



RED HAT ENTERPRISE VIRTUALIZATION

Mario Cavaldesi

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



TREMENDOUS MOMENTUM AROUND RED HAT ENTERPRISE VIRTUALIZATION

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



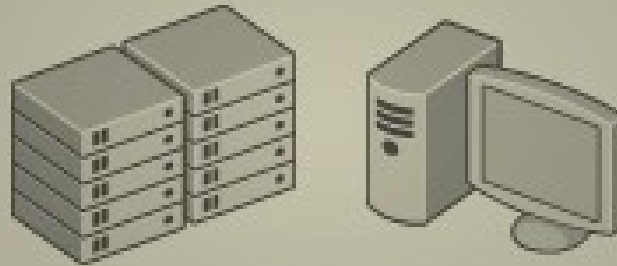
Indian micro finance firm runs portfolio management system on RHEV



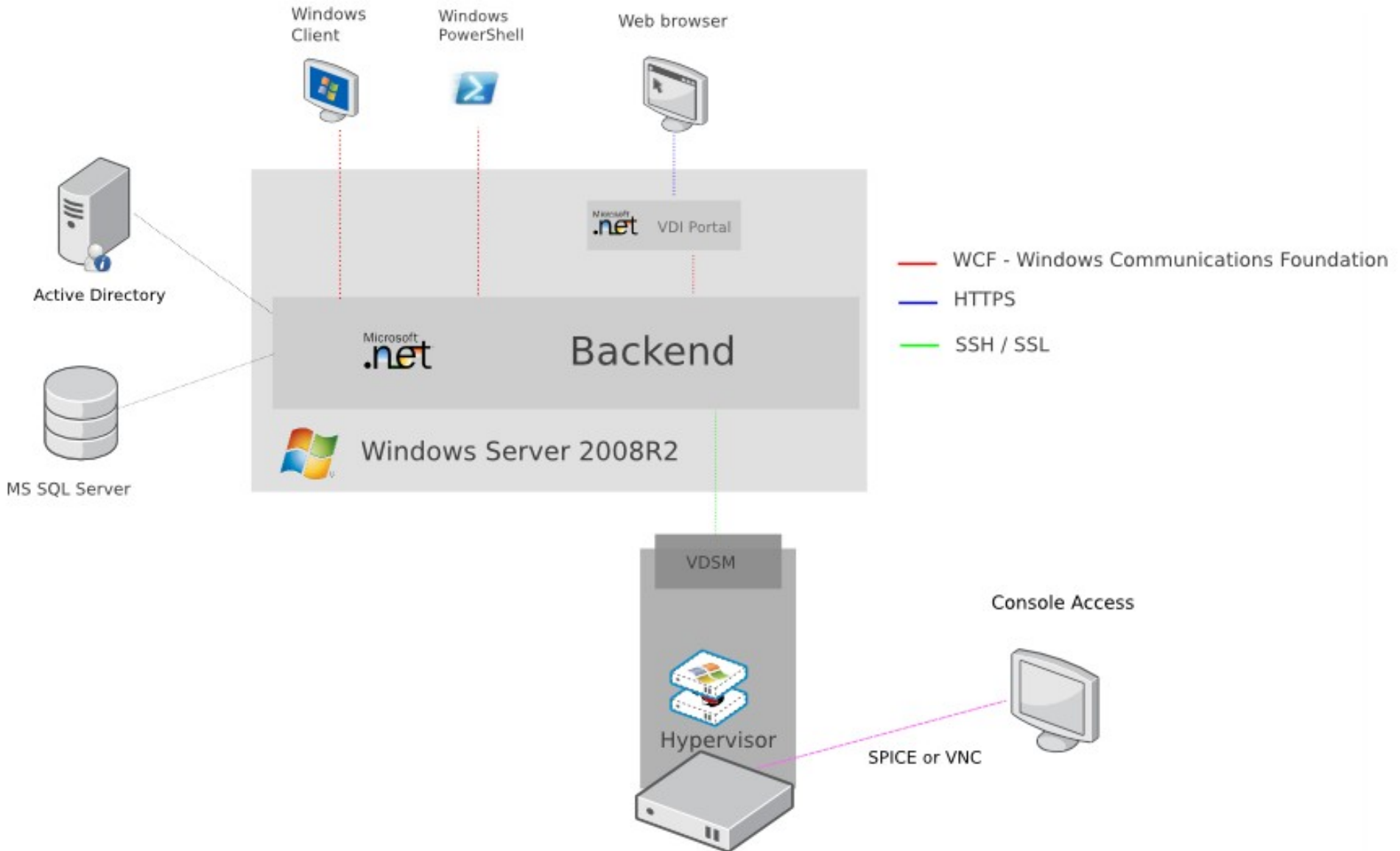
RED HAT ENTERPRISE VIRTUALIZATION

RED HAT® ENTERPRISE VIRTUALIZATION 2.2

One platform for virtual servers and desktops



RED HAT ENTERPRISE VIRTUALIZATION RHEV 2.2 ARCHITECTURE



RED HAT ENTERPRISE VIRTUALIZATION 2.2: SERVER AND DESKTOP VIRTUALIZATION

SERVER VIRTUALIZATION

High Availability

Live Migration

System Scheduler

Power Saver

Image management/ provisioning

OVF Import/Export

NEW

VMware and RHEL/Xen
VM image converter

NEW

Enhanced scalability
(16 vCPU, 256 GB RAM
Guest operating systems)

NEW

DESKTOP VIRTUALIZATION

SPICE remote rendering

NEW

- HD quality video

- bi-directional audio/video

- USB support

- Multiple monitors

Connection Broker

NEW

Desktop pools

NEW



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



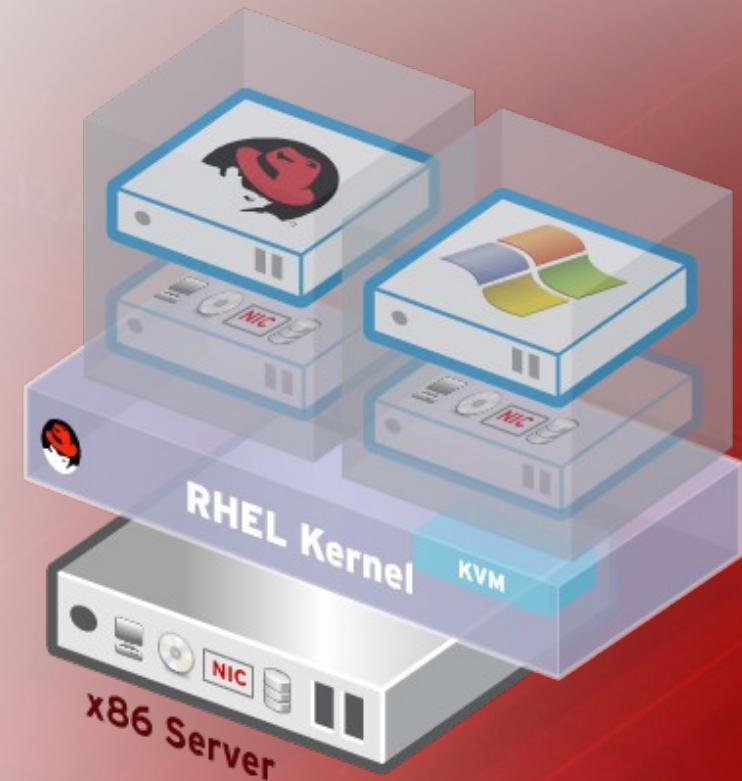
ADVANCED HYPERVISOR TECHNOLOGY

Leverages KVM (Kernel-based Virtual Machine) technology – integrated with the Linux kernel

Host scalability: 96 cores, 2 TB RAM. Guest scalability: 16 vCPU, 256 GB RAM

Advanced capabilities: memory page sharing, SR-IOV, VT-D, SELinux based security policy

Performance: Commonly 85%-95% of bare metal



BENEFITS OF LINUX KVM MODEL

Leverages Linux – no need to re-invent the wheel

Built on trusted, stable enterprise grade platform

Scheduler, memory management, hardware support etc.

Use same tools for managing physical servers and hypervisors

Advanced features

NUMA support, power management, hot-plug etc. from Linux – others have to develop from scratch

SELinux security, advanced scheduler, RAS support etc.

Hybrid-mode operation

Run regular Linux applications side-by-side with Virtual Machines on the same server – much higher degree of hardware efficiency

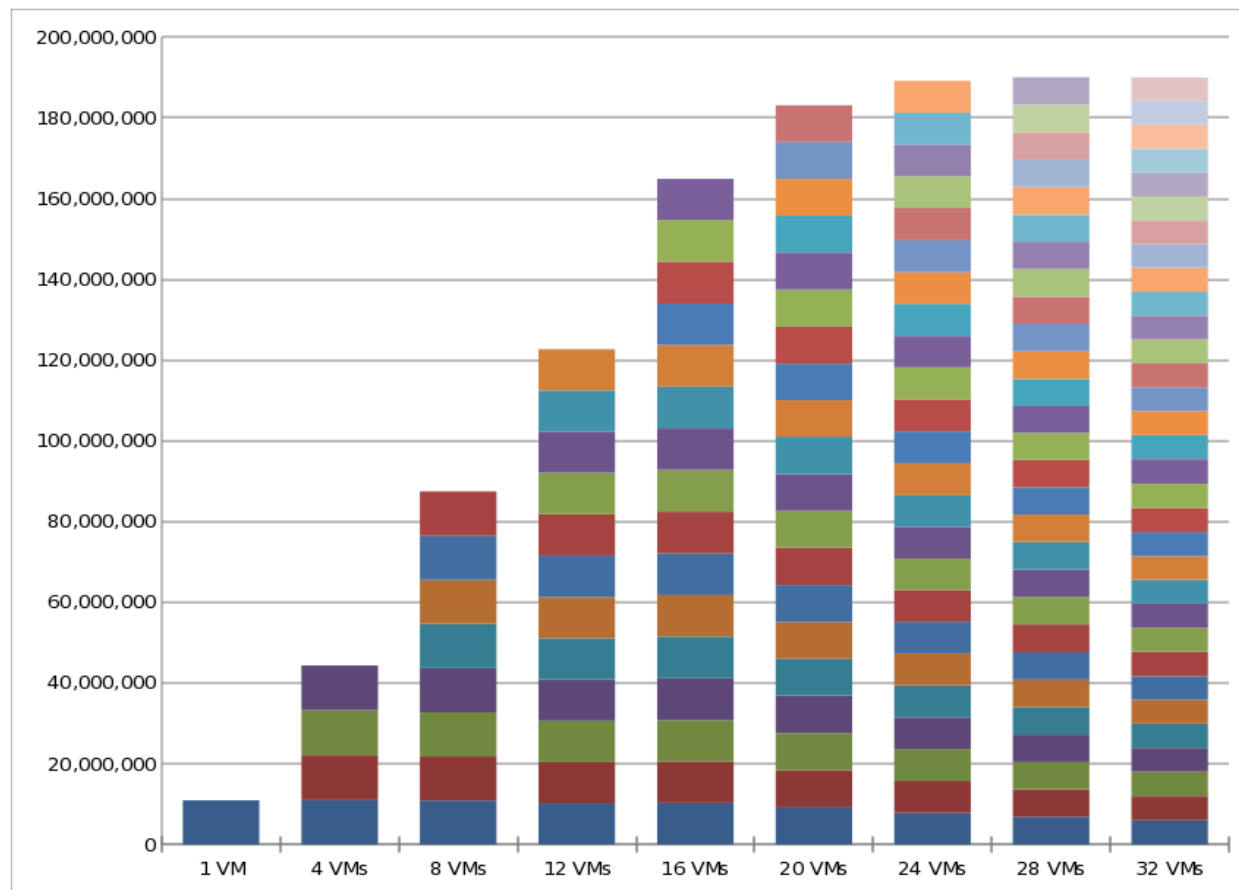


KVM HYPERVISOR – ADVANCED FEATURES

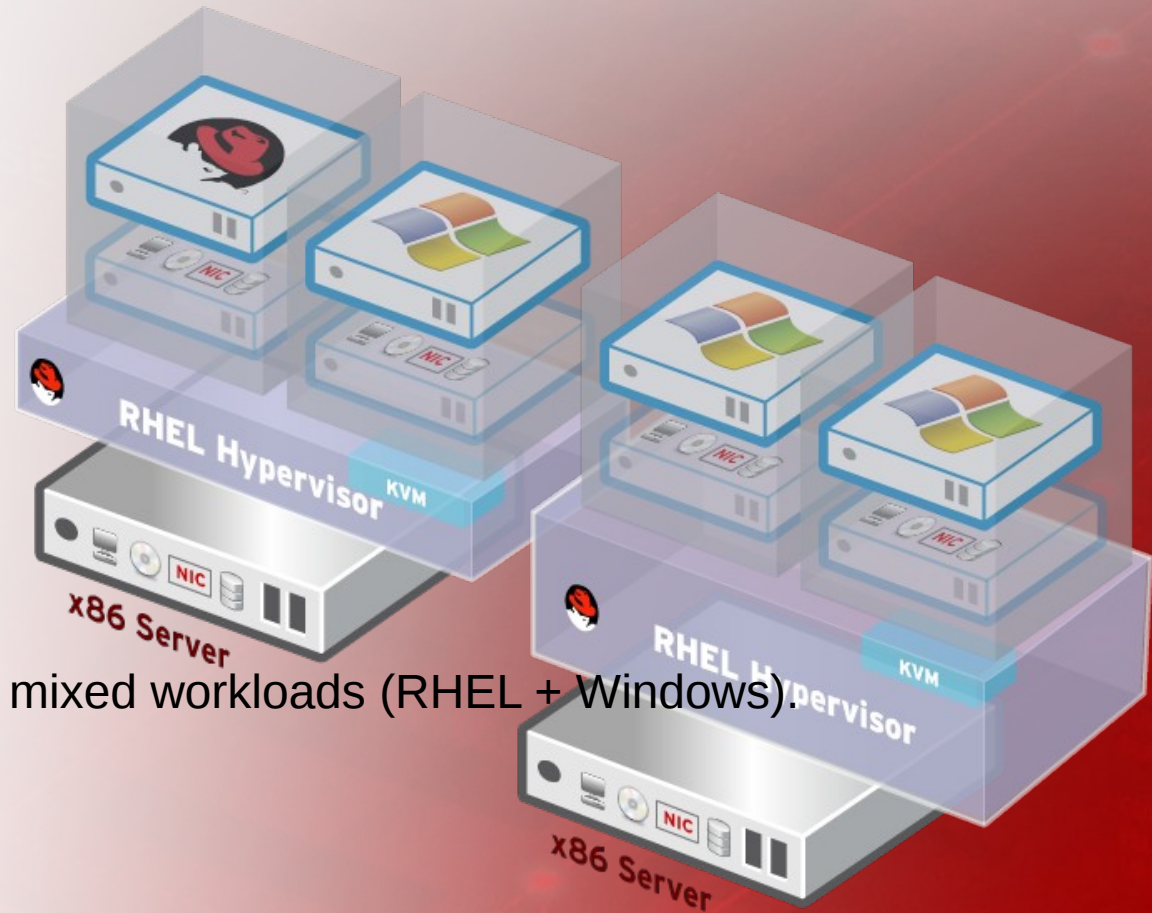
Kernel Same-Page Merging (KSM)

Enterprise Java workload benchmark - Intel Xeon Processor X5550 with 24GB RAM

- Running multiple 3GB Windows 2003 VMs - Scaling up to 200% over-commit



TWO PACKAGING MODELS FOR THE HYPERVISOR



RHEV-HYPERVISOR:

Less than 100 MB

Economically ideal for Windows guests, or mixed workloads (RHEL + Windows).

Pre-configured, no Linux skills needed.

RHEL AS A HYPERVISOR:

Flexible

Security hardened, corporate standard RHEL image as a virtualization host.

Add monitoring agents, scripts etc. Leverage existing RHEL infrastructure.

Economically ideal for RHEL guests.

Hybrid mode capable



FULLY INTEGRATED SERVER VIRTUALIZATION SYSTEM

Multi-level High Availability

Live Migration

Systems Scheduler

Power Saver

Image management and provisioning (templates, snapshots, thin-provisioning)

Storage, network and configuration management



FULLY INTEGRATED DESKTOP VIRTUALIZATION SYSTEM

Centralized management,
security and policy enforcement

Virtual desktops with user
experience of a physical PC

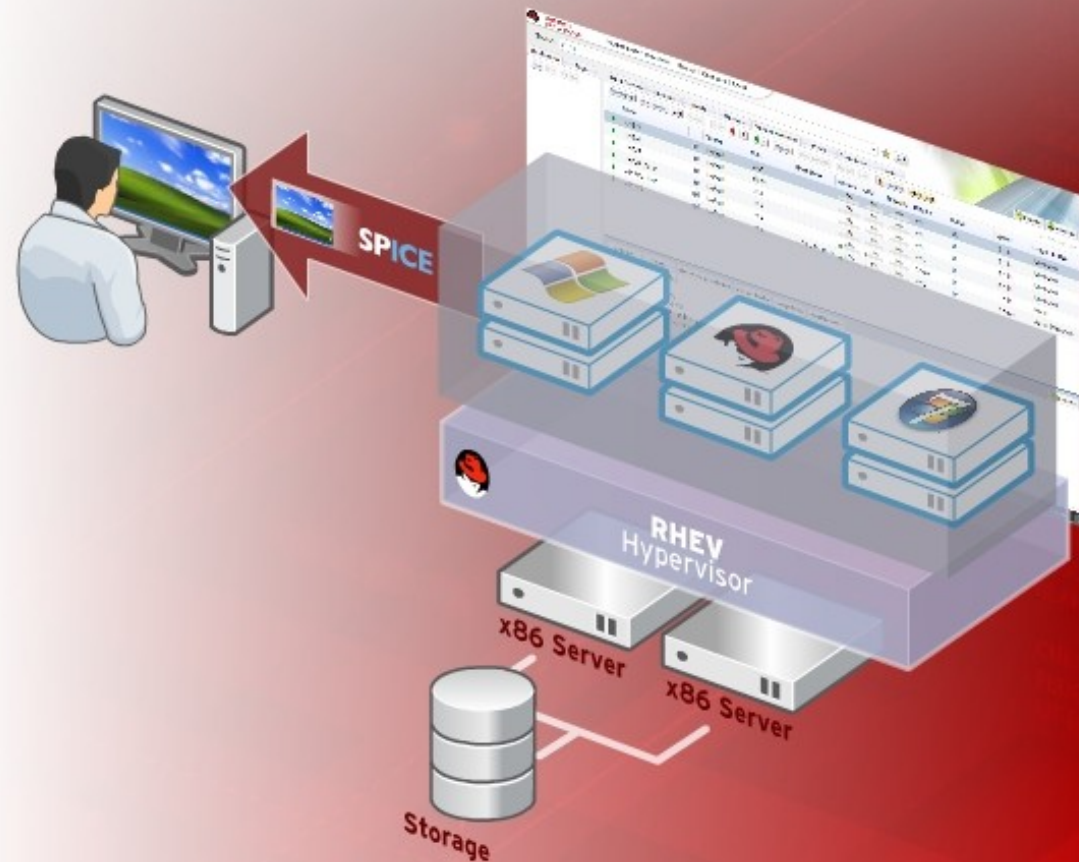
Multiple monitors

HD quality video

Bi-directional audio/video for
VoIP or video-conferencing

USB support

Industry leading density of virtual
desktops/server



ADVANCED SECURITY INFRASTRUCTURE FOR SERVERS AND DESKTOPS

RHEV inherits the security features of Linux and RHEL

SELinux security policy infrastructure

Provides protection and isolation for virtual machines and host

Compromised virtual machine cannot access other VMs or host

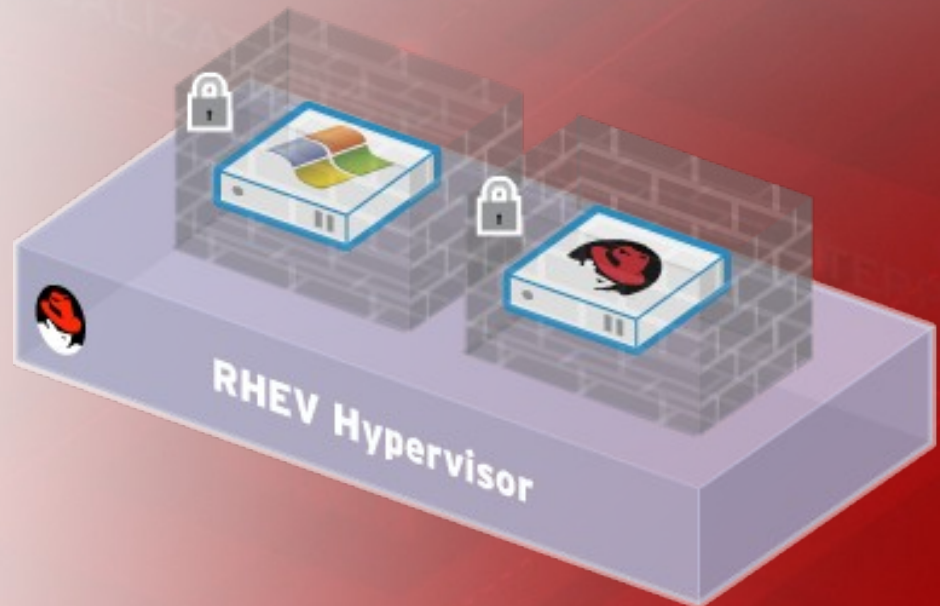
sVirt Project

Sub-project of NSA's SELinux community. Provides “hardened” hypervisors

Multilevel security. Isolate guests

Contain any hypervisor breaches

Will be included in RHEL 6



SPICE: DESIGNED FROM THE GROUND UP FOR VIRTUAL DESKTOPS

SPICE includes 3 components

- > SPICE driver in the guest
- > SPICE virtual graphics adapter in the host
- > SPICE client on the thin client

Adaptive protocol – chooses optimal point to process graphics

- > In the host, or
- > On the client

Highest density, optimal user-experience



AND WE DO WINDOWS TOO...

INTEROPERABILITY DELIVERED

RED HAT AND MICROSOFT COMPLETE
VIRTUALIZATION PLATFORM CERTIFICATIONS



Microsoft and Red Hat reciprocal agreements for cross-certification of server operating systems

RHEL 5.2+ guests on Hyper-V (Red Hat Certified)

Windows 2003/2008 on RHEV (Microsoft SVVP certified)

Desktop operating systems supported on RHEV for Desktops (including WHQL drivers delivered by RHEV Tools or Windows Update)

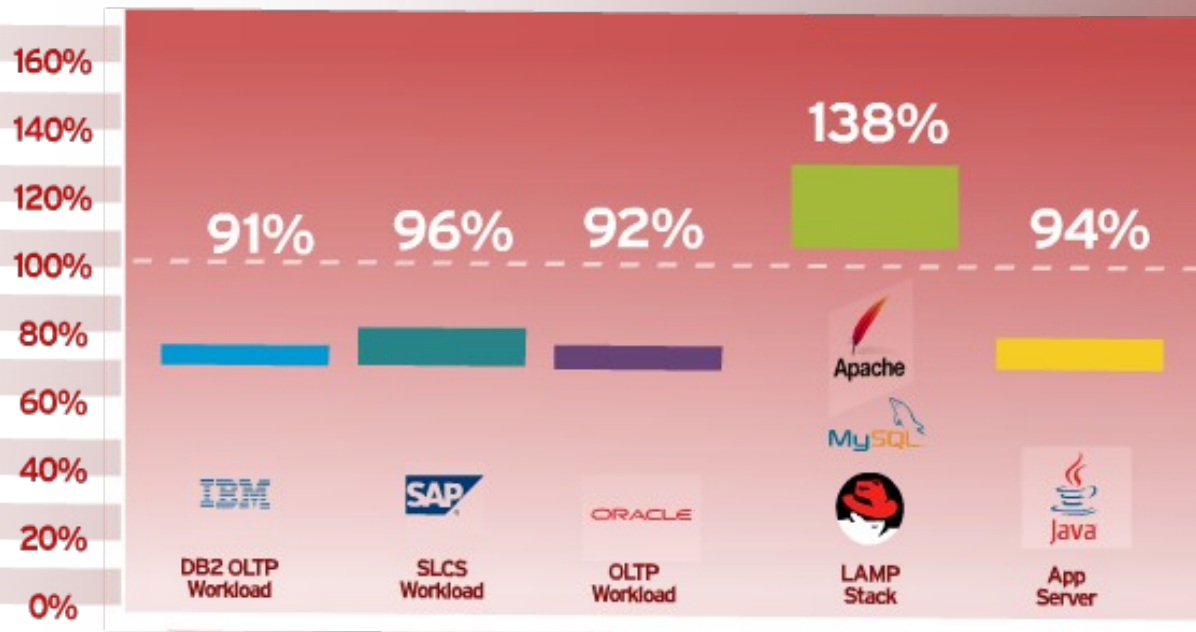
Windows XP (32 bit)

Windows 7 (32 bit and 64 bit)



LEADING PERFORMANCE FOR REAL ENTERPRISE APPLICATIONS

PERFORMANCE & SCALABILITY* OF REAL ENTERPRISE WORKLOADS ON RED HAT ENTERPRISE VIRTUALIZATION



Performance measure on a 16 core Intel Xeon 5500 in various configurations of VMs



RED HAT SUBSCRIPTION 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*



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.



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:

Password:

[Forgot Password?](#)

Not yet registered? [Sign up now.](#)

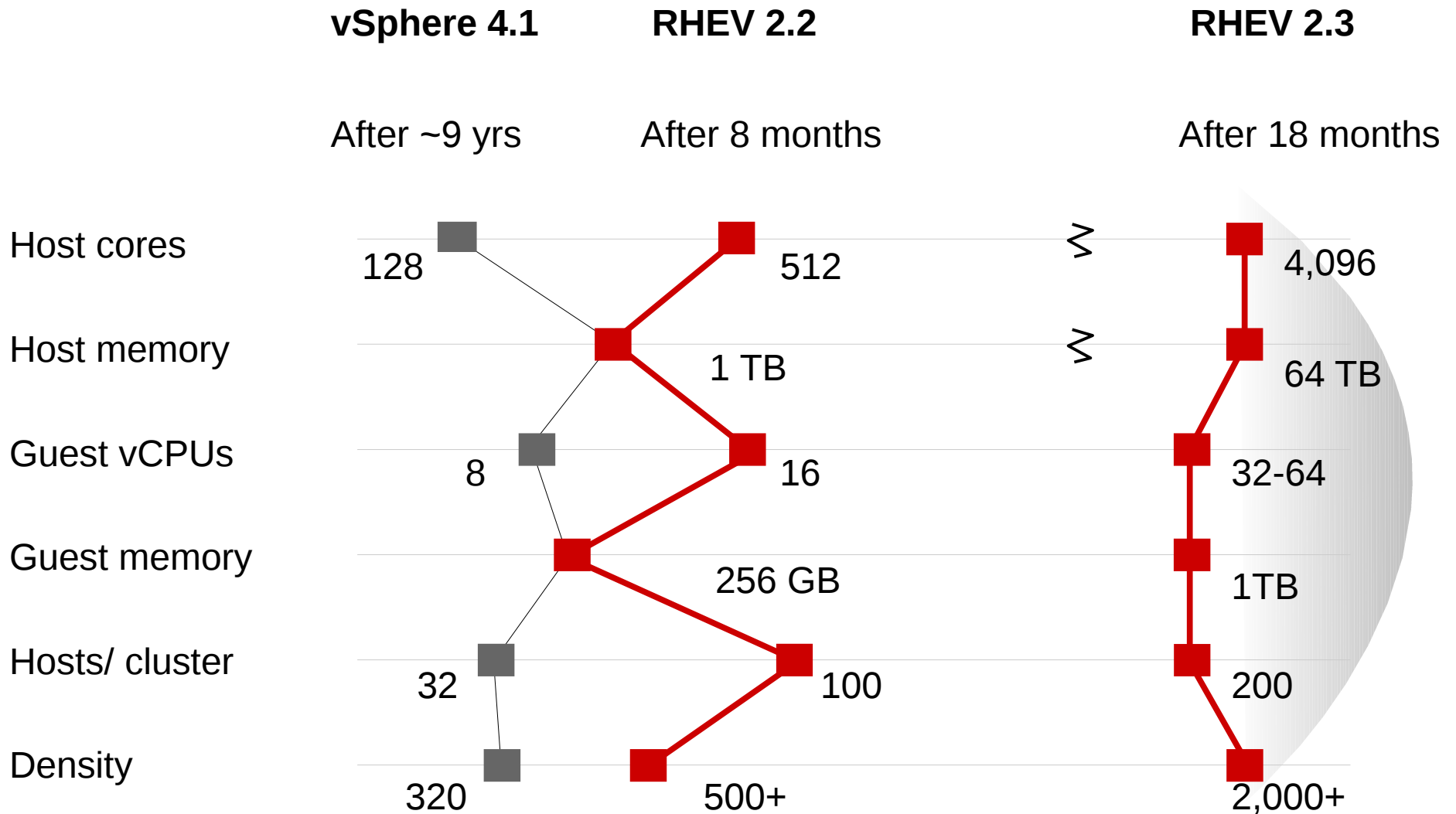
This system requires Internet Explorer 6.x or greater/Firefox 2.x or greater.

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POWERED BY ALINEAN



RED HAT ENTERPRISE VIRTUALIZATION EXTENDS THE SCALABILITY FRONTIER ...



RED HAT ENTERPRISE VIRTUALIZATION ROADMAP

Q1 2011

H2 2011

Red Hat Enterprise Virtualization 2.3

Red Hat Enterprise Virtualization 3.0

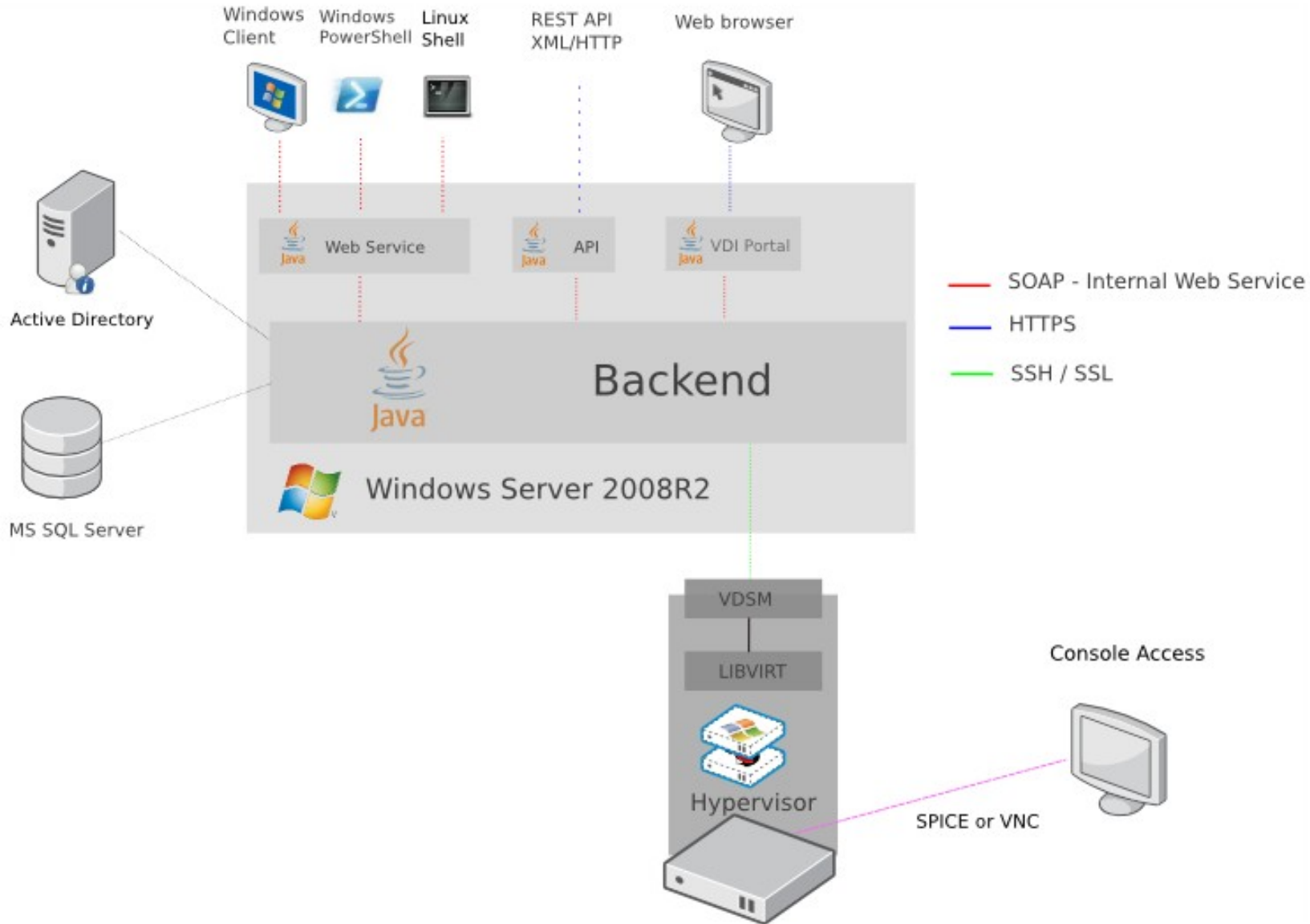
- RHEL 6 based Hypervisor
- New API Infrastructure for integration
Adds Linux CLI and REST API
- Power User GUI (self service)
- Multi Level Admin (Enhanced Roles & Delegation)
- sVirt
- Local Storage
- Hooks for customization

Currently in planning

- RHEV Manager running on Red Hat Enterprise Linux
- SLA Support (CPU, Memory, Network and Disk)
- VM-PM Scheduler (Hybrid model)
Physical and Virtual system scheduler
- Hot Pluggable CPU, Memory, Disk and NIC
- Hybrid mode scheduler
- HTML based Web Admin UI
- Live Snapshots



RED HAT ENTERPRISE VIRTUALIZATION RHEV 2.3 ARCHITECTURE



RED HAT ENTERPRISE VIRTUALIZATION

RHEV 2.3 HIGHLIGHTS

- RHEL 6 based Hypervisor
- Performance and Scalability
- RHEV backend engine in Java
- Guest tools for Red Hat Enterprise Linux
- Local Storage
- New API Infrastructure – including REST and Linux CLI
- Multi-Level Admin including delegation
- Hooks for Customization



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RHEV 2.3 HIGHLIGHTS – PERFORMANCE

- Performance and Scalability

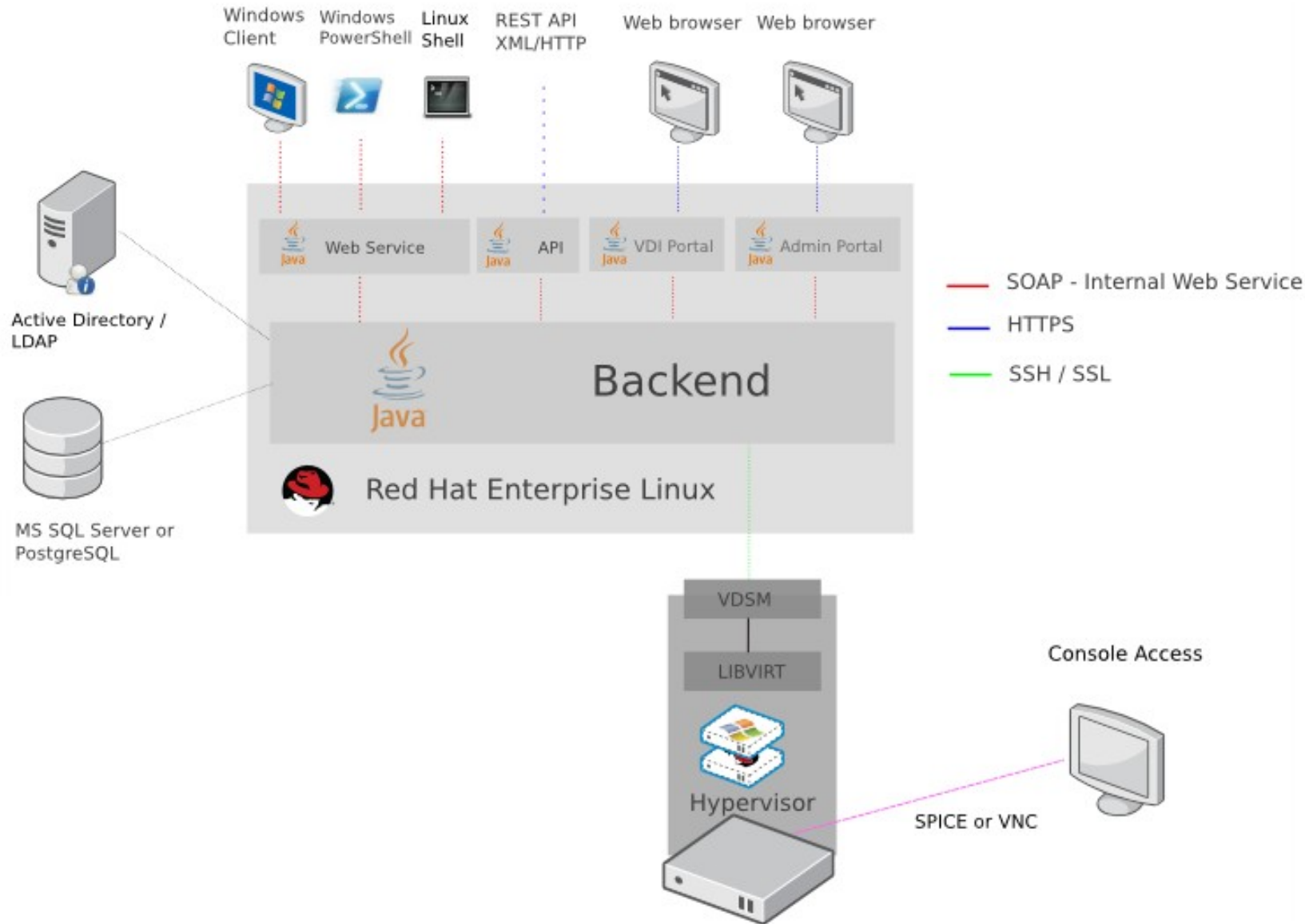
	RHEV 2.2	RHEV 2.3 Support limit	RHEV 2.3 Theoretical Limit
Host			
CPU	96	4096	4096
Memory	1TB	8TB*	64TB
Guest			
CPU	16	32*	64
Memory	256	1 TB	64TB
RHEV M			
Max Hosts	100	200	> 400

* Pending testing

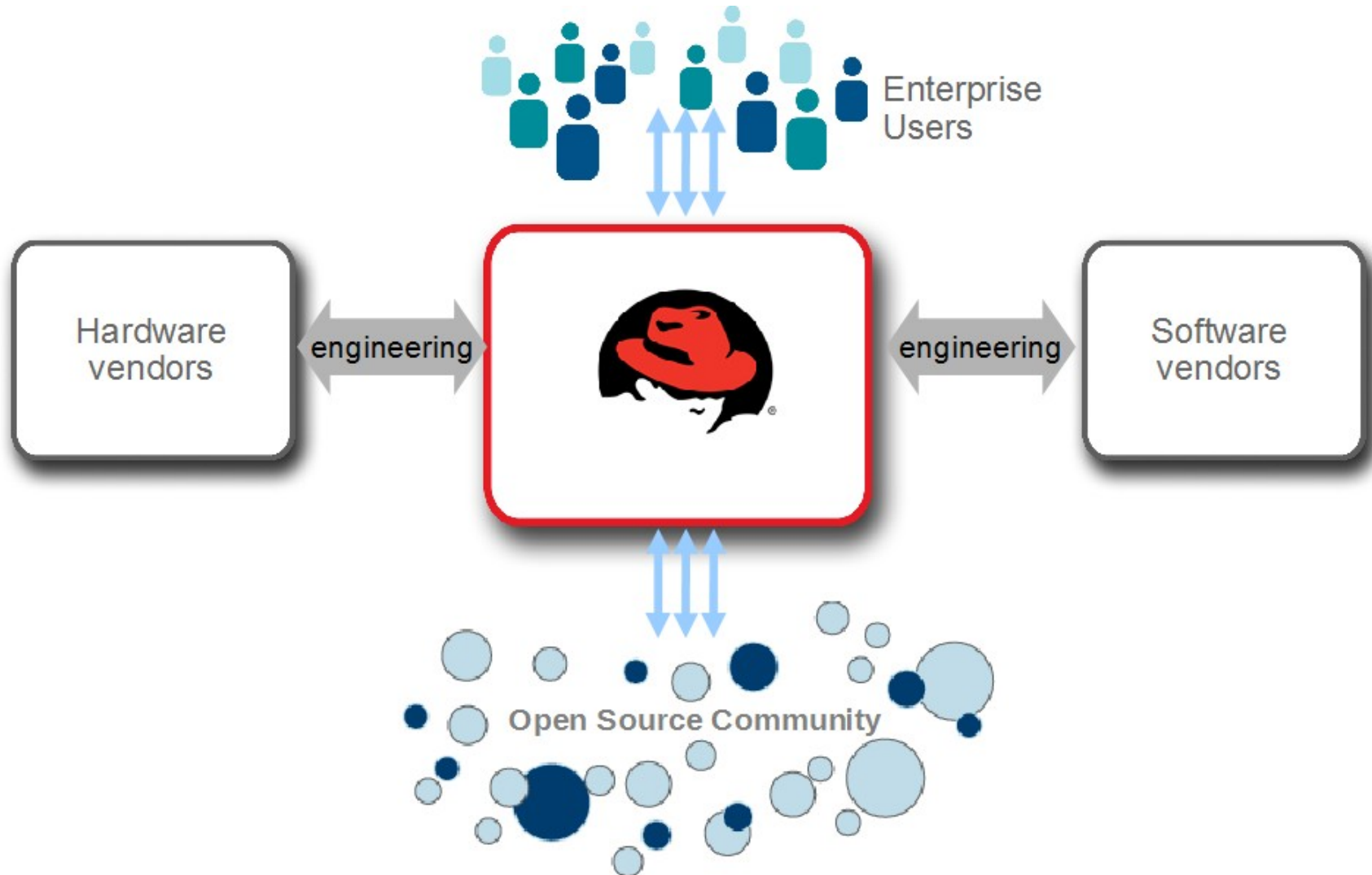


RED HAT ENTERPRISE VIRTUALIZATION

RHEV 3.0 ARCHITECTURE



RED HAT BRINGS COMMUNITY, VENDORS, USERS TOGETHER





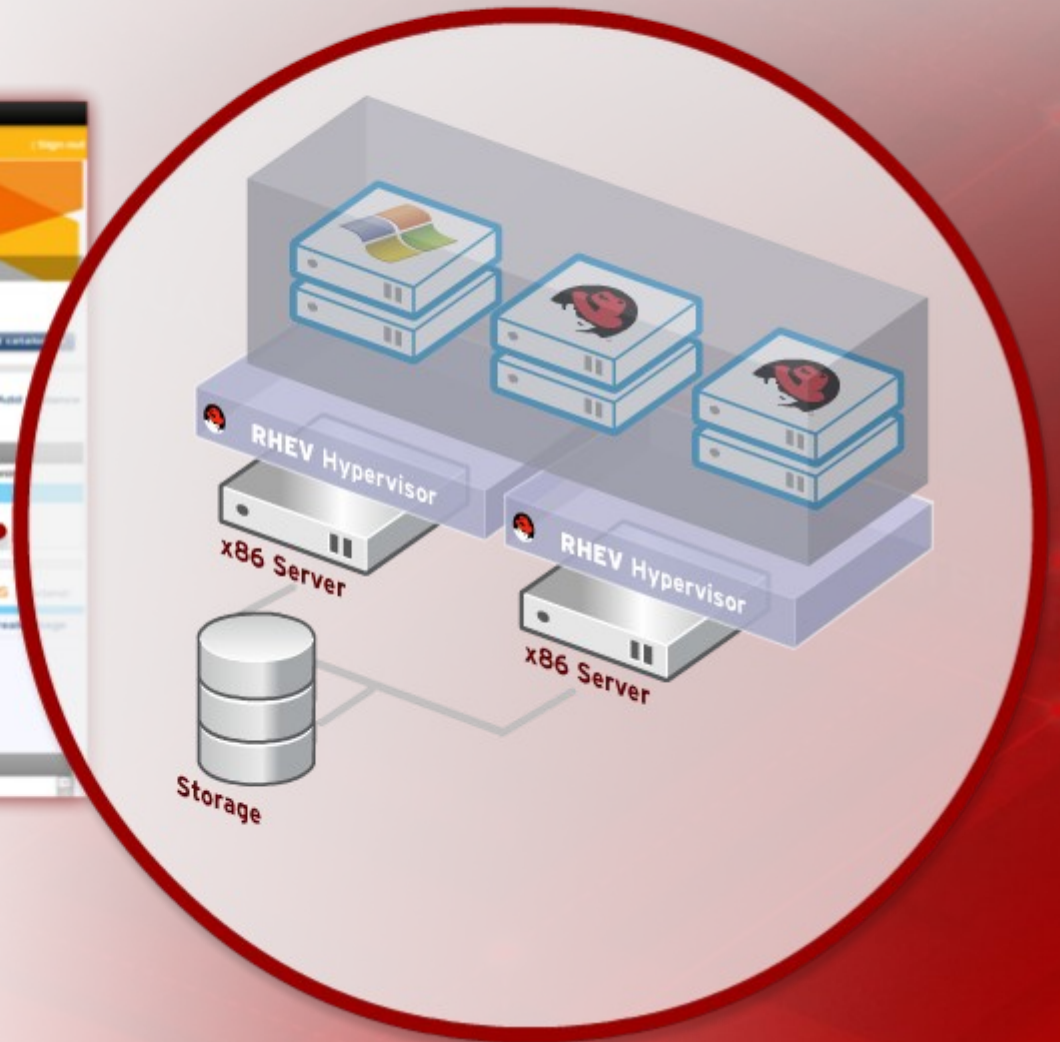
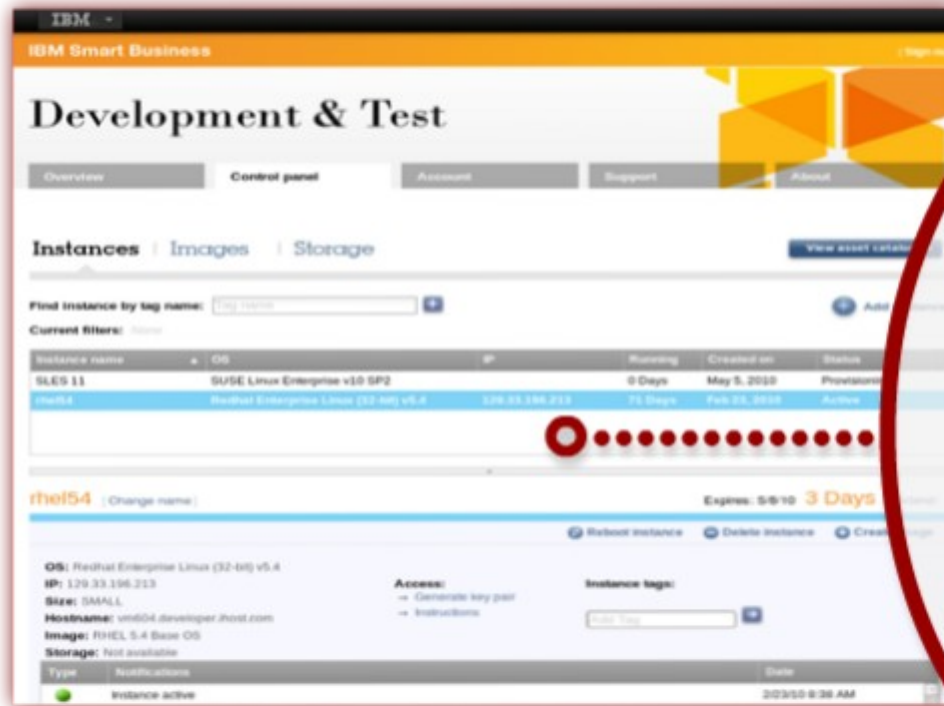
QUESTIONS?



THANK YOU!

**For more information, please visit
<http://www.redhat.com/rhev/>**

IBM CLOUD USES RHEV ...



NTT CLOUD USES RHEV ...

