



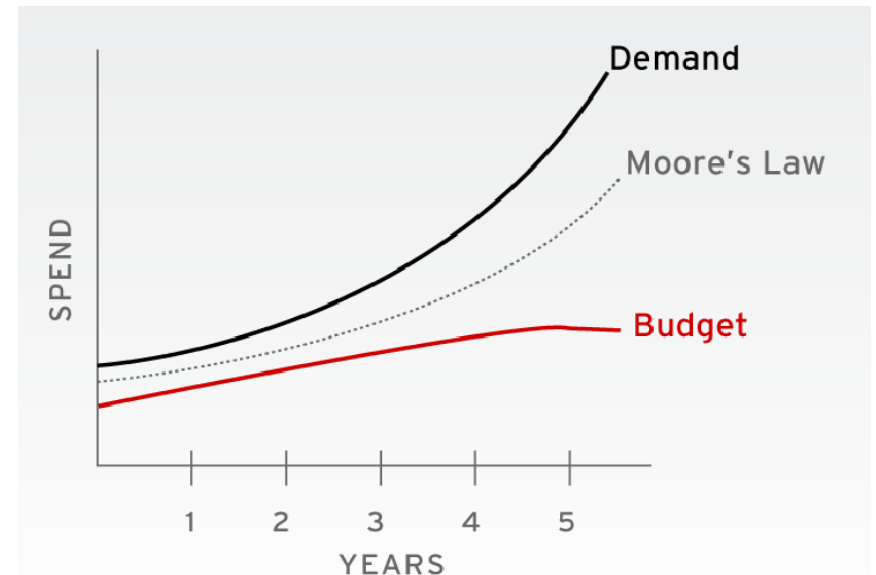
# Open Source Virtualization Products & Tools:

Red Hat Enterprise Virtualization

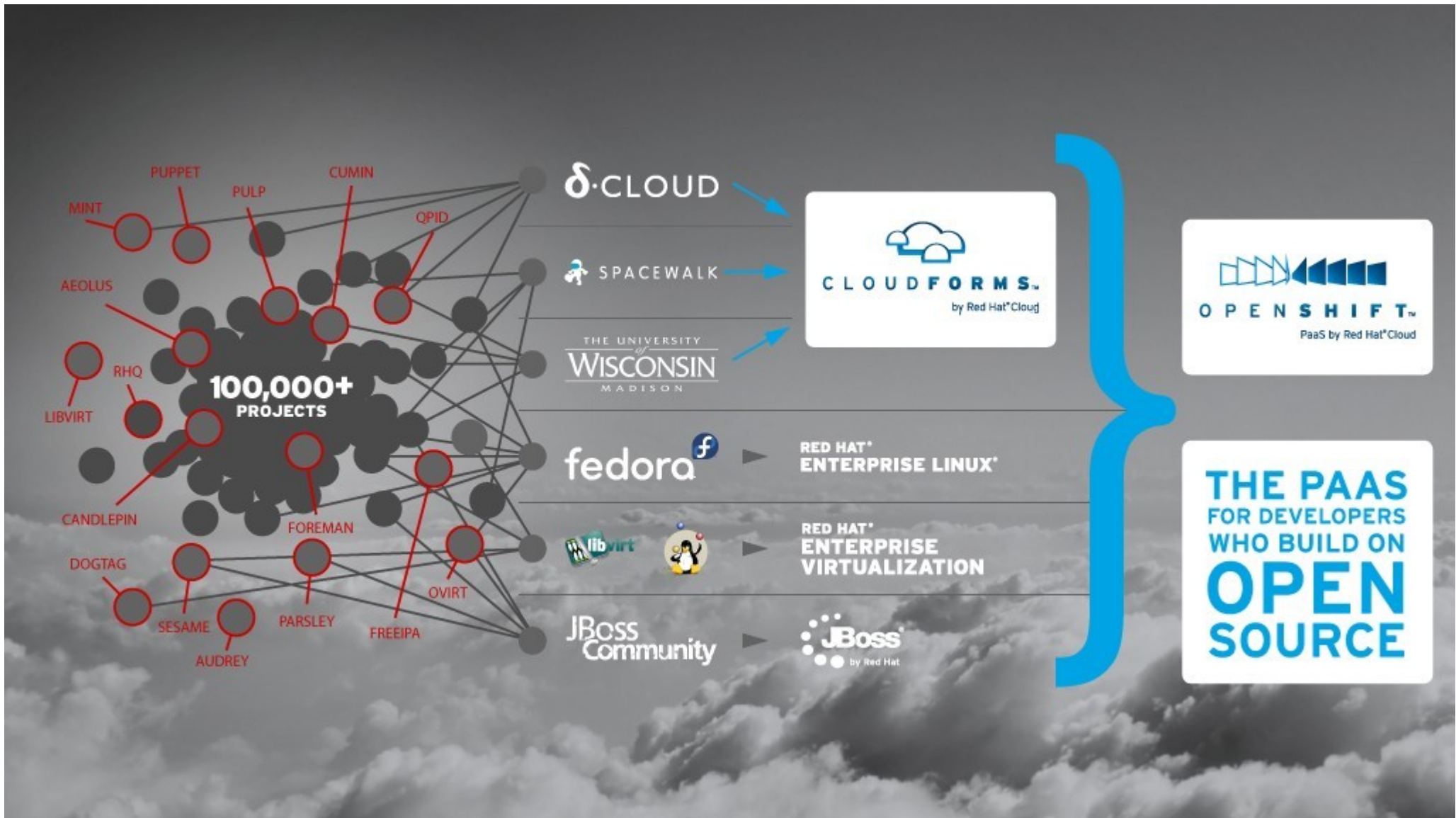
David Huff  
huff@redhat.com

# BENEFITS OF VIRTUALIZATION

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



# RED HAT (not just a Linux company)



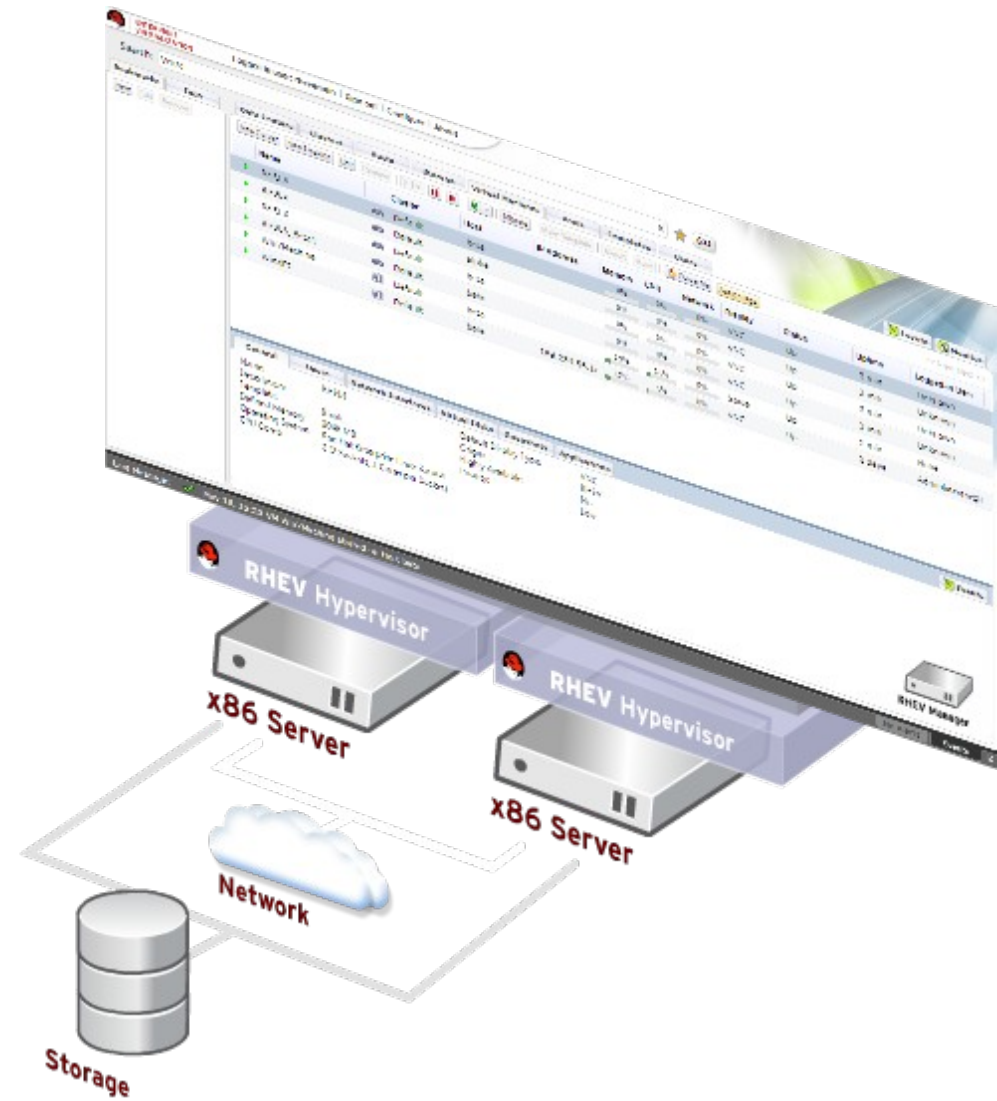
# RED HAT ENTERPRISE VIRTUALIZATION

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

Industry leading performance, scalability and security infrastructure

Built on open source technology

50–70% lower cost compared to other solutions



# RHEV: under laying technologies

## **CURRENT**

- RHEL (Linux)
- **KVM**
- VirtIO
- Libvirt
- **Spice**
- Qemu
- rhevm-api

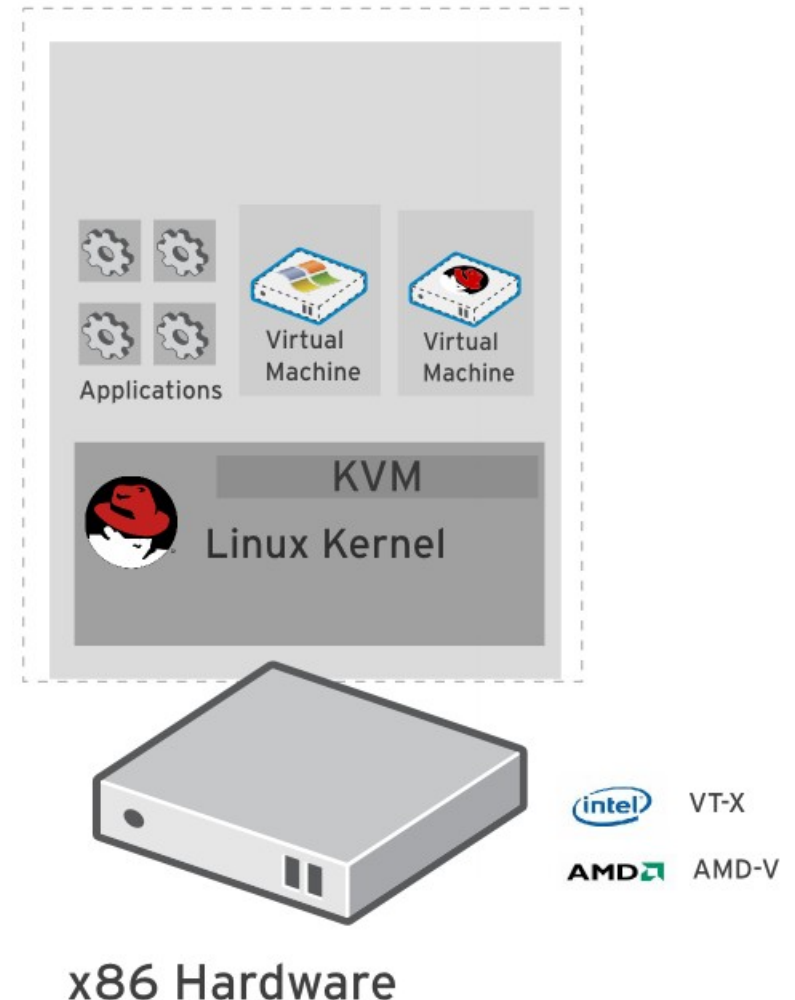
## **Legacy**

- Solid ICE (not open source)
- Ovirt

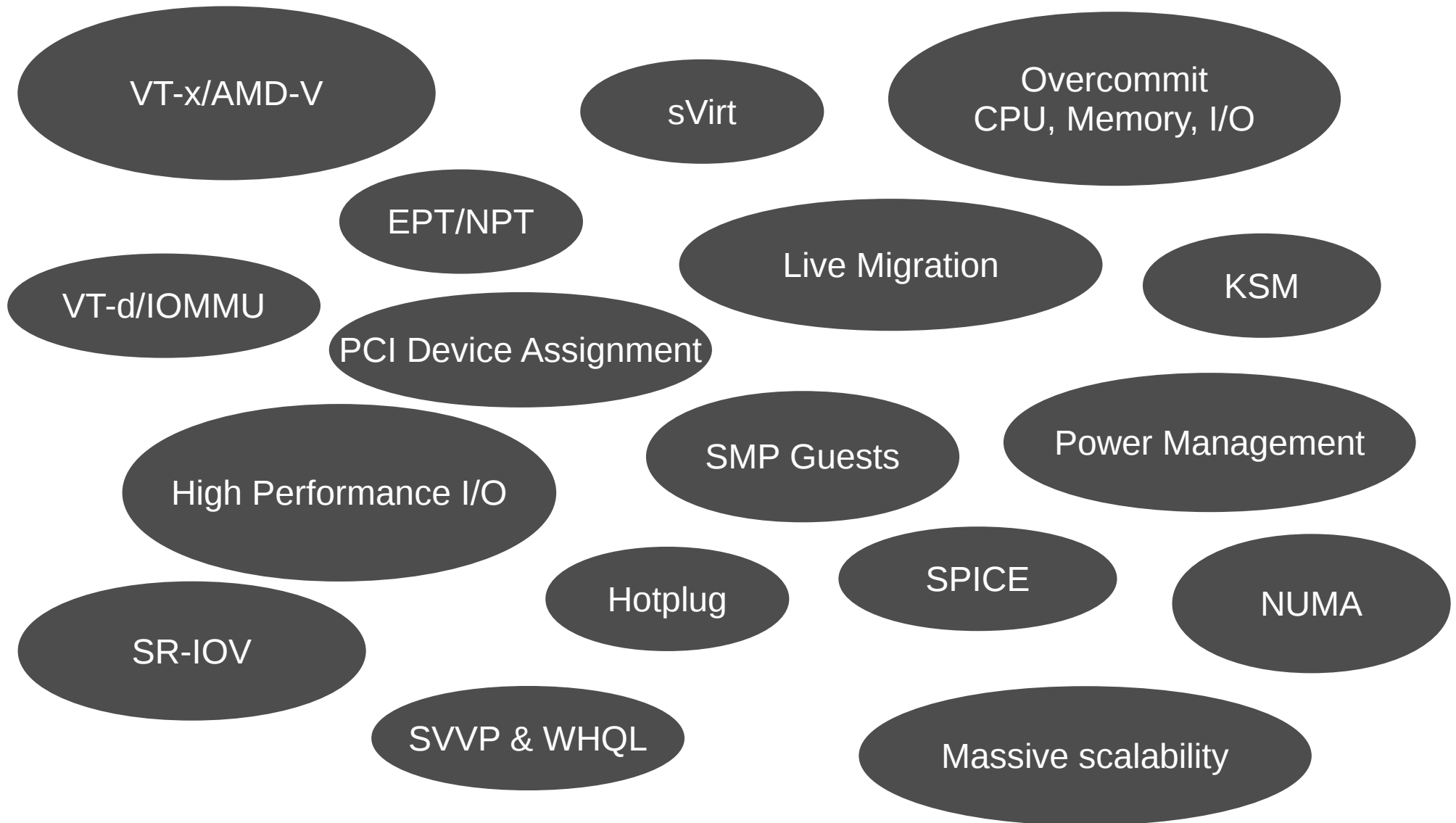


# KVM - Kernel Based Virtual Machine

- Third generation hypervisor technology
- Designed based on modern x86 hardware
  - Offloads work to CPU
  - No need to use binary translation or paravirtualized kernels
- Leverages Linux kernel
  - “Don't reinvent the wheel”
  - Uses mature, stable and proven kernel
  - Delivered as a loadable kernel module

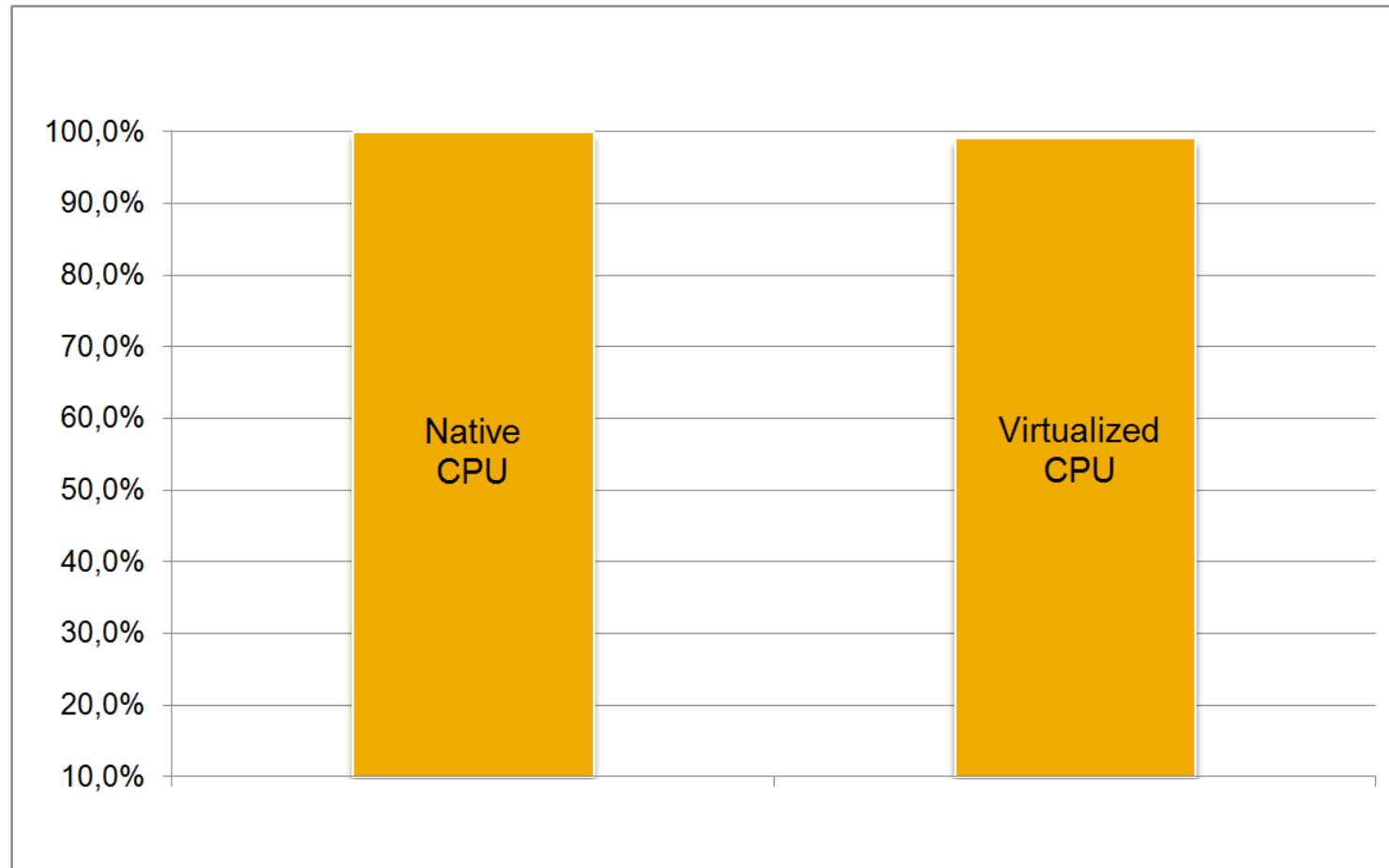


# KVM: Advanced Features



# Virtualization Overview: KVM Today

Native vs. Virtualized: 1% Overhead in KVM



SAP Linux Certification Suite  
CPU intensive reports phase  
RHEL 6 + KVM and Intel E7-8800

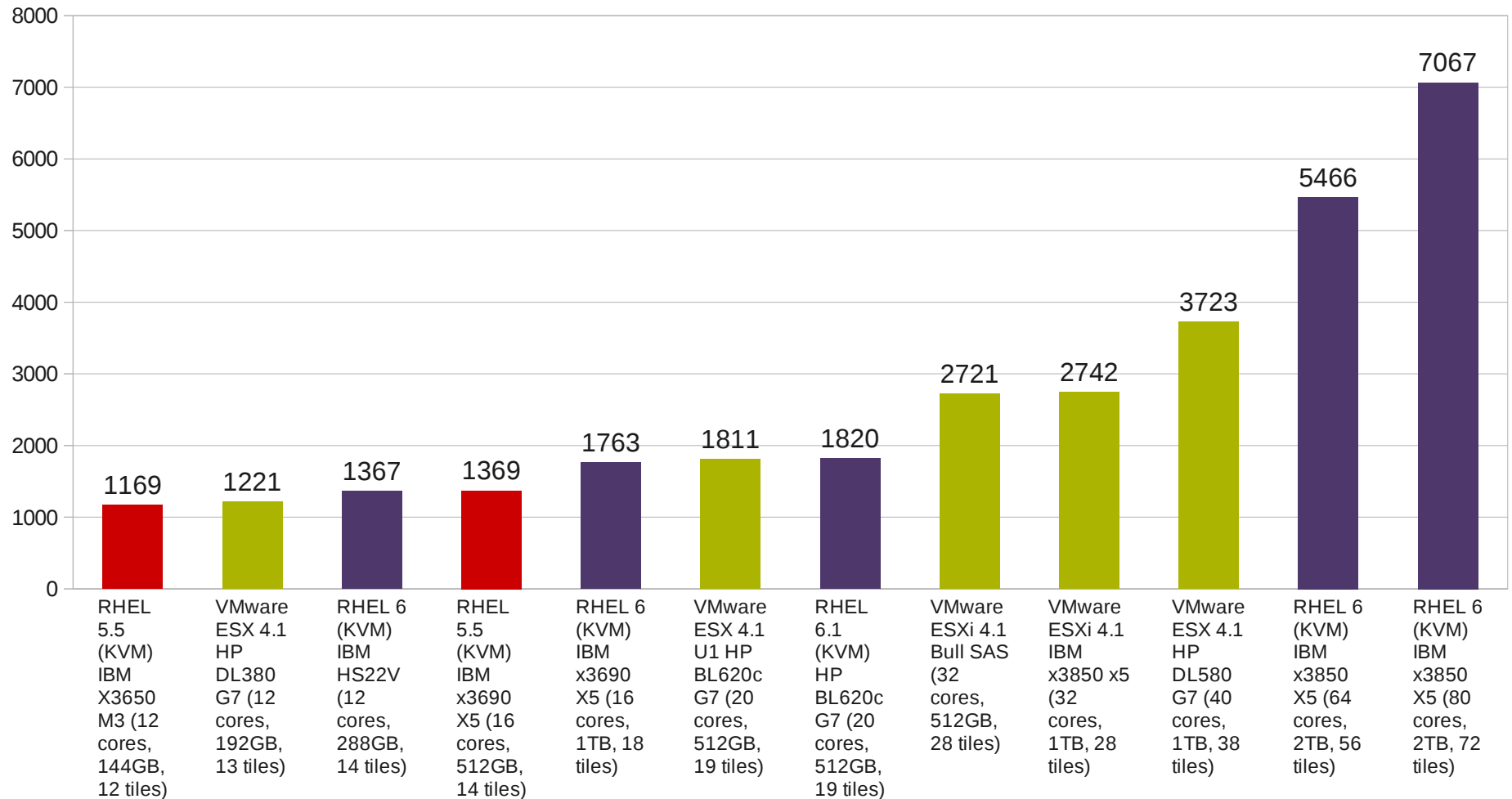


# Security

- KVM inherits security features of Linux
- Includes support for SELinux
  - 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” hypervisors
  - Multilevel security
  - Isolate guests
  - Contain any hypervisor breaches



# SPECvirt\_sc2010 results\*



\*As of May 4, 2011. See [http://www.spec.org/virt\\_sc2010](http://www.spec.org/virt_sc2010) for details



# KVM - Adoption

Open Virtualization Alliance – Mission:

- Increase overall awareness and understanding of Kernel-based Virtual Machine (KVM).
- Foster the adoption of KVM as an open virtualization alternative to proprietary solutions.
- Accelerate the emergence of an ecosystem of third-party solutions around KVM.
- Encourage interoperability, promote best practices, and highlight examples of customer successes.



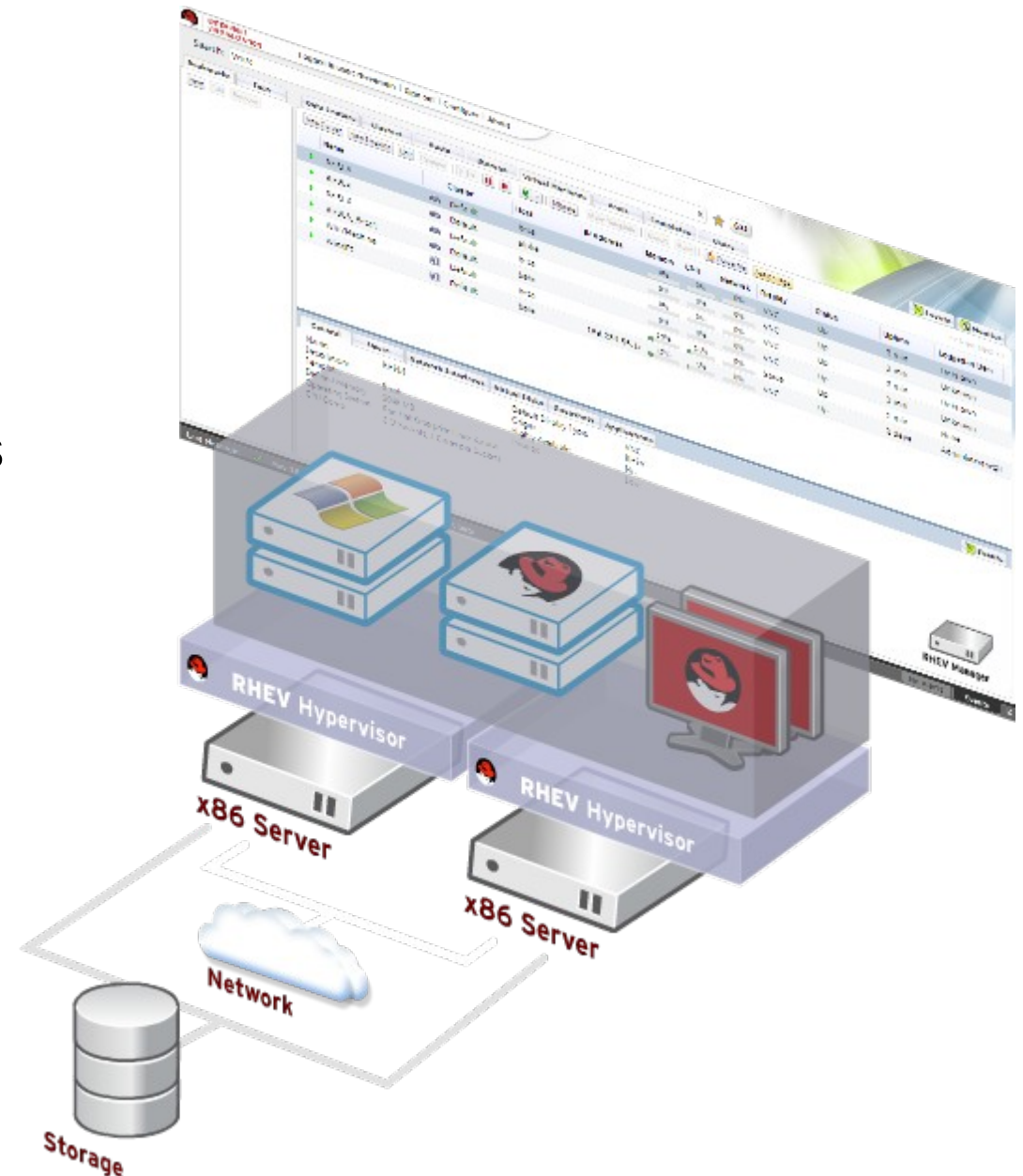
# RHEV- ADVANCED, CENTRALIZED, ENTERPRISE GRADE VIRTUALIZATION MANAGEMENT

Integrated server and desktop  
virtualization management

Scalability to hundreds of hosts  
and thousands of virtual  
machines

Modern, search driven user  
interface, bookmarks, tags

Robust API for scripting



# RED HAT ENTERPRISE VIRTUALIZATION MANAGEMENT FEATURES

Feature	Description
High Availability	Restart guest VMs from failed hosts automatically on other hosts
Live Migration	Move running VM between hosts with zero downtime
System Scheduler	Continuously load balance VMs based on resource usage/policies
Power Saver	Concentrate virtual machines on fewer servers during off-peak hours
Maintenance Manager	No downtime for virtual machines during planned maintenance windows. Hypervisor patching
Image Management	Template based provisioning, thin provisioning and snapshots
Monitoring & Reporting	For all objects in system – VM guests, hosts, networking, storage etc.
OVF Import/Export	Import and export VMs and templates using OVF files
V2V	Convert VMs from VMware and RHEL/Xen to RHEV

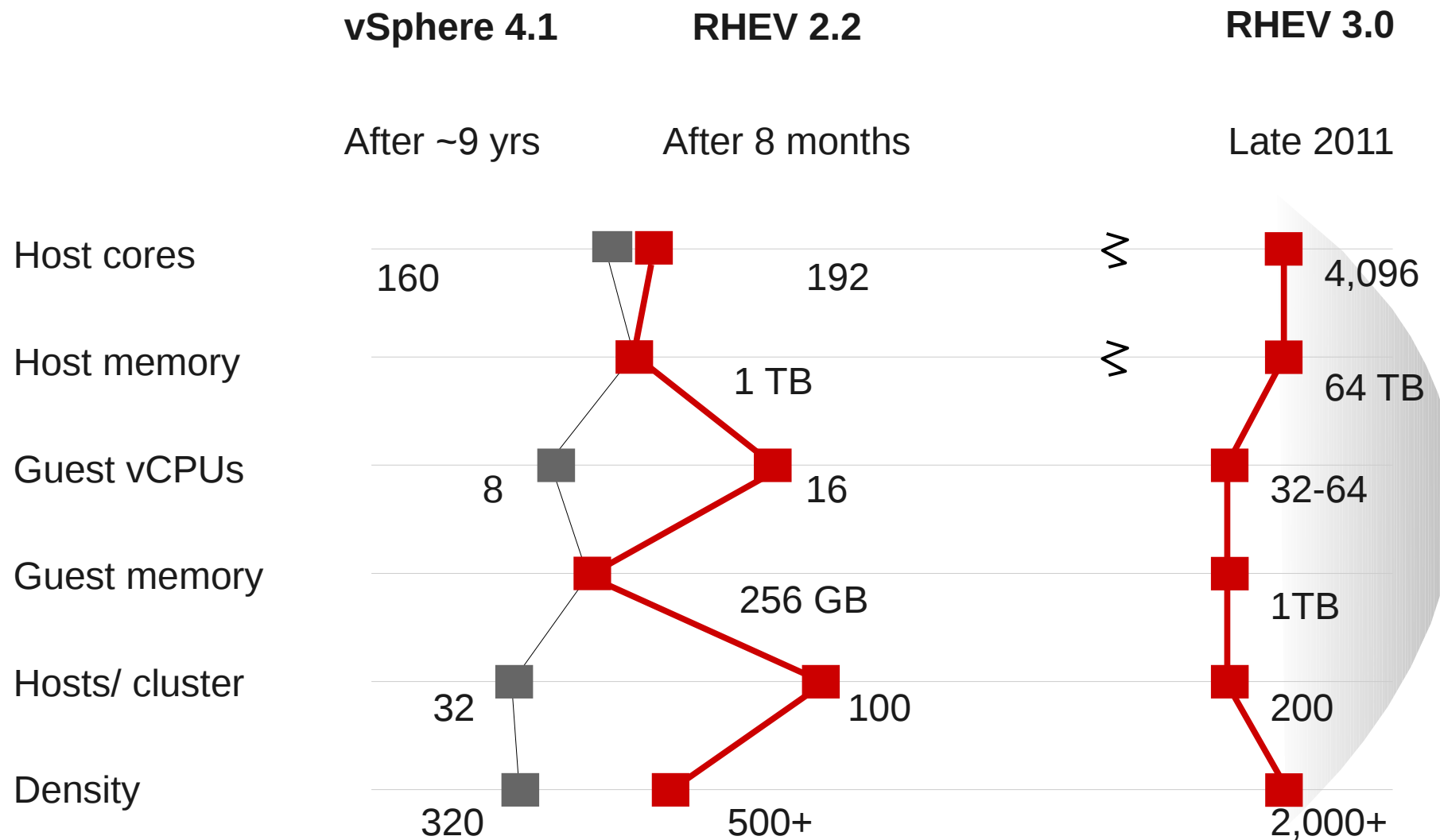


# RED HAT ENTERPRISE VIRTUALIZATION DESKTOP MANAGEMENT

Feature	Description
Connection Broker	Users log into connection broker and connect to their desktop
SPICE - HD	HD quality streaming video support 30+fps
SPICE - audio/video	Bi-directional audio/video for VoIP/video-conferencing
SPICE – USB	USB 2.0 devices + guest connectivity policy
SPICE - multi-monitor	Supports 4 monitors
Desktop pools	Automatic, manual and time-lease pools
Security	Leverages SE-Linux to isolate virtual deskops
Guest support	Windows XP, Windows 7, RHEL 5, RHEL 6
Thin client support	Any Windows XP/XPe, RHEL 5/6, HP, Devon, IGEL, 10zig, Wyse



# RED HAT ENTERPRISE VIRTUALIZATION EXTENDS THE SCALABILITY FRONTIER ...



# INDEPENDENT REVIEWS SHOW RED HAT COMING ON STRONG

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

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

<http://bit.ly/rhevshootout>



# RED HAT ENTERPRISE VIRTUALIZATION ACUSTOMER ADOPTION

MORE AND MORE CUSTOMERS USE RED HAT ENTERPRISE VIRTUALIZATION ...



IBM Smart Business Test and Dev public cloud powered by RHEV



New cloud computing service, BizHosting Basic runs on RHEV



Swedish ISP runs video on demand service on RHEV



Dutch ISP runs public “data center as a service” cloud on RHEV



Business critical card management system runs on RHEV



RHEV powers telecom service provider's critical IT infrastructure



Wireless leader runs RHEV as a strategic virtualization platform



American financial services firm runs secure transaction cloud on RHEV



Italian private hospital runs mission critical medical systems on RHEV



Indian mico finance firm runs portfolio management system on RHEV





**THANK YOU!**