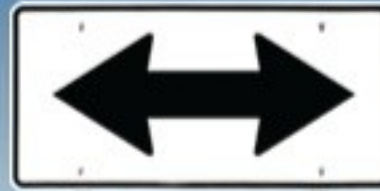
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AND DON'T FORGET WINDOWS...

INTEROPERABILITY DELIVERED

RED HAT AND MICROSOFT COMPLETE
VIRTUALIZATION PLATFORM CERTIFICATIONS



- Supported guest desktop operating systems
 - Red Hat Enterprise Linux 3, 4, 5, & 6 (32 and 64 bit)
 - Windows XP SP3+ (32 bit)
 - Windows 7 (32 and 64 bit)
- Microsoft SVVP certified
- Support WHQL drivers to be delivered by RHEV Tools or Windows Update
- V2V (Virtual to Virtual) migration tool for Windows VMs

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LEVERAGE THE RED HAT PARTNER COMMUNITY

Seamlessly Integrating 3rd party solutions into RHEV

- Expansive partner community
 - ISV and IHV partners
 - Certified solutions with vendors, including Windows-based
- Red Hat maintains technology relationships
 - APIs offer direct product integration
 - Open source software accelerates technology development by interacting with ISVs, IHVs, and our customers

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RHEV for DESKTOPS PARTNER COMMUNITY

Application
Virtualization



User
Virtualization



Printing



Thin Clients



Broker



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Visit in Partner Pavilion:

IGEL: Booth #904

Leostream: Booth #203



Red Hat Enterprise Virtualization for Desktops:

Feature Overview

Dave Simmons, Sr. Solutions Architect

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ENTERPRISE-CLASS DESKTOP MANAGEMENT

Feature	Description
High availability	Restart guest VMs from failed hosts automatically on other hosts
Live migration	Move running VM between hosts. 0 downtime, 0 sessions lost
Memory Overcommit	Commit more memory than physically available (KSM technology)
System scheduler	Continuously load balance VMs based on resource usage/policies
Power saver	Concentrate VMs on fewer servers during off-peak hrs. Save power
SSL encryption	Ensures a secure tunnel between the client device and host server
Maintenance Manager	0 downtime for VMs during planned maintenance window
Image management	Snapshots, Template-based provisioning, etc
Linked Images	Reduce storage up to 90% with thin provisioning
Desktop Pools	Group identical desktop VMs from a template for on-demand use
Monitoring & reporting	For all objects in system – VM guests, hosts, networking, storage etc.
V2V	Convert Vms from Vmware and RHEL/Xen to RHEV

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BENEFITS OF KVM HYPERVISOR



- Leverages Linux – no need to re-invent the wheel
 - Built on trusted, stable enterprise grade platform
 - Scheduler, memory management, hardware support etc
 - Ease of management – use same tools for managing physical servers and hypervisors
- Advanced host features
 - Inherit scalability, NUMA support, power management, hot-plug, etc. from Linux – others have to develop from scratch
 - SELinux security, advanced scheduler, RAS support etc

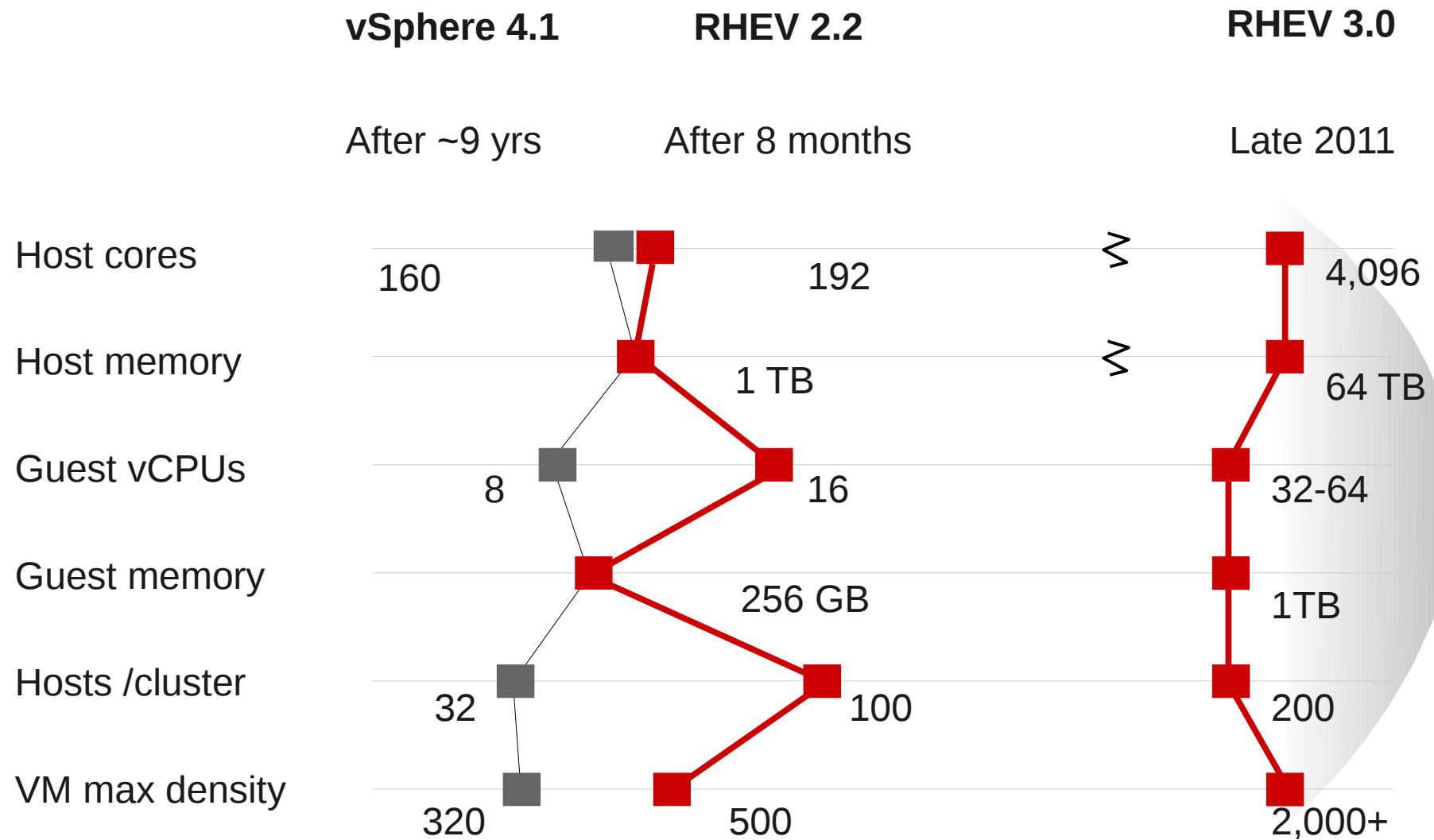
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INDUSTRY LEADING SCALABILITY



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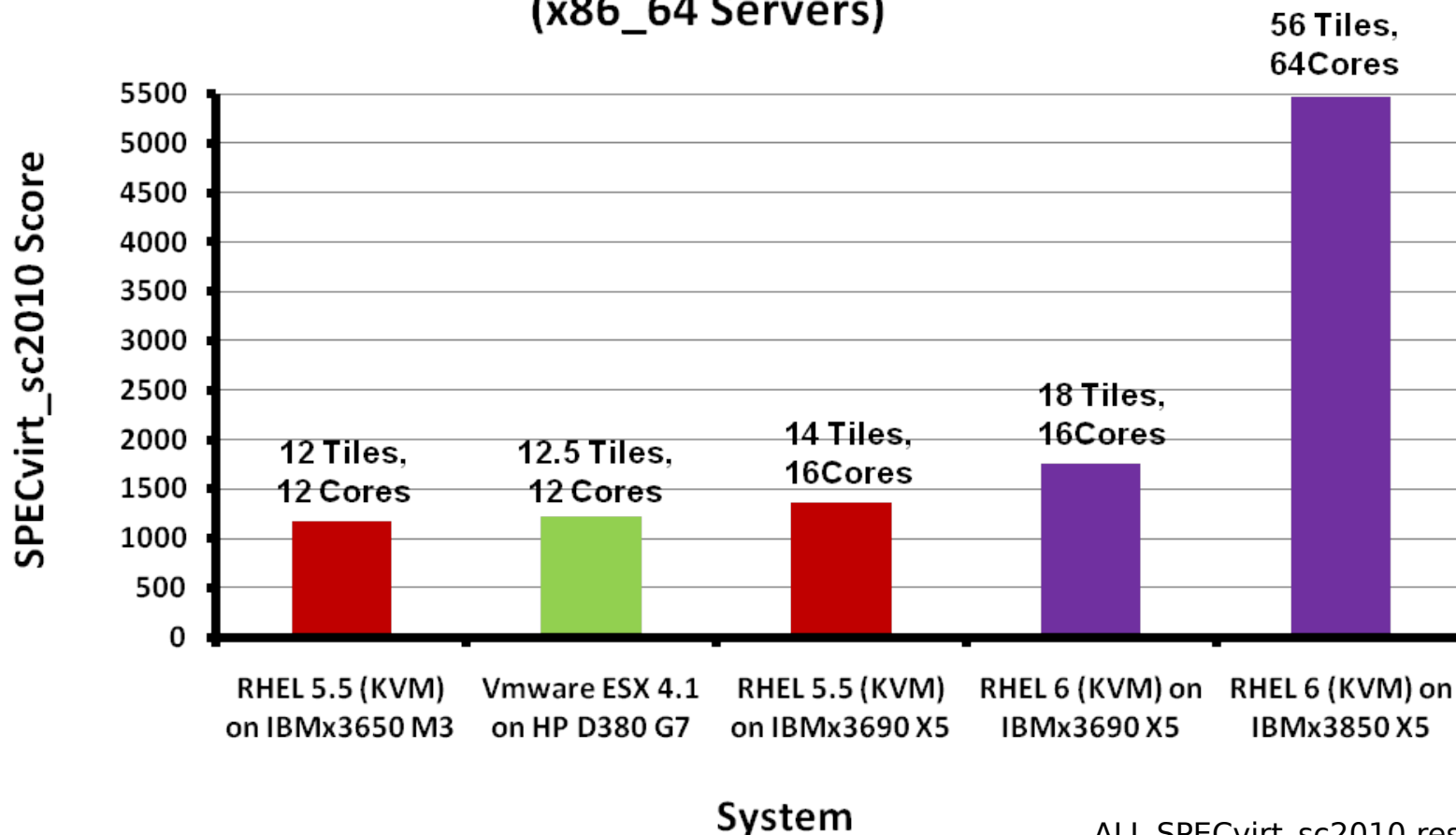
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OUTSTANDING PERFORMANCE ON OPEN INDUSTRY BENCHMARKS

SPECvirt_sc2010 Results
(x86_64 Servers)



"SPECvirt_sc2010 Benchmark Results " December 2010

ALL SPECvirt_sc2010 results published to date use RHEL as the guest / VM Operating System! RHEL 6 shows 29% better SPECvirt performance than RHEL 5.5 (KVM) on the same hardware!

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INDEPENDENT REVIEWS SHOW RED HAT COMING ON STRONG

Test Center Scorecard						
	Management	Performance	Reliability	Scalability	Installation	Overall Score
	25%	20%	20%	20%	15%	
Citrix XenServer 5.6.1	7	8	8	7	9	7.7 GOOD
	25%	20%	20%	20%	15%	
Microsoft Windows Server 2008 R2 Hyper-V	8	8	9	8	7	8.1 VERY GOOD
	25%	20%	20%	20%	15%	
Red Hat Enterprise Virtualization for Servers 2.2	8	8	8	9	9	8.4 VERY GOOD
	25%	20%	20%	20%	15%	
VMware vSphere 4.1	9	9	9	9	9	9.0 EXCELLENT

Source: InfoWorld, *Virtualization shoot-out: Citrix, Microsoft, Red Hat, and VMware*, April 13, 2011

<http://bit.ly/rhevshootout>

***Study did not take into account product cost!**

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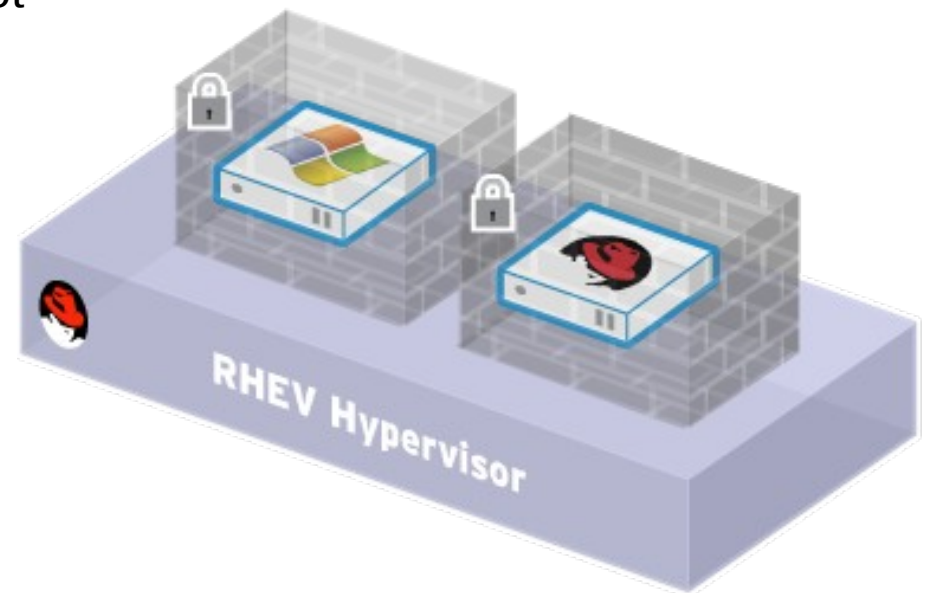
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ADVANCED DESKTOP SECURITY

- SELinux security policies maintain VM infrastructure on hosts
 - 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 more granular security policies
 - Multilevel security. Isolate guests
 - Contain any hypervisor breaches
 - Will be included in RHEL 6
- SSL encapsulation
 - Creates secure tunnel from host to client device



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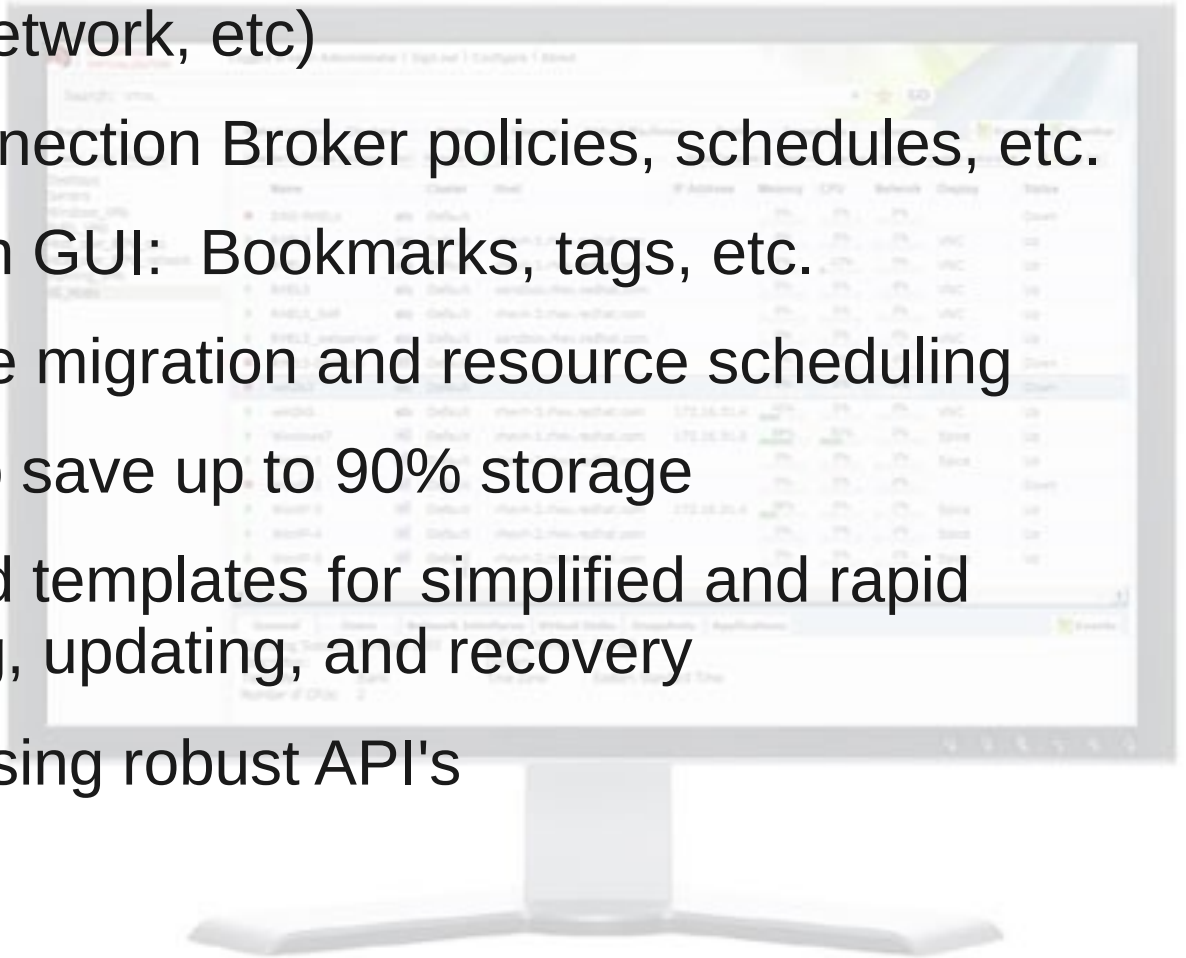
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ADVANCED CENTRALIZED MANAGEMENT

- Single point of administration to manage all assets (hosts, VMs, templates, storage, network, etc)
- Manage desktop Connection Broker policies, schedules, etc.
- Intuitive search-driven GUI: Bookmarks, tags, etc.
- Create policies for live migration and resource scheduling
- Thin provision VMs to save up to 90% storage
- Create snapshots and templates for simplified and rapid provisioning, patching, updating, and recovery
- 3rd party integration using robust API's



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ADVANCED DESKTOP MANAGEMENT

The screenshot displays the Enterprise Virtualization management interface. At the top, it shows the user is logged in as Administrator. A search bar at the top left contains the text 'Vms:'. Below the search bar, there are tabs for various management categories: Data Centers, Clusters, Hosts, Storage, Virtual Machines, Pools, Templates, and Users. The 'Virtual Machines' tab is currently selected, showing a list of VMs with columns for Name, Cluster, Host, IP Address, Memory, CPU, Network, Display, and Status. A red arrow points to the search bar, and another red arrow points to the 'GO' button. A third red arrow points to the 'win2k3' VM entry in the list. Below the list, there are tabs for General, Users, Network Interfaces, Virtual Disks, Snapshots, and Applications. The 'General' tab is selected, showing details for the 'win2k3' VM, including Operating System (Windows 2003), Description, Template (Blank), Number of CPUs (2), Defined Memory (512 MB), Domain, and Time Zone (Eastern Standard Time). A red arrow points to the 'General' tab.

Name	Cluster	Host	IP Address	Memory	CPU	Network	Display	Status
DNS-RHEL4	Default			0%	0%	0%		Down
RHEL3	Default	rhev-1.rhev.redhat.com		0%	0%	1%	VNC	Up
RHEL4	Default	rhev-1.rhev.redhat.com		0%	12%	0%	VNC	Up
RHEL5	Default	sandbox.rhev.redhat.com		0%	0%	0%	VNC	Up
RHEL5_SAP	Default	rhev-3.rhev.redhat.com		0%	0%	0%	VNC	Up
RHEL5_webserver	Default	sandbox.rhev.redhat.com		0%	0%	0%	VNC	Up
RHEL5-Desktop	Default			0%	0%	0%		Down
win2k3	Default			0%	0%	0%		Down
win2k8	Default	rhev-3.rhev.redhat.com	172.16.31.4	42%	0%	0%	VNC	Up
Windows7	Default	rhev-1.rhev.redhat.com	172.16.31.5	69%	51%	0%	Spice	Up
WinXP-1	Default	rhev-2.rhev.redhat.com		0%	0%	1%	Spice	Up
WinXP-2	Default			0%	0%	0%		Down
WinXP-3	Default	rhev-2.rhev.redhat.com	172.16.31.4	38%	0%	1%	Spice	Up
WinXP-4	Default	rhev-2.rhev.redhat.com		0%	0%	1%	Spice	Up
WinXP-5	Default	rhev-2.rhev.redhat.com		0%	0%	1%	Spice	Up

General Users Network Interfaces Virtual Disks Snapshots Applications Events

Operating System: Windows 2003 Defined Memory: 512 MB
Description: Domain:
Template: Blank Time Zone: Eastern Standard Time
Number of CPUs: 2

Search-driven UI makes managing thousands of objects easy

Bookmarks, tags, and other advanced GUI functions

Cross-correlate information across users, VMs, hosts, applications, status, etc.

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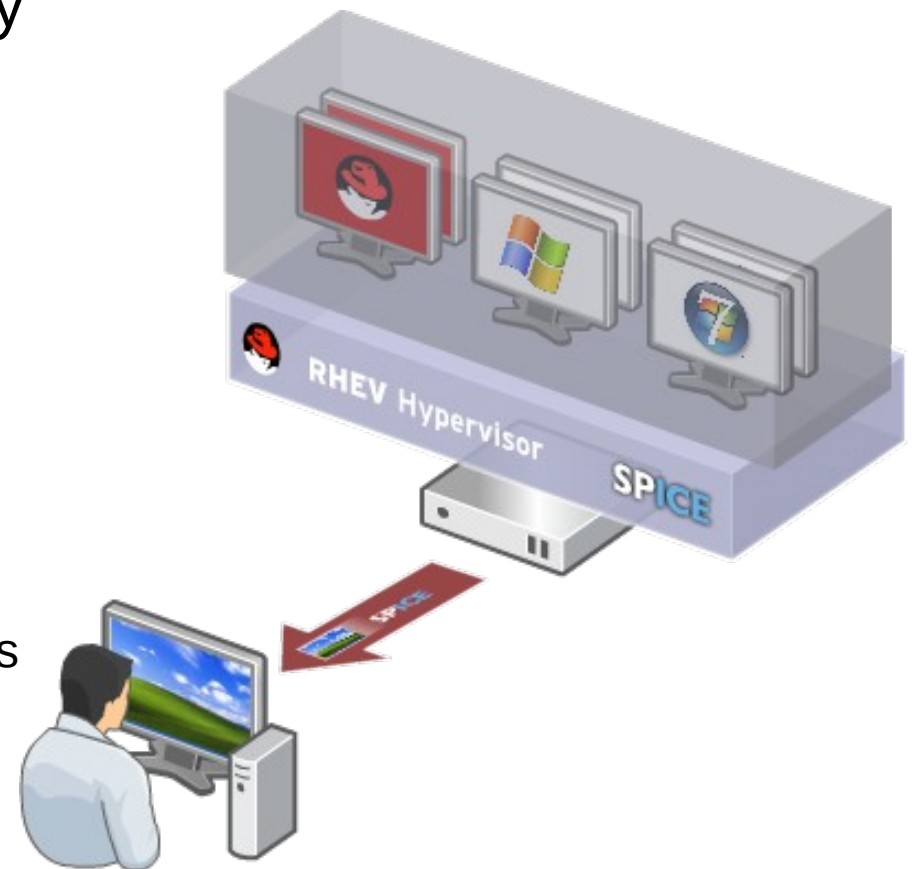
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SPICE: EXCEPTIONAL USER EXPERIENCE

- Designed and created explicitly for desktop virtualization
- Open source protocol
- Exceptional user experience
 - Bi-directional audio & video
 - VoIP & video conferencing
 - HD quality video
 - High resolution display
 - Multiple monitor capable
 - USB redirection for storage & devices
 - Print to local or network printers



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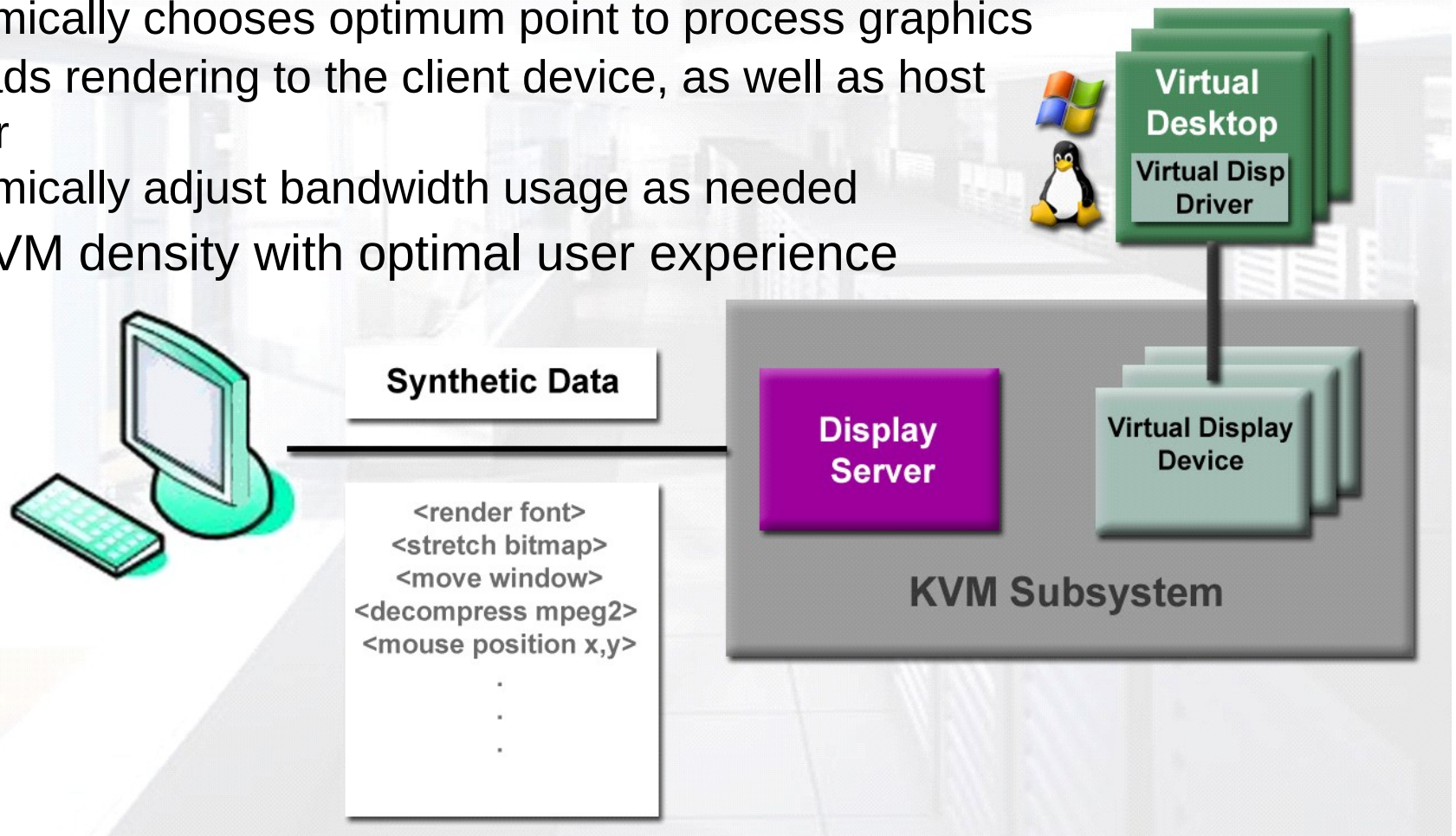
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SPICE: HOW DOES IT WORK?

- Adaptive/intelligent protocol
 - Dynamically chooses optimum point to process graphics
 - Offloads rendering to the client device, as well as host server
 - Dynamically adjust bandwidth usage as needed
- Highest VM density with optimal user experience



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WHAT CLIENT DEVICE SHOULD I USE?

- Access via web browser
 - Active X component (Win)
 - Mozilla XPI (Linux)
- Nearly any standard PC
 - Windows or RHEL 5.5+
 - Desktops, laptops, etc
- Thin Clients
 - Windows XPe or Windows Embedded Standard 2009
 - Wyse, HP, DevonIT, IGEL, 10zig, and more...
 - Linux-based thin clients
 - IGEL shipping now, 10zig soon, Wyse by EOY



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Red Hat Enterprise Virtualization for Desktops:

Pricing, Competition, Wrap up...

Jeff Jameson, Product Marketing Manager

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RED HAT SUBSCRIPTIONS

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

- Product Access
- Updates
- Patches
- Knowledge Base
- 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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SIMPLIFIED SUBSCRIPTION PRICING MODEL

SERVER VIRTUALIZATION

- Complete management feature set (high availability, live migration, system scheduler, power saver etc.)
- High-performance KVM Hypervisor (RHEV-H)

DESKTOP VIRTUALIZATION

- Add-on to RHEV infrastructure
- SPICE, connection broker, desktop pools, etc.
- Packs of 25 desktops



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HOW DOES PRICING COMPARE?

	Red Hat	VMware	Citrix
	Enterprise Virtualization for Desktops 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	√	√	NO

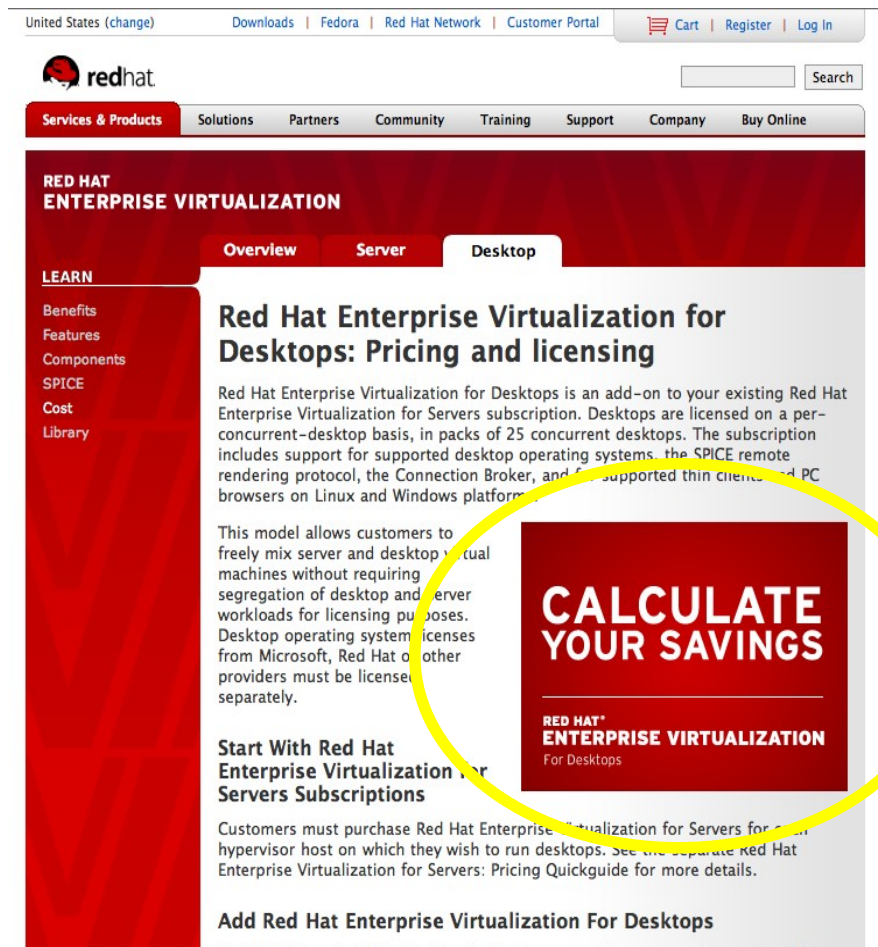
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RED HAT ENTERPRISE VIRTUALIZATION

Overview | Server | Desktop

Red Hat Enterprise Virtualization for Desktops: Pricing and licensing

Red Hat Enterprise Virtualization for Desktops is an add-on to your existing Red Hat Enterprise Virtualization for Servers subscription. Desktops are licensed on a per-concurrent-desktop basis, in packs of 25 concurrent desktops. The subscription includes support for supported desktop operating systems, the SPICE remote rendering protocol, the Connection Broker, and for supported thin clients and PC browsers on Linux and Windows platforms.

This model allows customers to freely mix server and desktop virtual machines without requiring segregation of desktop and server workloads for licensing purposes. Desktop operating system licenses from Microsoft, Red Hat or other providers must be licensed separately.

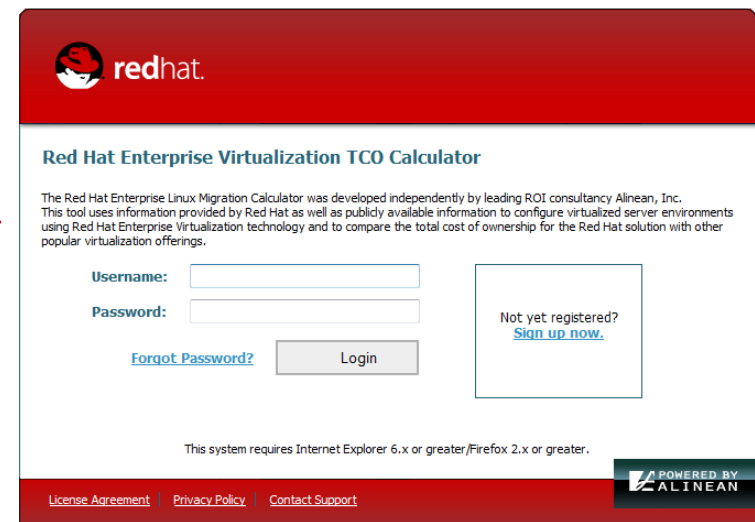
CALCULATE YOUR SAVINGS

RED HAT ENTERPRISE VIRTUALIZATION For Desktops

Start With Red Hat Enterprise Virtualization for Servers Subscriptions

Customers must purchase Red Hat Enterprise Virtualization for Servers for their hypervisor host on which they wish to run desktops. See the separate Red Hat Enterprise Virtualization for Servers: Pricing Quickguide for more details.

Add Red Hat Enterprise Virtualization For Desktops



redhat

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:

Password:

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www.redhat.com/rhev/desktop/cost

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RESOURCES

- Try it for yourself!
 - Visit the SPICE Cafe in the main lobby
- Learn more about RHEV For Desktops...
 - **redhat.com/rhev/desktops**
- Learn more about RHEV...
 - **redhat.com/rhev**

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UPCOMING RHEV SESSIONS (too many to list!)

- ~~RHEV Overview: Wed 2:00pm~~
- **Implementing RHEV at Qualcomm: Thurs 10:20am**
- **Red Hat Powered VDI: Thurs 10:20am**
- **RHEV Architecture: Thurs 11:30am**
- **RHEV 3.0 Deep Dive: Thurs 2:00pm**
- **Real World RHEV Panel: Thurs 3:10pm**
- **Enabling RHEV with NetApp Storage: Fri 9:45am**
- **Building Private IaaS Clouds: Fri 9:45am**
- **Red Hat Expert Forum: Fri 9:45am**

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