



RHEV in the weeds - special sauce!

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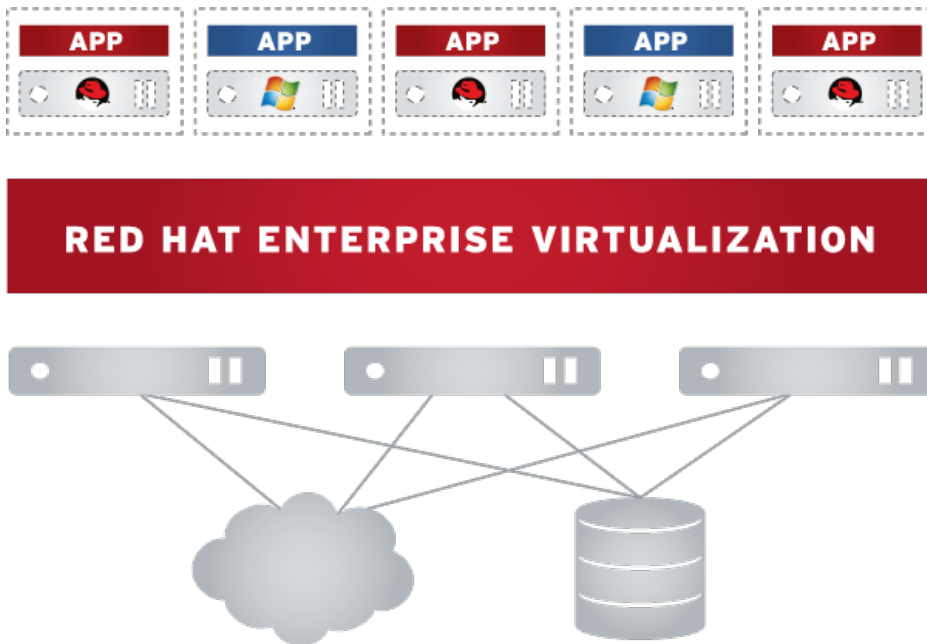
Introduction

- RHEV = Red Hat Enterprise Virtualization
- RHEV Manager = Red Hat Enterprise Hypervisor Manager



DATACENTER VIRTUALIZATION

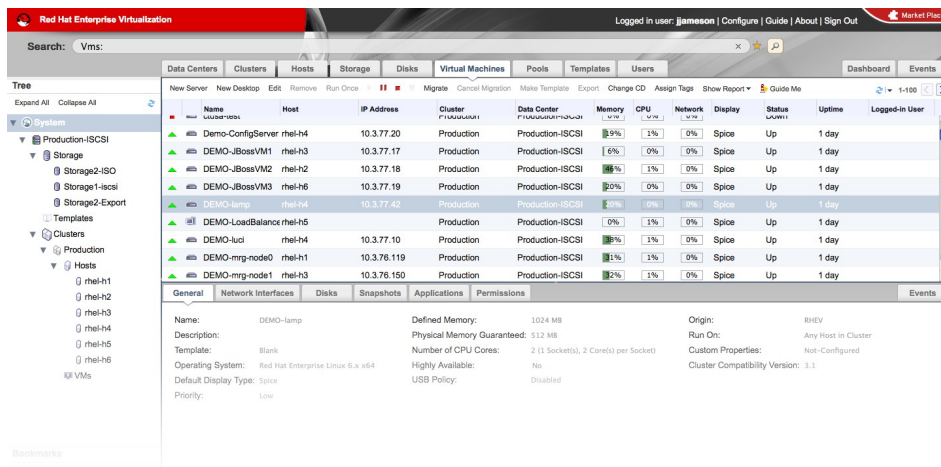
COMPLETE DATACENTER VIRTUALIZATION SOLUTION



- **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



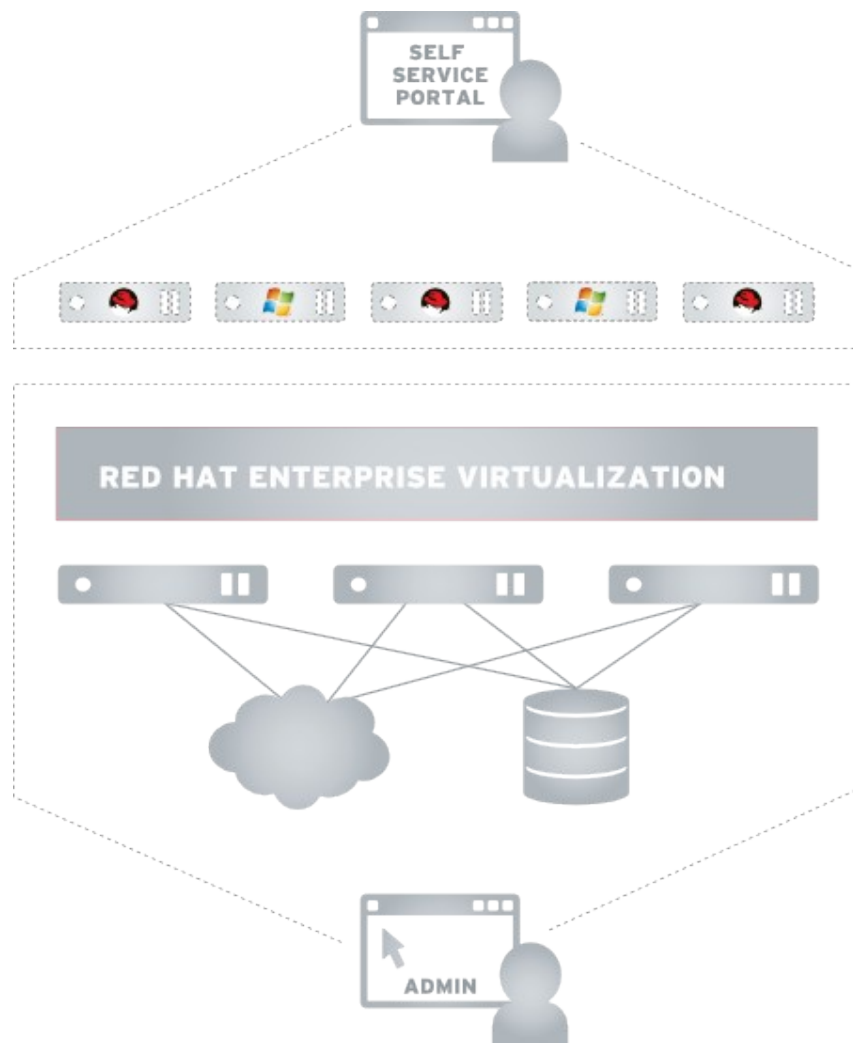
RED HAT ENTERPRISE VIRTUALIZATION MANAGER FEATURES



- 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
- Third-party UI plugin support
- * Technology preview



RED HAT ENTERPRISE VIRTUALIZATION USER PORTAL

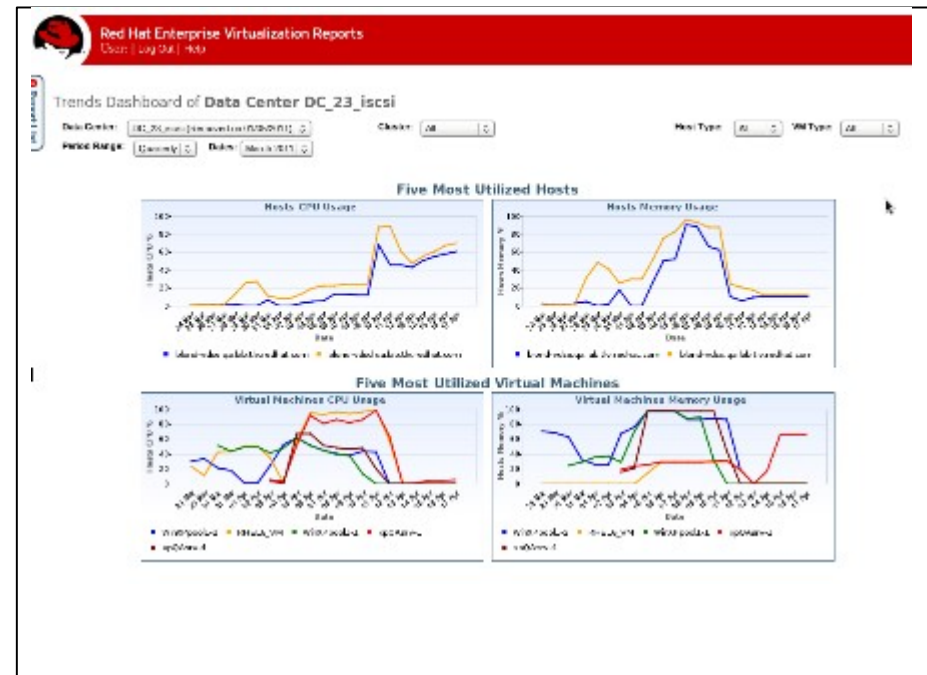


- Enables users to self provision VMs
- Create, edit, remove, etc. VMs
- Manage and monitor virtual infrastructure
- Tied to Microsoft Active Directory, Red Hat Identity Management, other LDAP
- Resource management with quotas and object/role security
- Essential internal cloud capability



MONITORING AND REPORTING

- Historical usage, trending, quality of service
- Integrated reporting engine based on Jasper reports
- More than 25 pre-built reports and dashboards included
- Ability to create and customize reports and templates

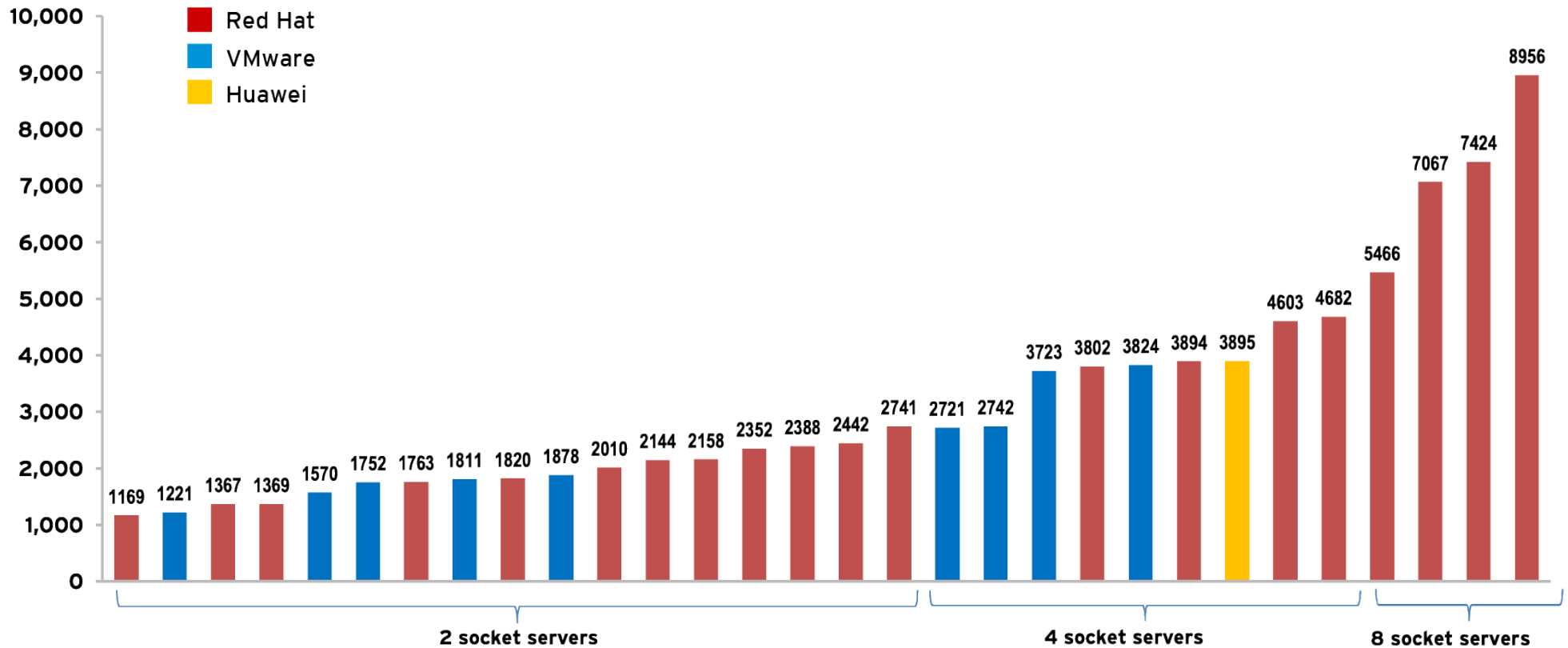


Benefits

- Best of breed virtualization for Red Hat Linux guests
- Best hypervisor performance for Red Hat Linux guests
- Only Linux based hypervisor that is Microsoft SVVP certified
- Architecture designed to scale
 - 160 vCPU per guest
 - 2TB of RAM per guest
 - 200 hosts per cluster
 - 2,000 clusters per datacenter
 - 2,000 datacenters per RHEVM
- Powerful API for automation
- Migration tools included
 - V2V
 - P2V
- Plug-able UI for 3rd party integration
- Cost effective



INDUSTRY-LEADING VIRTUALIZATION PERFORMANCE



SPECvirt_sc2010: As of April 10, 2013, Red Hat Enterprise Virtualization claims top 6 results and the only 8-socket server scores.



3rd Party UI Plugin

User Interface

UI Plugins

- Framework for 3rd party UI plugins for RHEV Manager
- Allows end users and vendors to extend management platform

The screenshot displays the RHEV Manager interface. At the top, it shows the user is logged in as 'admin@internal'. The main navigation bar includes tabs for Data Centers, Clusters, Hosts, Networks, Storage, Disks, Virtual Machines, Pools, Templates, Volumes, Users, and HP Insight Control. The 'Hosts' tab is active, showing a table of hosts with columns for Name, Hostname/IP, Cluster, Data Center, Status, Virtual Machines, Memory, CPU, Network, and SPM. Below the table, the 'HP Insight Control' tab is selected, displaying a list of hardware components with their status and temperature monitoring. The 'Integrated Management Log' at the bottom shows a table of events.

Name	Hostname/IP	Cluster	Data Center	Status	Virtual Machines	Memory	CPU	Network	SPM
local_host	vsr19u28.hpcs.net	local_cluster	local_datacenter	Up	2	14%	0%	0%	SPM
vsr19e1b12	vsr19e1b12.hpcs.net	Default	Default	Up	7	9%	33%	0%	SPM
vsr19e1b13	vsr19e1b13.hpcs.net	Default	Default	Up	11	22%	33%	0%	Normal
vsr19u27	vsr19u27.hpcs.net	Default	Default	Up	0	2%	0%	0%	Normal

Component	Status	Current	Caution	Critical
26-LOM Card Zn	Not Installed			
26-Mezz 1	Not Installed			
27-Mezz 1 Inlet	Not Installed			
28-Mezz 2	Not Installed			
29-Mezz 2 Inlet	Not Installed			
30-System Board	Normal	40°C	80°C	86°C
31-System Board	Normal	39°C	90°C	86°C
32-Sys Exhaust	Normal	39°C	75°C	80°C
33-Sys Exhaust	Normal	39°C	75°C	80°C
34-GPU 1	Not Installed			
35-GPU 2	Not Installed			

Severity	Class	Count	Description	Last Update	Initial Update
Informational	Maintenance	1	Maintenance note: IM, cleared through hpsasnci	03/15/2013 09:56	03/15/2013 09:56
Caution	POST Message	1	POST Error: 1785-Slot X Drive Array Not Configured	12/14/2012 00:03	12/14/2012 00:03
Informational	System Revision	1	Firmware flashed (LO 4.1.20.56)	12/14/2012 02:04	12/14/2012 02:04



Deployment Method

- Thin or RHEV-H
 - < 200mb ISO
 - PXE bootable
 - TUI for simple and quick console configuration
- RHEL
 - @ Base
 - ntp
 - Then join child channel
 - RHE Virt Management Agent



UI :: RHEV Manager

- RHEL 6
- JBOSS Application
- Can be configured for HA
- RHEV 3.3 – manager will be self hosted!



UI :: RHEV Manager :: Data Centers

The screenshot displays the Red Hat Enterprise Virtualization Manager Web Administration interface. The browser window title is "Red Hat Enterprise Virtualization Manager Web Administration - Mozilla Firefox". The URL is "https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#dataCenters-storage". The user is logged in as "admin@internal".

The interface features a navigation menu on the left with "System" expanded, showing "Default", "ISCSI", "Storage", "Networks", "Templates", and "Clusters". The main content area is titled "Data Centers" and contains a table with the following data:

Name	Storage Type	Status	Compatibility Version	Description
▼ Default	iSCSI	Uninitialized	3.2	The default Data Center
▲ ISCSI	iSCSI	Up	3.2	ISCSI

Below the Data Centers table, there is a "Storage" section with a sub-table:

Domain Name	Domain Type	Status	Free Space	Used Space	Total Space
▲ ISO	ISO	Active	24 GB	< 1 GB	24 GB
▲ EXPORTS	Export	Active	499 GB	< 1 GB	499 GB
▲ ibiSCSI	Data (Master)	Active	1487 GB	48 GB	1535 GB

The interface also includes a search bar, a "Market Place" link, and a status bar at the bottom showing "Last Message: 2013-Sep-09, 10:21" and "User admin@internal logged in.".



UI :: RHEV Manager :: Hosts

Red Hat Enterprise Virtualization Manager Web Administration - Mozilla Firefox

Red Hat Enterprise Virtualization... +

https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#hosts-general

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

Market Place

Search: Host: x

Data Centers Clusters **Hosts** Networks Storage Disks Virtual Machines Pools Templates Volumes Users

Dashboard Events

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags Show Report Red Hat Access

Name	Hostname/IP	Cluster	Data Center	Status	Virtual Machines	Memory	CPU	Network	SPM
rhev3.rhev.m.skinnerlabs.c	rhev3.rhev.m.skinnerlabs.c	INTEL	ISCSI	Up	0	2%	0%	0%	SPM
rhev4.rhev.m.skinnerlabs.c	rhev4.rhev.m.skinnerlabs.c	INTEL	ISCSI	Up	0	2%	0%	0%	Low

System

Expand All Collapse All

- System
 - Default
 - ISCSI
 - Storage
 - Networks
 - Templates
 - Clusters

General Virtual Machines Network Interfaces Host Hooks Permissions Hardware Information

Red Hat Search Red Hat Documentation Events

OS Version: RHEL - 6Server - 6.4.0.4.el6
Kernel Version: 2.6.32 - 358.14.1.el6.x86_64
KVM Version: 0.12.1.2 - 2.355.el6_4.5
LIBVIRT Version: libvirt-0.10.2-18.el6_4.9
VDSM Version: vdsmd-4.10.2-23.0.el6ev
SPICE Version: 0.12.0 - 12.el6_4.2
ISCSI Initiator Name: iqn.1994-05.com.redhat:c2299cdbbb1

Active VMs: 0
CPU Name: intel Westmere Family
CPU Type: Intel(R) Core(TM) i5-3570K CPU @ 3.40GHz
CPU Sockets: 1
CPU Cores per Socket: 4
CPU Threads per Core: 1 (SMT Disabled)

Physical Memory: 31999 MB total, 640 MB used, 31359 MB free
Swap Size: 15967 MB total, 0 MB used, 15967 MB free
Shared Memory: 0%
Max free Memory for scheduling new VMs: 47677.5 MB
Memory Page Sharing: Inactive
Automatic Large Pages: Always

Action Items
Power Management is not configured for this Host. [Enable Power Management](#)

Bookmarks

Tags

Last Message: 2013-Sep-09, 10:21 User admin@internal logged in.

Alerts (2) Events Tasks (0)



UI :: RHEV Manager :: Virtual Machines

The screenshot displays the Red Hat Enterprise Virtualization Manager Web Administration interface. The browser address bar shows the URL: <https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#vms-general>. The user is logged in as `admin@internal`. The interface features a navigation menu on the left with options like System, Default, ISCSI, Storage, Networks, Templates, and Clusters. The main content area is titled "Virtual Machines" and contains a table listing several VMs. Below the table, there are tabs for "General", "Network Interfaces", "Disks", "Snapshots", "Applications", "Permissions", and "Sessions". The "General" tab is active, showing details for the VM named "rh6".

Name	Host	IP Address	Cluster	Data Center	Memory	CPU	Network	Display	Status	Uptime
rh6	rhev4.rhev.m.skinnerl	192.168.40.201	INTEL	ISCSI	14%	12%	0%	SPICE	Up	36 sec
rh6_2	rhev4.rhev.m.skinnerl	192.168.40.203	INTEL	ISCSI	14%	12%	0%	SPICE	Up	44 sec
rh6_api			INTEL	ISCSI	0%	0%	0%		Down	
rh6_dmz	rhev4.rhev.m.skinnerl	192.168.32.202	INTEL	ISCSI	14%	1%	0%	SPICE	Up	47 sec

General | Network Interfaces | Disks | Snapshots | Applications | Permissions | Sessions | Red Hat Search | Red Hat Documentation | Events

Name: rh6
Description:
Template: Blank
Operating System: Red Hat Enterprise Linux 6.x x64
Default Display Type: SPICE
Priority: Low

Defined Memory: 2048 MB
Physical Memory Guaranteed: 1365 MB
Number of CPU Cores: 2 (2 Socket(s), 1 Core(s) per Socket)
Highly Available: No
USB Policy: Disabled

Origin: RHEV
Run On: Any Host in Cluster
Custom Properties: Not-Configured
Cluster Compatibility Version: 3.2

Last Message: 2013-Sep-09, 10:26 VM rh6 started on Host rhev4.rhev.m.skinnerlabs.com

Alerts (2) Events Tasks (0)



Storage

- API or UI configuration
- Shared Storage supported protocols
 - FC
 - iSCSI
 - NFS
 - Red Hat Storage or POSIX compliant FS
- Guest features
 - LUN pass through
 - Sharable (for clusters)
 - Wipe after delete
 - Hot add
 - Thin provision
 - Detached



RHEV Manager :: Storage

Red Hat Enterprise Virtualization Manager Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Red Hat Enterprise Virtualization... +

https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#storage-general

Google

Red Hat Enterprise Virtualization

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

Market Place

Search: Storage:

Data Centers Clusters Hosts Networks Storage Disks Virtual Machines Pools Templates Volumes Users

Dashboard Events

New Domain Import Domain Edit Remove Show Report Red Hat Access

Domain Name	Domain Type	Storage Type	Format	Cross Data-Center Status	Free Space
EXPORTS	Export	NFS	V1	Active	499 GB
ibiscsi	Data (Master)	ISCSI	V3	Active	1487 GB
ISO	ISO	NFS	V1	Active	24 GB

General Data Center Virtual Machines Templates Disks Permissions

Red Hat Search Red Hat Documentation Events

Size: 1535 GB
Available: 1487 GB
Used: 48 GB
Over Allocation Ratio: 0%

Bookmarks
Tags

Last Message: 2013-Sep-09, 10:26 VM rh6 started on Host rhev4.rhev.m.skinnerlabs.com

Alerts (2) Events Tasks (0)



RHEV Manager :: Disks

Red Hat Enterprise Virtualization Manager Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Red Hat Enterprise Virtualization... +

https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#disks-storage

Google

Red Hat Enterprise Virtualization

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

Market Place

Search: Disks: disk_type = image

Data Centers Clusters Hosts Networks Storage **Disks** Virtual Machines Pools Templates Volumes Users

Dashboard Events

System

Expand All Collapse All

System

- Default
- ISCSI
 - Storage
 - Networks
 - Templates
 - Clusters

Add Remove Move Copy Red Hat Access

All Images Direct LUN

Alias	ID	Attached To	Storage Domain(s)	Virtual Size	Allocation Policy	Creation Date	Status	Description
rh6_2_Disk1	1505ffba-c8aa-4cc0-	rh6_2	ibISCSI	12 GB	Preallocated	2013-Sep-05, 17:01	OK	
rh6_Disk1	e63fb24b-bf5d-47b5-	rh6	ibISCSI	20 GB	Preallocated	2013-Aug-16, 19:58	OK	
rh_dmz_Disk1	ebbbea4f-6dbb-4ea6	rh6_dmz	ibISCSI	12 GB	Preallocated	2013-Sep-05, 17:26	OK	

General Virtual Machines Storage Permissions

Red Hat Search Red Hat Documentation

Domain Name	Domain Type	Status	Free Space	Used Space	Total Space
ibISCSI	Data (Master)	Active	1487 GB	48 GB	1535 GB

Bookmarks

Tags

Last Message: 2013-Sep-09, 10:26 VM rh6 started on Host rhev4.rhev.m.skinnerlabs.com

Alerts (2) Events Tasks (0)



RHEV Manager :: Add Virtual Disk Direct Attach

The screenshot displays the RHEV Manager web administration interface. The main content area shows a table of disks with columns for Alias, ID, Attached To, Storage Domain(s), Virtual Size, Allocation Policy, Creation Date, Status, and Description. A modal dialog titled "Add Virtual Disk" is open, allowing configuration of a new disk. The dialog has two radio buttons: "Internal" (unselected) and "External (Direct Lun)" (selected). The configuration fields are as follows:

- Alias: rh_dmz_logs
- Description: LOGS
- Interface: VirtIO
- Data Center: ISCSI
- Use Host: rhev3.rhev.m.skinnerlabs.com
- Storage Type: iSCSI

Below the configuration fields, there is a "Discover Targets" section with a "Login All" button. It contains two tables:

Target Name	Address	Port
iqn.2012-03.com.h.e-skinner.net.iscsi.target1	192.168.103.7	3260
iqn.2012-03.com.h.e-skinner.net.iscsi.target10	192.168.103.7	3260

LUN ID	Dev. Size	#path	In Use	Vendor ID	Product ID	Serial
1IET_00020001	2GB	1	Free	SKINNER	VIRTUAL-DISK	SSKINNERVIRTUA
iqn.2012-03.com.h.e-skinner.net.iscsi.target100						
iqn.2012-03.com.h.e-skinner.net.iscsi.target11						
iqn.2012-03.com.h.e-skinner.net.iscsi.target12						

The "1IET_00020001" LUN is selected. The dialog also includes "OK" and "Cancel" buttons at the bottom right.



RHEV Manager :: Add Virtual Disk Sharable

The screenshot displays the Red Hat Enterprise Virtualization Manager Web Administration interface. The main content area shows a table of disks with columns for Alias, ID, Attached To, Storage Domain(s), Virtual Size, Allocation Policy, Creation Date, Status, and Description. The 'Add Virtual Disk' dialog box is open, showing the configuration for a new disk. The dialog has two tabs: 'Internal' and 'External (Direct Lun)'. The 'External (Direct Lun)' tab is selected. The configuration fields are as follows:

- Alias: rh6_2_gfs
- Description: GFS2
- Interface: VirtIO
- Data Center: ISCSI
- Use Host: rhev3.rhev.m.skinnerlabs.com
- Storage Type: iSCSI
- Is bootable:
- Is shareable:

The 'Discover Targets' section shows a table of discovered targets:

Target Name	Address	Port
iqn.2012-03.com.h.e-skinner.net.iscsi.target1	192.168.103.7	3260
iqn.2012-03.com.h.e-skinner.net.iscsi.target10	192.168.103.7	3260
iqn.2012-03.com.h.e-skinner.net.iscsi.target100	192.168.103.7	3260
iqn.2012-03.com.h.e-skinner.net.iscsi.target11	192.168.103.7	3260
iqn.2012-03.com.h.e-skinner.net.iscsi.target12	192.168.103.7	3260

Below the target table, a table of LUNs is visible:

LUN ID	Dev. Size	#path	In Use	Vendor ID	Product ID	Serial
1IET_00020001	2GB	1	Free	SKINNER	VIRTUAL-DISK	SSKINNERVIRTUA

The dialog box has 'OK' and 'Cancel' buttons at the bottom right.

Last Message: 2013-Sep-09, 16:32

Storage Pool Manager runs on Host rhev3.rhev.m.skinnerlabs.com (Address: rhev3.rhev.m.skinnerlabs.com).

Alerts (2)

Events

Tasks (0)



Storage :: LVM based

```
root@rhev3:~  
File Edit View Search Terminal Help  
[root@rhev3 ~]# lvs  
LV VG Attr LSize Pool Or  
igin Data% Move Log Cpy%Sync Convert  
5f587f90-c449-4c2c-8650-9f469ba4aff5 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi----- 12.00g  
81302122-261f-4b03-ac88-895b37f82fb3 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi----- 12.00g  
8dd8c15e-c220-41d0-8bf5-bebb3c5dda31 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi----- 20.00g  
ids 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-ao--- 128.00m  
inbox 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-a---- 128.00m  
leases 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-a---- 2.00g  
master 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-ao--- 1.00g  
metadata 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-a---- 512.00m  
outbox 291490ac -ff37-489e-9046-6d6dcbb6caf8 -wi-a---- 128.00m  
LogVol00 VolGroup00 -wi-ao--- 16.38g  
LogVol01 VolGroup00 -wi-ao--- 15.59g  
[root@rhev3 ~]#
```



Storage :: SPM

```
root@rhev3:~  
File Edit View Search Terminal Help  
[root@rhev3 ~]# df -h  
Filesystem      Size  Used Avail Use% Mounted on  
/dev/mapper/VolGroup00-LogVol00  
    17G  1.4G   14G  10% /  
tmpfs           16G   0    16G   0% /dev/shm  
/dev/sda1       485M   65M  395M  15% /boot  
twinkie.ib.skinnerlabs.com:/RHEV/ISO/ISO_INTEL  
    25G   33M   25G   1% /rhev/data-center/mnt/twinkie.ib.skinnerlabs.com:_RHEV_ISO_ISO__INTEL  
twinkie.ib.skinnerlabs.com:/RHEV/EXPORTS/EXPORTS_INTEL  
   500G   32M  500G   1% /rhev/data-center/mnt/twinkie.ib.skinnerlabs.com:_RHEV_EXPORTS_EXPORTS__INTEL  
/dev/mapper/291490ac--ff37--489e--9046--6d6dcbb6caf8-master  
   1008M   34M   924M   4% /rhev/data-center/mnt/blockSD/291490ac-ff37-489e-9046-6d6dcbb6caf8/master  
[root@rhev3 ~]#
```



Networking

- Manual, API or UI configuration
- Advanced features
 - VLAN tagging
 - Bonding
 - Port Mirroring
- VM support for hot add NIC



RHEV Manager :: Networks

Red Hat Enterprise Virtualization Manager Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Red Hat Enterprise Virtualization... +

https://manager.rhev.m.skinnerlabs.com/webadmin/webadmin/WebAdmin.html#networks-general

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Market Place

Search: Network: x ☆ 🔍

Data Centers Clusters Hosts **Networks** Storage Disks Virtual Machines Pools Templates Volumes Users

Dashboard Events

New Edit Remove

Name	Data Center	Description	Role	VLAN tag
rhev	Default	Management Network	👑 🟢	-
display	ISCSI	display	🟢	-
dmz	ISCSI	dmz	🟢	32
ibiscsi	ISCSI	ibiscsi	🟢	-
openshift	ISCSI	openshift	🟢	60
openstack	ISCSI	openstack	🟢	70
rhev	ISCSI	Management Network	👑 🟢	90
rhlab	ISCSI	rhlab	🟢	40

General Clusters Hosts Virtual Machines Templates Permissions


Name: ibiscsi
Id: 49c600fc-6831-439b-b47d-0a926a22fb29
Description: ibiscsi

Role:
VLAN tag: none
MTU: host's default

Bookmarks
Tags

Last Message: ✓ 2013-Sep-09, 10:21 User admin@internal logged in.

Alerts (2) Events Tasks (0)



```
root@rhev3:~  
File Edit View Search Terminal Help  
[root@rhev3 ~]# ifconfig  
bond0    Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:12819 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:7260 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:1599770 (1.5 MiB)  TX bytes:2872304 (2.7 MiB)  
  
bond0.32  Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:73 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:38 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:4800 (4.6 KiB)  TX bytes:2652 (2.5 KiB)  
  
bond0.40  Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:54 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:36 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:3292 (3.2 KiB)  TX bytes:2520 (2.4 KiB)  
  
bond0.60  Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:34 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:38 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:2448 (2.3 KiB)  TX bytes:2652 (2.5 KiB)  
  
bond0.70  Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:23 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:38 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:1656 (1.6 KiB)  TX bytes:2652 (2.5 KiB)  
  
bond0.90  Link encap:Ethernet  HWaddr 68:05:CA:0F:2C:66  
         inet6 addr: fe80::6a05:caff:fe0f:2c66/64 Scope:Link  
         UP BROADCAST RUNNING MASTER MULTICAST  MTU:1500  Metric:1  
         RX packets:9000 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:6315 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:964525 (941.9 KiB)  TX bytes:2800746 (2.6 MiB)  
  
display  Link encap:Ethernet  HWaddr 90:E2:BA:0C:82:F2  
         inet addr:192.168.33.150 Bcast:192.168.33.255 Mask:255.255.255.0  
         inet6 addr: fe80::92e2:baff:fe0c:82f2/64 Scope:Link  
         UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
         RX packets:2952 errors:0 dropped:0 overruns:0 frame:0  
         TX packets:400 errors:0 dropped:0 overruns:0 carrier:0  
         collisions:0 txqueuelen:0  
         RX bytes:199175 (194.5 KiB)  TX bytes:213250 (208.2 KiB)
```

HOST :: Networks



RHEV Manager :: Configure Host Networks

The screenshot displays the RHEV Manager web administration interface. A modal dialog titled "Setup Host Networks" is open, allowing configuration of network interfaces for a host. The dialog is divided into three main sections: "Interfaces", "Assigned Logical Networks", and "Unassigned Logical Networks".

Interfaces: Lists the host's network interfaces: bond0 (containing eth0 and eth1), eth2, and ib0.

Assigned Logical Networks: Lists logical networks assigned to the interfaces:

- dmz (VLAN 32) is assigned to eth0.
- openstack (VLAN 70) is assigned to eth0.
- rhvm (VLAN 90) is assigned to eth0.
- rhlab (VLAN 40) is assigned to eth0.
- display is assigned to eth2.
- ibISCSI is assigned to ib0.

Unassigned Logical Networks: Shows two categories: "Required" and "Non Required".

At the bottom of the dialog, there are two checkboxes:

- Verify connectivity between Host and Engine
- Save network configuration

Buttons for "OK" and "Cancel" are located at the bottom right of the dialog.

The background interface shows a table of host network configurations:

Name	Hostname/IP	Cluster	Data Center	Status	Virtual Machines	Memory	CPU	Network	SPM
rhev3.rhev.m.skinnerlabs.c	rhev3.rhev.m.skinnerlabs.c	INTEL	ISCSI	Up	0	2%	0%	0%	SPM
rhev4.rhev.m.skinnerlabs.c									

Below the table, a detailed view of the network configuration for the selected host is visible:

Name	MAC	Speed	MTU	VMs	Mem	CPU	Network
eth0	68:05:CA:0D:F1:B7	1000	< 1	< 1	0		bond0
eth1	192.168.33.151	90:e2:ba:0c:80:ab	1000	< 1	< 1	0	
eth2	192.168.103.151	80:00:04:04:fe...	0	< 1	< 1	7	
ib0							

At the bottom right, a table lists the VLAN configurations:

VLAN	Network Name
bond0.32	dmz
bond0.40	rhlab
bond0.60	openstack
bond0.70	openstack
bond0.90 (192.168.90.151)	* rhvm
	display
	ibISCSI

Last Message: 2013-Sep-09, 10:26

VM rh6 started on Host rhev4.rhev.m.skinnerlabs.com

Alerts (2) Events Tasks (0)



RHEV Manager :: Add Virtual NIC

The screenshot displays the Red Hat Enterprise Virtualization Manager Web Administration interface. A modal dialog box titled "New Network Interface" is open, allowing the user to configure a new virtual network interface card (NIC) for a virtual machine. The dialog includes fields for Name, Network, Link State, Type, and MAC address, along with checkboxes for "Specify custom MAC address", "Advanced Parameters", "Port Mirroring", and "Card Status".

The background interface shows a list of virtual machines (VMs) with columns for Name, Host, IP Address, Cluster, Data Center, Memory, CPU, Network, Display, Status, and Uptime. The "Network Interfaces" tab is selected, showing a table with columns for Name, Plugged, Network Name, Link State, Type, MAC, Speed (Mbps), and Port.

Name	Host	IP Address	Cluster	Data Center	Memory	CPU	Network	Display	Status	Uptime
rh6			INTEL	ISCSI	0%	0%	0%		Down	
rh6_2			INTEL	ISCSI	0%	0%	0%		Down	
rh6_api			INTEL	ISCSI	0%	0%	0%		Down	
rh6_dmz			INTEL	ISCSI	0%	0%	0%		Down	

Name	Plugged	Network Name	Link State	Type	MAC	Speed (Mbps)	Port
nic1	<input checked="" type="checkbox"/>	dmz	Up	Red Hat VirtIO	00:1a:4a:a8:5a:b7	1000	

At the bottom of the interface, a message states: "The disk rh6_api_Disk8 was successfully added to VM rh6_api."



API – special sauce!

- REST API
 - Bash with curl
 - Uses HTTP PUTS and GETS
 - `curl -X GET -H Accept: application/xml -u admin@internal --cacert rhevm.crt https://manager.rhevm.skinnerlabs.com/api`
 - Python
 - Java



API :: Create a VM and List VM

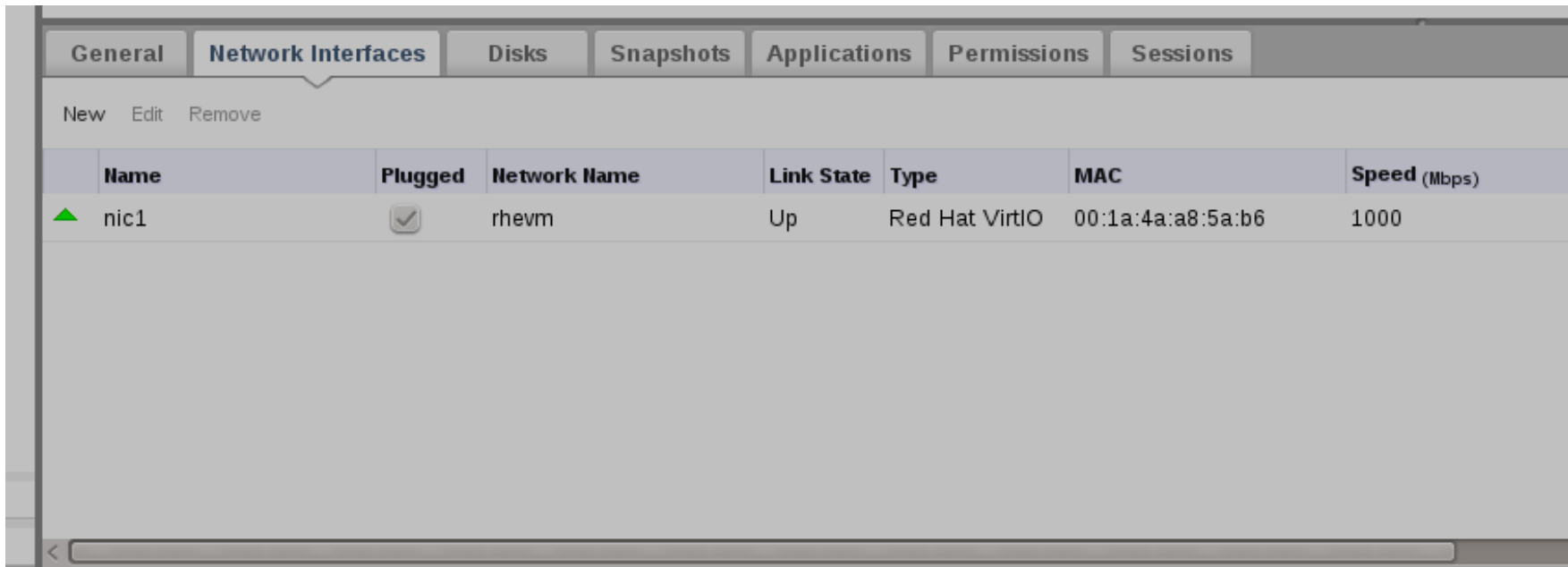
- `curl -X POST -H "Accept: application/xml" -H "Content-Type: application/xml" -u admin@internal --cacert rhvm.crt -d "<vm><name>rh6_api</name><cluster><name>INTEL</name></cluster><template><name>Blank</name></template><memory>2147483648</memory><os><boot dev='hd'/></os></vm>" https://manager.rhevmskinnerlabs.com/api/vms`
- `curl -X GET -H Accept: application/xml -u admin@internal --cacert rhvm.crt https://manager.rhevmskinnerlabs.com/api/vms`
- <XML Snippet>

```
<vm href="/api/vms/453269ef-bc3a-4db5-89f3-e09d08e4eda8" id="4532...
  <actions>
    <link href="/api/vms/453269ef-bc3a-4db5-89f3-e09d08e4eda8/cancelmigration"
rel="cancelmigration"/>
    <link href="/api/vms/453269ef-bc3a-4db5-89f3-e09d08e4eda8/ticket" rel="ticket"/>
    ...
  </actions>
  <name>rh6_api</name>
```



API :: Create NIC for VM

- `curl -X POST -H "Accept: application/xml" -H "Content-Type: application/xml" -u admin@internal --cacert rhevm.crt -d "<nic><name>nic1</name><network><name>rhevm</name></network></nic>" https://manager.rhevm.skinnerlabs.com/api/vms/453269ef-bc3a-4db5-89f3-e09d08e4eda8/nics`



Name	Plugged	Network Name	Link State	Type	MAC	Speed (Mbps)
▲ nic1	<input checked="" type="checkbox"/>	rhevm	Up	Red Hat VirtIO	00:1a:4a:a8:5a:b6	1000



API :: LIST StorageDomains

- `curl -X GET -H Accept: application/xml -u admin@internal --cacert rhevm.crt https://manager.rhevm.skinnerlabs.com/api/storagedomains`
- <XML Snippet>

```
<storage_domain href="/api/storagedomains/291490ac-ff37-489e-9046-6d6dcbb6caf8" id="291490ac-ff37-489e-9046-6d6dcbb6caf8">
  <name>ibISCSI</name>
  <link href="/api/storagedomains/291490ac-ff37-489e-9046-6d6dcbb6caf8/permissions"
rel="permissions"/>
  <link href="/api/storagedomains/291490ac-ff37-489e-9046-6d6dcbb6caf8/disks" rel="disks"/>
  <type>data</type>
  <master>true</master>
  <storage>
    <type>iscsi</type>
```

```
root@rhev3:~
File Edit View Search Terminal Help
[root@rhev3 ~]# pvs
PV                               VG                               Fmt Attr PSize  PFree
/dev/mapper/1IET_00010001        291490ac-ff37-489e-9046-6d6dcbb6caf8 lvm2 a--  1.50t  1.45t
/dev/sda2                        VolGroup00                        lvm2 a--  31.97g  0
[root@rhev3 ~]#
```



RHEVM CLI “the easy way”

- `yum -y install rhvm-cli`
- `rhvm-shell -c -l "https://manager.rhvm.skinnerlabs.com/api" -u "admin@internal" -A "rhvm.crt"`

```
root@manager:~/rhvm
File Edit View Search Terminal Help
=====
>>> connected to RHEVM manager 3.2.0.0 <<<
=====

+++++
      Welcome to RHEVM shell
+++++

[RHEVM shell (connected)]#
```



RHEVM CLI

- `add vm --name rh6_api --cluster-name INTEL --template-name Blank --memory 536870912 --os-boot-dev hd`
- `add nic --vm-identifier rh6_api --name nic1 --network-name rhevm --bootable true`
- `add disk --vm-identifier rh6_api --provisioned_size 8589934592 --interface virtio --format cow`

```
root@manager:~/rhevms
File Edit View Search Terminal Help
[RHEVM shell (connected)]# list storagedomains

id          : 68404293-43e4-4a5f-b97d-0416b9d67322
name        : EXPORTS

id          : 291490ac-ff37-489e-9046-6d6dcbb6caf8
name        : ibISCSI

id          : 76b5861f-7b49-4508-a729-987284fcda3e
name        : ISO

[RHEVM shell (connected)]#
```



RHEVM CLI

- Show vm --name rh6_api

```
root@manager:~/rhev
File Edit View Search Terminal Help
[RHEVM shell (connected)]# show vm --name rh6_api

id                : 453269ef-bc3a-4db5-89f3-e09d08e4eda8
name              : rh6_api
cluster-id       : cb77a38a-210a-408e-bc67-669a23f7e677
cpu-topology-cores : 1
cpu-topology-sockets : 1
creation_time    : 2013-09-05T18:38:16.851-05:00
delete_protected : False
display-allow_override : False
display-monitors : 1
display-smartcard_enabled : False
display-type     : spice
high_availability-enabled : False
high_availability-priority: 0
memory           : 2147483648
memory_policy-guaranteed : 2147483648
origin           : rhev
os-boot-dev     : hd
os-type         : unassigned
placement_policy-affinity : migratable
quota-id        : 00000000-0000-0000-0000-000000000000
stateless       : False
status-state    : down
template-id     : 00000000-0000-0000-0000-000000000000
type            : desktop
usb-enabled     : False

(END)
```



Roadmap

- RHEV 3.3 is scheduled for late fall 2013



RED HAT ENTERPRISE VIRTUALIZATION

RHEV 3.3 – Q4 2013

Networking

- OpenStack Network Service (Quantum) Integration
- Define migration network
- Define gateway per logical network
- Custom Properties on vNics



Storage

- OpenStack Image Service (Glance) Integration
- VirtioSCSI (paravirtualized SCSI)
- Online resize virtual disk
- New Backup API



RED HAT ENTERPRISE VIRTUALIZATION

RHEV 3.3 – Q4 2013

Virtualization

- Major changes to VM creation dialogs
- Add memory to live snapshots
- Integrate with 'cloud-init' for VM metadata
- Support 'mime-type' launching for VM Consoles
- Add guest memory to live snapshots
- Add support for NoVNC (HTML based VNC client)
- Specify host to run VM using “run once”



RED HAT ENTERPRISE VIRTUALIZATION

RHEV 3.3 – Q4 2013

Infrastructure

- 'Hosted Engine' – self hosting RHEV-M as highly available VM
- OpenLDAP support
- Foreman integration for host provisioning

Tech Preview

SLA / Performance

- Service Level (QoS) Manager
Define VM policies for:
 - CPU
 - Memory
 - Network



Resources:

Specvirt benchmark results

http://www.spec.org/virt_sc2010/results/

IDC whitepaper

<http://www.redhat.com/resourcelibrary/datasheets/idc-rhev>

RHEV online documentation

https://access.redhat.com/site/documentation/Red_Hat_Enterprise_Virtualization/

REST API

https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Virtualization/3.0/html-single/REST_API_Guide/index.html

Ovirt REST API

<http://www.ovirt.org/Category:Api>

Command Line Shell

https://access.redhat.com/site/documentation/en-US/Red_Hat_Enterprise_Virtualization/3.2/html-single/Command_Line_Shell_Guide/index.html

