# Red Hat Enterprise Virtualization (RHEV) with Cisco UCS

**Shawn Wells**
**Technical Director, U.S. Intelligence Programs**
**(e) shawn@redhat.com**
**(c) 443.534.0130**

# Agenda

Why Virtual Desktop Infrastructure

•

• Solving Desktop Challenges
    - Technology
    - RHEV-D Features
    - Performance & Scalability
    - SPICE & VDI Clients
• Use Cases
• Partners & ISVs
• Solution Benefits
• Q&A

# Traditional Desktop Challenges

**Costs**
- Complex & multiple datacenters
- Wasted IT resources and time spent managing desktops
- Frequent desktop refresh cycles
- Tough economic times means tighter budgets

**Mgmt**
- No remote access to disparate data and applications
- Single OS means application limitations
- Disaster recovery for desktops is costly and challenging

**Security**
- Difficult to maintain control over your data
- Mobile computers means mobile data
- Employees working from home or remotely
- Encryption and security utilities are limited

# Solving Desktop Challenges with RHEV

- Advanced KVM technology
- Refined centralized management
- RHEV & UCS industry leading scalability and VM density
- Highest kernel-level security and isolation with SELinux
- Deliver Windows and Linux environments
- Bi-directional Audio & Video

# Benefits of KVM

- Leverages Red Hat Enterprise Linux – no need to re-invent the wheel
  - Trusted, stable enterprise platform
  - Scheduler, memory management, hardware support, etc inherited from RHEL
  - Ease of management – use same tools for managing physical servers and hypervisors
  -

- Advanced host features
  - Inherit scalability, NUMA support, power management, hot-plug, etc
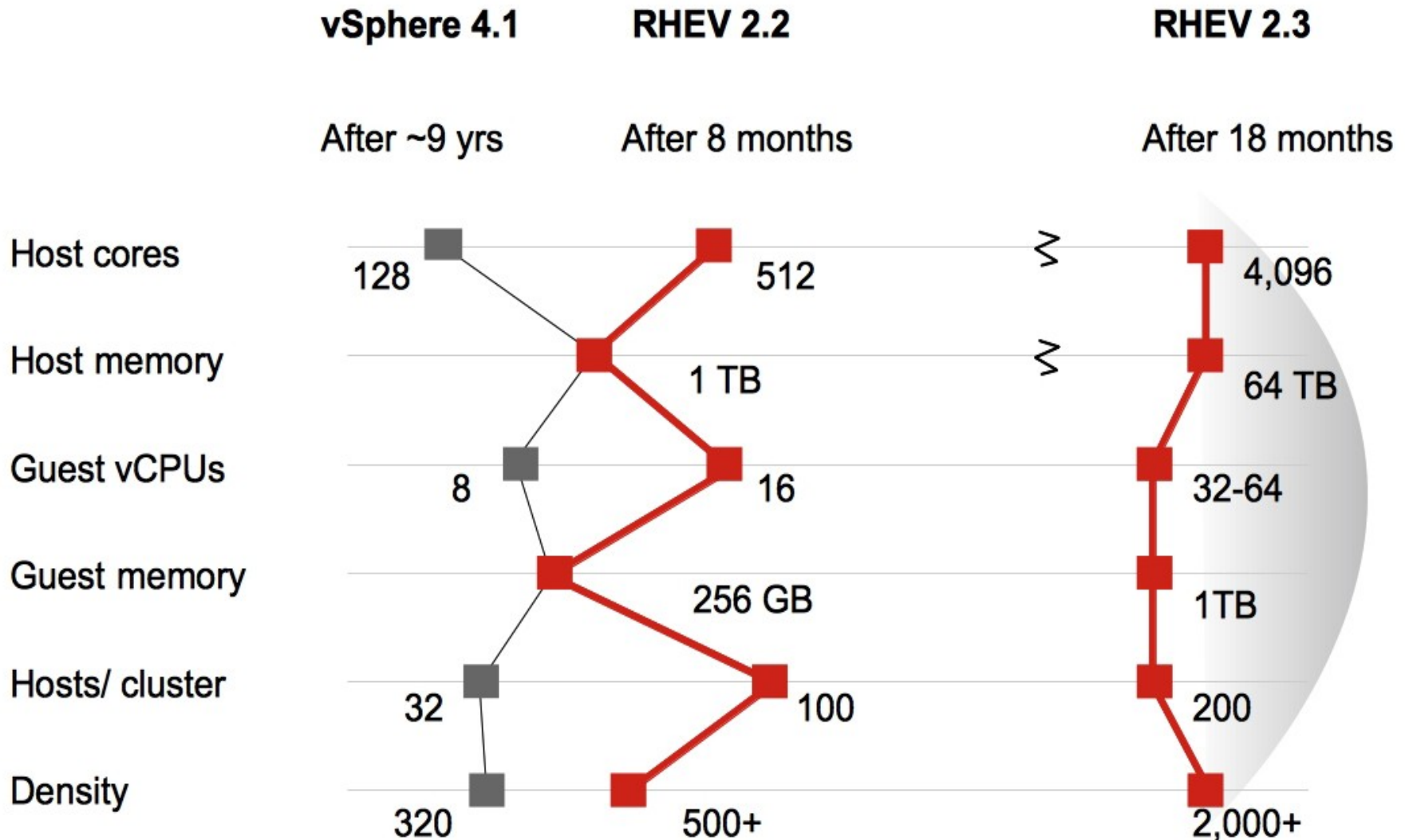  - SELinux security

# Benefits of UCS



- The first converged system available anywhere
- Self-aware, self-integrating operation
- Familiar benefits of centralized computing combined with state-of-the-art Intel Xeon processors
- Automated, just-in-time configuration for greater flexibility and agility

Simplified architecture with one network technology for all I/O
Scalability without complexity
Consistent networking for physical and virtual servers, an ideal platform for cloud computing
- Confidence regarding the future
- Cisco® investment protection

# Setting a New Standard in Scalability



| | vSphere 4.1 | RHEV 2.2 | RHEV 2.3 |
|---|---|---|---|
| | After ~9 yrs | After 8 months | After 18 months |
| Host cores | 128 | 512 | 4,096 |
| Host memory | | 1 TB | 64 TB |
| Guest vCPUs | 8 | 16 | 32-64 |
| Guest memory | | 256 GB | 1TB |
| Hosts/ cluster | 32 | 100 | 200 |
| Density | 320 | 500+ | 2,000+ |

# Performance Without Compromise
## 25 Months: 40+ World Records and Counting

**#1**

**SPECint_rate2006 Cisco UCS™ C460 M2**

**VMmark 2.1 C460 M2**

| Q2 CY09 | Q1 CY10 | Q3 CY10 | Q4 CY10 | Q1 CY11 | Q2 CY11 |
|---------|---------|---------|---------|---------|---------|
| | SPECjbb2005 X86/64 2-socket B200 M2 | SPECOMPL base2001 4-socket C2460 M1 | | | |
| | SPECOMPL base2001 2-socket B200 M2 | SPECOMPM base2001 4-socket C2460 M1 | SPECjbb2005 X86/64 2-socket B230 M1 | VMmark 2.1 2-socket-blade B200 M2 | SPECompL base2001 C460M2 |
| | SPECOMPM base2001 2-socket B200 M2 | LS-Dyna 4-socket C460M1 | SPECjAPP Server 2004 2-node B230 M1 | SPECint_rate_base 2006 X86/64 2-socket B200 M2 | SPECompM base2001 C460 M2 |
| | SPECfp_rate_base 2006 X86/64 2-socket B200 M2 | SPECjbb2005 X86/64 4-socket C460 M1 | Oracle E-business Suite Medium Model Order to Cash B200M2 | SPECjEnterprise 2010 Overall B440 M1 | SPECompL base2001 B230 M2 |
| | SPECint_rate_base 2006 X86/64 2-socket B200 M2 | SPECfp_rate_base 2006 X86/64 4-socket C460 M1 | Oracle E-business Suite Medium Model payroll Batch B200M2 | SPECOMPL base2001 2-socket B200 M2 | SPECompM base2001 B230M2 |
| SPECfp_rate_base2006 X86/64 2-socket B200 M1 | SPECjAPPServer 2004 single node 2-socket C250 M2 | SPECint_rate_base 2006 X86/64 4-socket C460 M1 | Oracle E-business Suite Ex-large Model payroll Batch B200M2 | SPECOMPM base2001 2-socket B200 M2 | SPECijbb2005 C260 M2 |
| SPECint_rate_base2006 X86/64 2-Socket B200 M1 | 2-socket VMmark B250 M2 | VMmark Overall C460 M1 | VMmark 1-Blade C460 M1 | VMmark 1.1 2-socket-blade B230 M1 | Oracle E-business Suite Medium Model payroll Batch B200M2 | SPECint_rate_base2006 C260 M2 |
| 2-socket VMmark B200 M1 | 2-socket server VMmark B200 recapture | LInPack 2-socket B200 M2 | VMmark 1-Blade B440 M1 | SPECjbb2005 X86/64 2-socket B230 M1 | VMmark 2.0 Overall B200 M2 | SPECfp_rate_base2006 C260 M2 |

# Comprehensive Server Product Line
## Right-Sized for Your Business Needs

| Mainstream | Extended Memory | Intensive and Mission Critical |
|---|---|---|

**Cisco UCS™ C210 M2**

**Cisco UCS C200 M2**
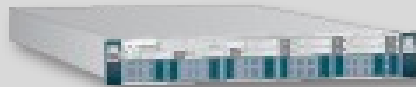
**Cisco UCS B200 M2**

**Cisco UCS C250 M2**

**Cisco UCS B250 M2**

**Cisco UCS C260 M2**

**Cisco UCS C460 M2**

- Leading memory and I/O density for online transaction processing and data warehousing
- 2S Intel Xeon E7-2800, **64 DIMM** (1 TB), 16 SSD/HDD
- 2S licensing @ 4S RAS/extensibility/performance

**Cisco UCS B440 M2**

**Cisco UCS B230 M2**

## Cisco UCS: Many Form Factors, One System

# Advanced Desktop Security: sVirt

- SELinux security policies maintain VM infrastructure on hosts
  - Provides protection and isolation for virtual machines & host
  - Compromised VM cannot access other VMs or host
- sVirt Project
  - Sub-project of NSA's SELinux community, provides granularity for virtual environments
  - Included by default
- SSL Encapsulation

RHEV Hypervisor
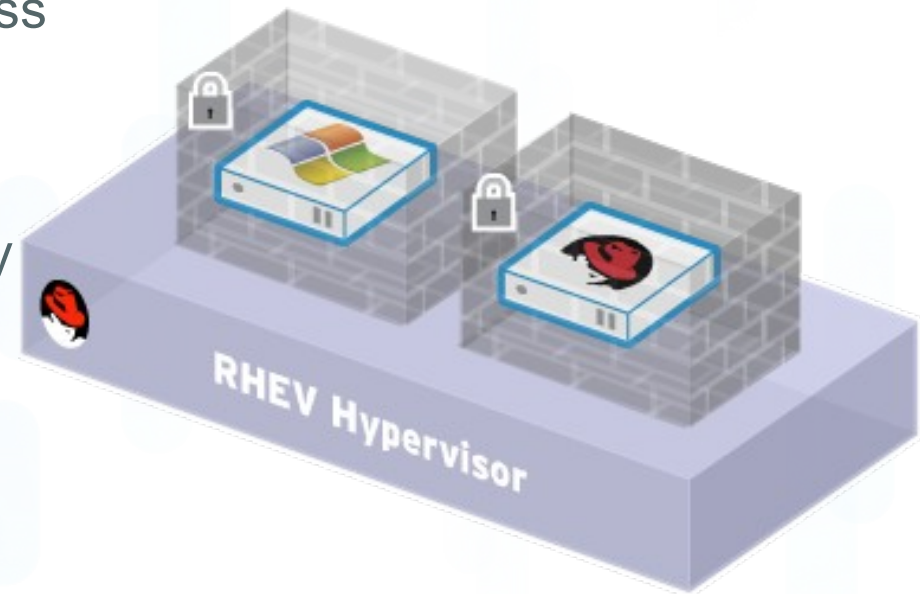
# Advanced Desktop Management



- **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.**

# Maintaining Your Desktop Environment

# Freedom to Choose Your Desktop

**INTEROPERABILITY DELIVERED**

RED HAT AND MICROSOFT COMPLETE
VIRTUALIZATION PLATFORM CERTIFICATIONS

- Supported guest desktop operating systems
- Red Hat Enterprise Linux 3, 4, 5 (32 and 64 bit)
  - (RHEL6 coming Spring 2012)
  - 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

# SPICE: Designed for Virtual Desktops

- Exceptional User Experience
  - Bi-directional audio & video
  - VoIP & video conferencing
  - HD quality video
  - Hi resolution display
  - Multiple monitor capable
  - USB redirection (CAC Cards)

- Adaptive Protocol
  - Dynamically chooses point to process graphics
  - Locally or on VDI server
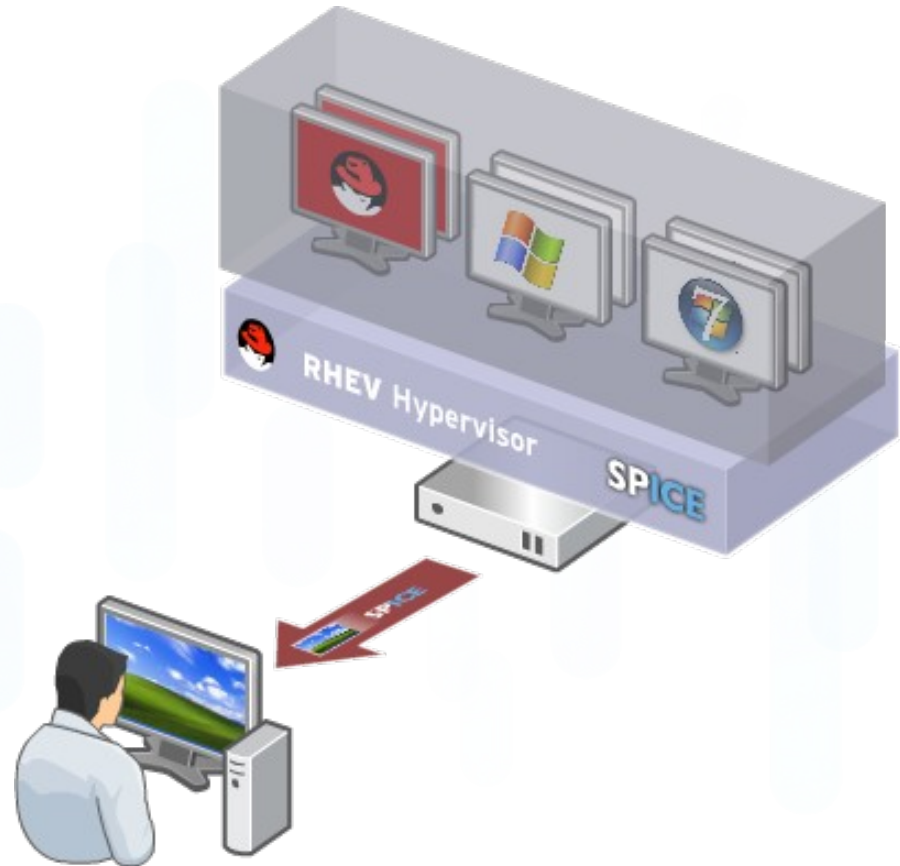
# RHEV & UCS VDI Partner Community

**Application Virtualization**

**Workspace Management**

**Printing**

**Thin Clients**

endeavors technologies

InstallFree

AppSense®

RES. Software

tricerat

ThinPrint®

UNiPrint

WYSE

hp

IGEL TECHNOLOGY

10ZiG TECHNOLOGY

# 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
- Cleared (up to TS/SCI Full Scope

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

*Editor, CNET News*
*October 20, 2009*

# What Is Next?

- Schedule a migration workshop or pilot
- Let us work with you to create a migration strategy
-

Thank you.