

# virt-manager

The virt-manager application is a desktop user interface for managing virtual machines through libvirt. It primarily targets KVM VMs, but also manages Xen and LXC (linux containers).

It presents a summary view of running domains, their live performance & resource utilization statistics.

Wizards enable the creation of new vm's, and configuration & adjustment of a vm's resource allocation & virtual hardware. An embedded VNC and SPICE client viewer presents a full graphical console to the guest domain.

# virt-manager: comandi

## **Virt-install**

- Command line tool for virtual machine installation

## **Virt-clone**

- Command line tool for cloning existing virtual machines

## **Virt-image**

- Command line tool for installing virtual machines based on a predefined image

## **Virt-viewer**

- Lightweight tool to interface to a virtual machines graphical interface
  - Uses VNC

# **Virt-manager e Virtualbox sono limitati:**

- Sono orientati al desktop
- Non supportano host multipli
- Non abbastanza robusti
- Features limitate

In sintesi non sono adatti alla gestione di un datacenter di macchine virtuali.

# Gestione di più macchine virtuali

Quando il numero di macchine virtuali e dei nodi hw aumenta è veramente utile avere un tool che consenta di avere sott'occhio la situazione (chi sta in esecuzione dove) e di effettuare le basilari operazioni di gestione (creazione, distruzione, etc.)

# Il backup delle macchine virtuali

Backup delle macchine virtuali running.

Per alcuni tipi di servizi che girano su VM è importante riuscire a fare il backup della VM mentre è in running (**snapshot**).

**Live migration ....**

# Ovirt vs. Virt-manager

## **oVirt**

- The oVirt project is an open virtualization project providing a feature-rich, end to end, server virtualization management system with advanced capabilities for hosts and guests, including high availability, live migration, storage management, system scheduler, and more

## **virt-manager**

- In computing, the Red Hat Virtual Machine Manager is a desktop-driven virtual-machine manager application with which users can manage virtual machines (VMs).[1]

# Ovirt vs. Virt-manager

## **oVirt**

- SMB or Enterprise environments
- Supports multiple “Host” computers
- Enterprise Features

## **Virt Manager**

- Single Machine environment
- Can support multiple “hosts”, but not as robust as oVirt
- Limited Feature Set

# Ovirt e la gestione di un data center

1. Che cos'è oVirt ?
2. Perché utilizzarlo?
3. Come gestire un intero data center con oVirt



# Che cos'è oVirt?

oVirt Open Virtualization Manager

Search: DataCenter: name = Default

Logged In

Data Centers Clusters Hosts Storage Disks Virtual Machines Templates Quota

Tree

Expand All Collapse All

System

Default

Storages

Templates

Clusters

Default

Hosts

VMs

Edit Force Remove Guide Me

Name	Storage Type	Status	Compatibility Ver
Default	NFS	Up	3.1

Storage Logical Networks Clusters Quota Permissions

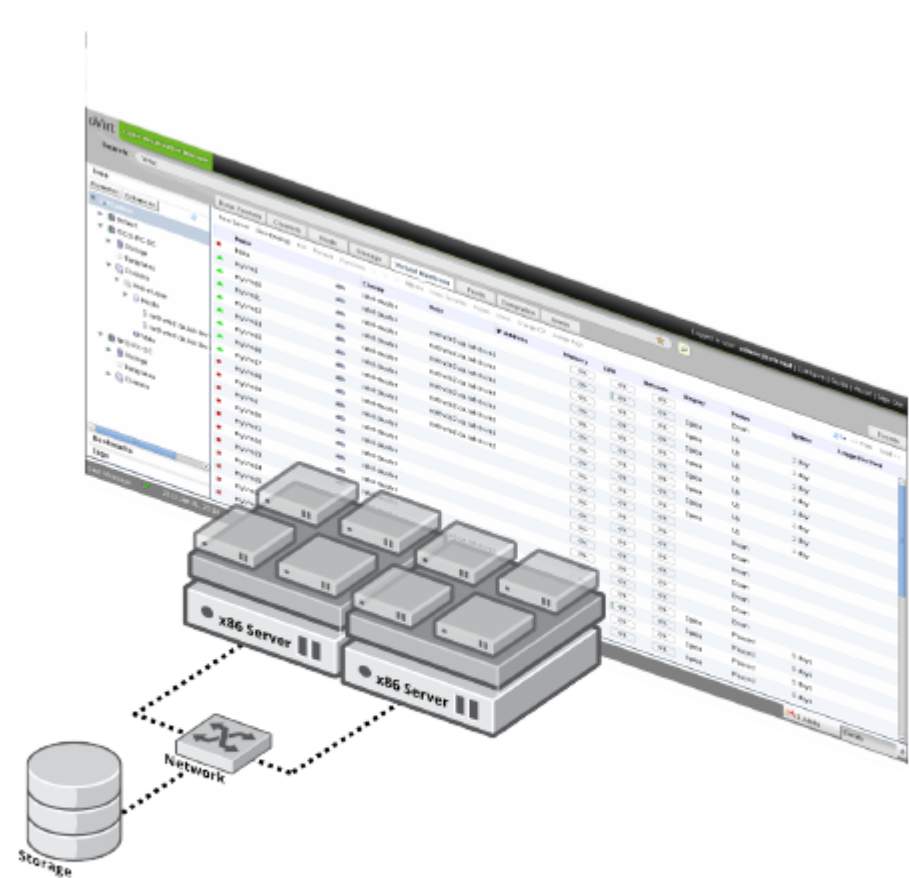
Attach Data Attach ISO Attach Export Detach Activate Maintenance

Domain Name	Domain Type	Status	Free Space	Use
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oVirt is a virtualization management application. That means that you can use the oVirt management interface (the oVirt engine) to manage hardware nodes, storage and network resources, and to deploy and monitor virtual machines running in your data center --- [ovirt.org](http://ovirt.org)

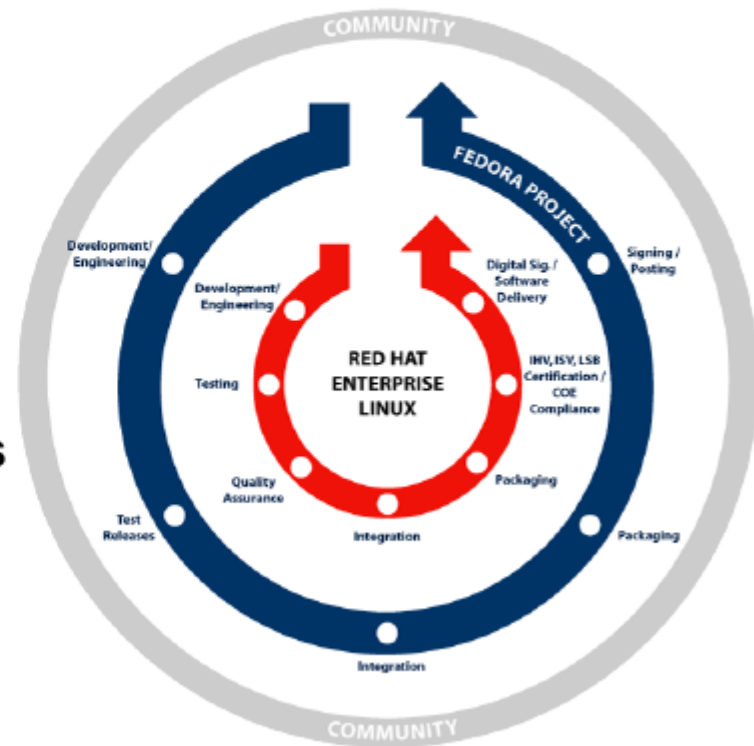
# Che cos'è oVirt?

- Large scale, centralized management for server and desktop virtualization
- Based on leading performance, scalability and security infrastructure technologies
- Provides an open source alternative to vCenter/vSphere



# Che cos'è oVirt?

- Represents next generation of open source virtualization
- **Project** from Red Hat's Emerging Technology Group
- Built on open source and open standards
- Built within the community
- Provides the foundation for Red Hat's next generation of virtualization **Products**



# Cosa si può fare con oVirt

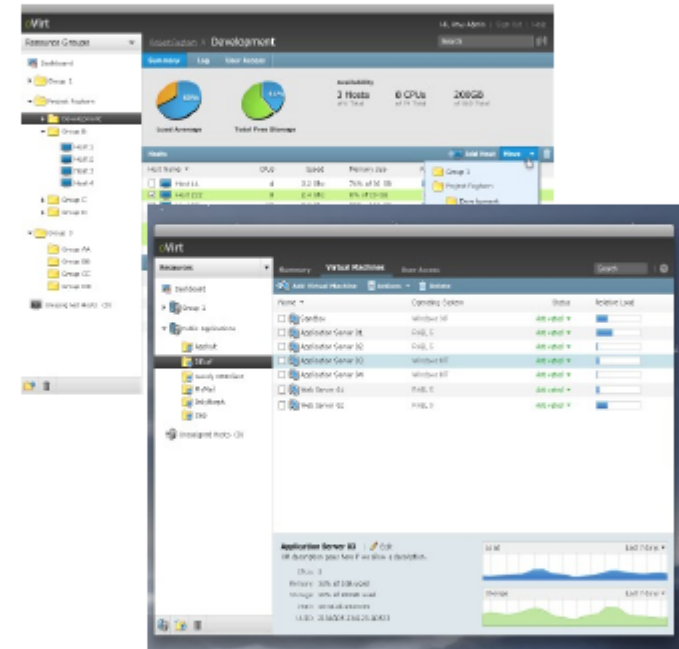
Feature	Description
High Availability	Restart guest VMs from failed hosts automatically on other hosts
Live Migration	Move running VM between hosts with zero downtime
System Scheduler	Continuously load balance VMs based on resource usage/policies
Power Saver	Concentrate virtual machines on fewer servers 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 & P2V	Convert Physical servers or VMs from Vmware and Xen
VDI	Virtual Desktop Infrastructure for Windows and Linux
Power User Portal	Self Service Portal

# Che cos'è oVirt?



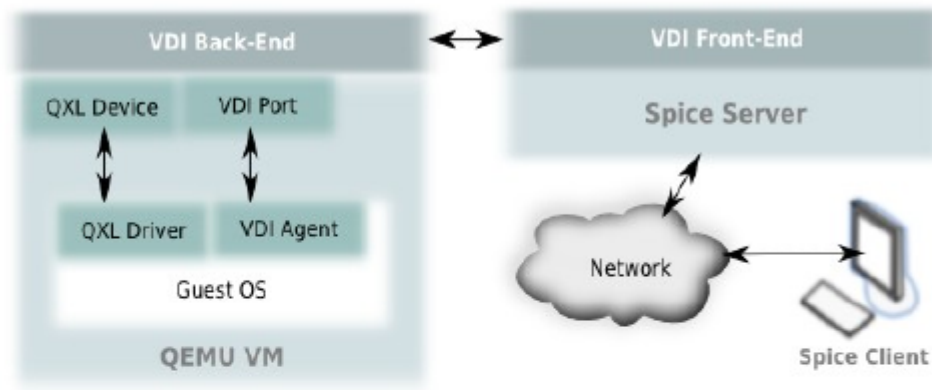
## What is oVirt

- oVirt project delivers complete virtualization solution
  - Hypervisor
    - Built on Linux kernel
    - Managed using standards based tools
      - Based on libvirt, CIM and LDAP
      - From Red Hat, the community or ISVs
  - Virtualization Management Platform
    - Cross platform – multiple hypervisors
    - Built on open standards
      - LDAP, Kerberos, Libvirt, etc
    - Scalable
      - From 1 node to tens of thousands of nodes
      - From small host cluster to cloud computing infrastructure
    - Secure
      - Integrated policy and audit framework

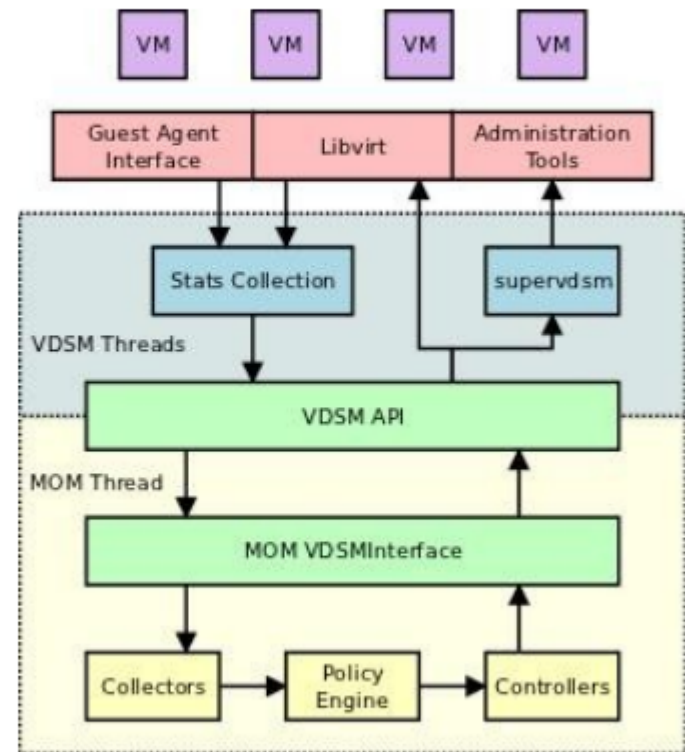


# Che cos'è oVirt?

- SPICE



<http://www.linux-kvm.com>



<http://www.ovirt.org>

- VDSM(Virtual Desktop and Server Manager)

# Che cos'è oVirt?

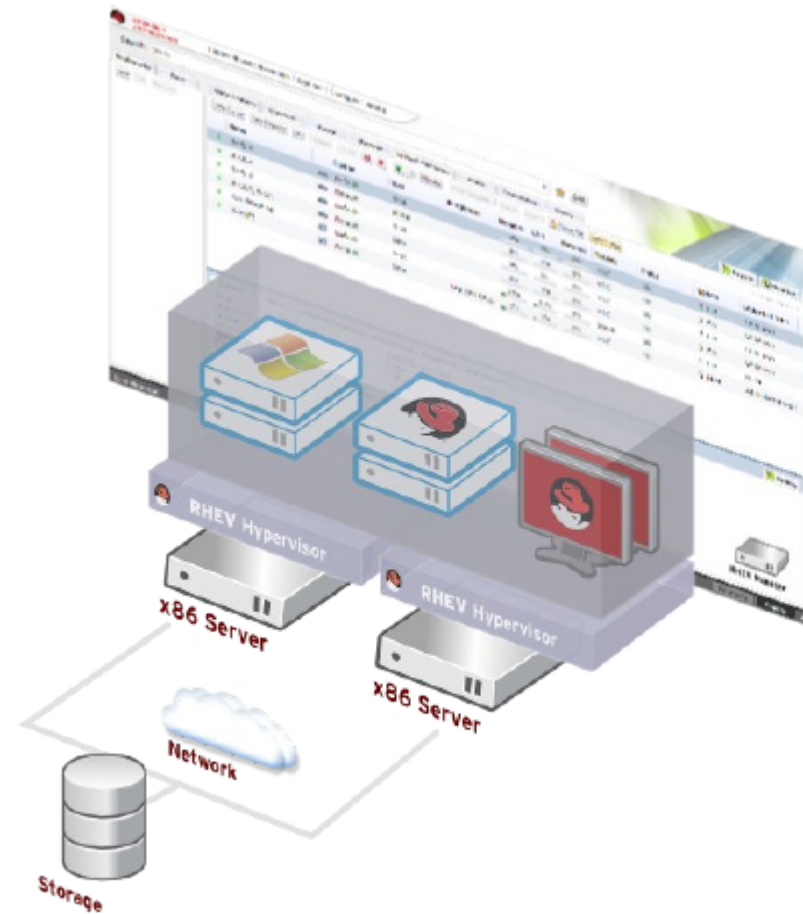
Large scale, centralized management for server and desktop virtualization

Based on leading performance, scalability and security infrastructure technologies

Provide an open source alternative to vCenter/vSphere

Two key components

- Hypervisor -> oVirt Node
- Management Server -> oVirt Engine



# Architecture Overview

- **oVirt Engine:** It is a control unit used for administrative tasks related to the management of the global configuration of the entire virtualization infrastructure, the management of virtual machines, storage, and network settings.
- **oVirt Nodes:** It computes virtualization units that directly run the virtual machines.
- **Storage** and network infrastructure (external disk capacity units): These can be direct or network-attached storage (DAS/NAS) or high-performance storage area networks (SAN). Disk capacity units hold virtual machine images and OS installation images. Network devices, such as switches, provide connectivity between engines, nodes, and storage.



# Architecture Overview

oVirt Engine is a set of software and services that implement the functionality of the **central control infrastructure**. With the help of oVirt Engine, we achieve one of the main goals of oVirt: **centralized management**.

Virtualization hosts (oVirt Nodes) are servers using Linux x86\_64 with the installed libvirt daemon and VDSM (Virtual Desktop and Server Manager) (host-agent) service.

Storage is an external component of the oVirt infrastructure but is required for oVirt. However, we can use a local type of storage when the storage is located on the compute node.

# Architecture Overview

The storage nodes use block or file storage type and can be either local or remote, accessible via the protocols:

NFS (additional information on Network-Attached Storage is available at [http://en.wikipedia.org/wiki/Network-attached\\_storage](http://en.wikipedia.org/wiki/Network-attached_storage)), iSCSI and Fibre Channel (SAN information about Storage Area Networks is available at [http://en.wikipedia.org/wiki/Storage\\_area\\_network](http://en.wikipedia.org/wiki/Storage_area_network) ).


The cluster filesystem, GlusterFS (GlusterFS community <http://www.gluster.org/>) is also supported through a special type of storage called POSIXFS since in oVirt 3.3, available as an additional storage type.

oVirt provides the ability to simultaneously work with multiple types of storage. However, there is a significant limitation as a data center can use only one type of storage.

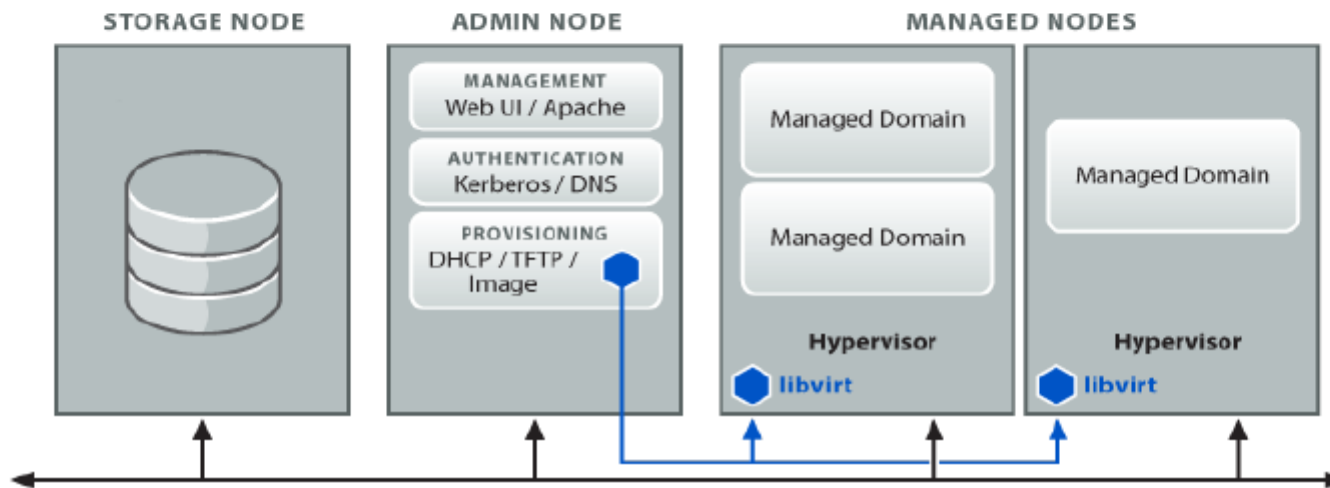
# Architecture Overview

Additionally, oVirt Engine can be set to an external service identification and authorization such as Active Directory (the Active Directory wiki page can be found at [http://en.wikipedia.org/wiki/Active\\_Directory](http://en.wikipedia.org/wiki/Active_Directory)) or IPA (FreeIPA's official website is [http://www.freeipa.org/page/Main\\_Page](http://www.freeipa.org/page/Main_Page)) for user authentication. Such services are third-party in relation to oVirt and is not included in oVirt packages.

# Che cos'è oVirt?

What makes up oVirt and how does it all fit together? 

- Two major components:
  - oVirt Managed Node
  - oVirt Server Suite

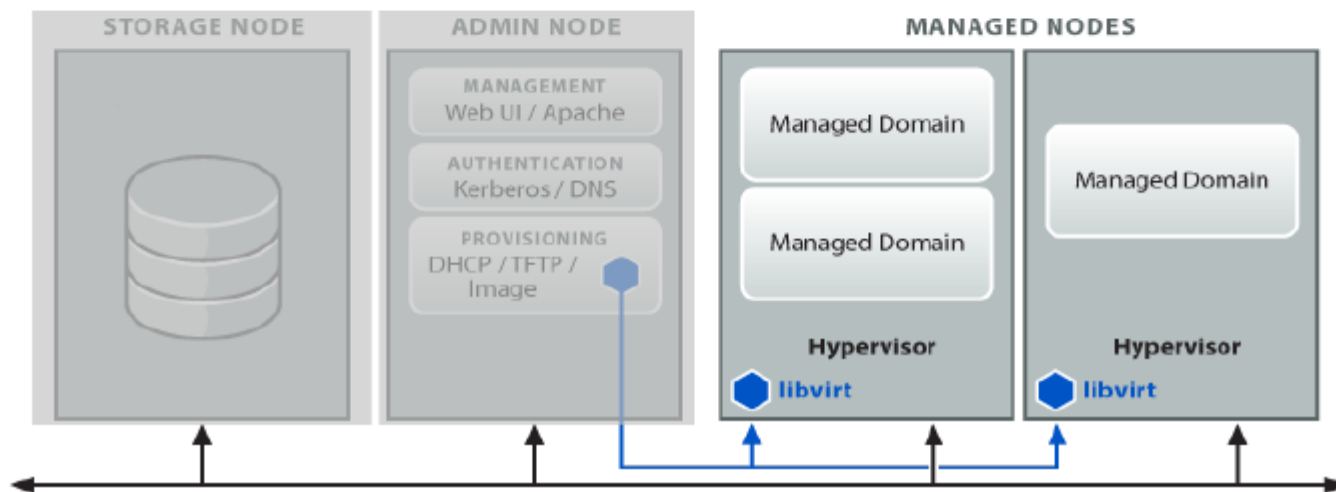


# Che cos'è oVirt?



## oVirt Managed Nodes

- Small footprint embeddable hypervisor
- Based on Linux kernel with KVM Hypervisor
- Requires processors with hardware virtualization
- Runs both Windows and Linux guests

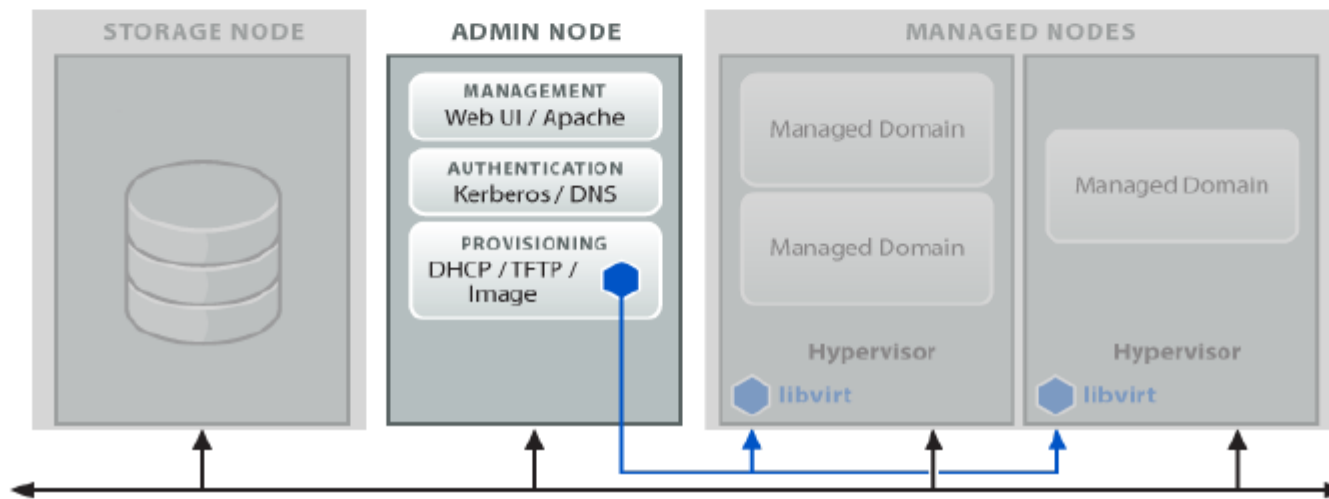


# Che cos'è oVirt?



## oVirt Server Suite

- Administration Web Interface
- Authorization, Authentication and Audit
- Task Queuing
- Status Monitoring
- Performance Monitoring and Visualization

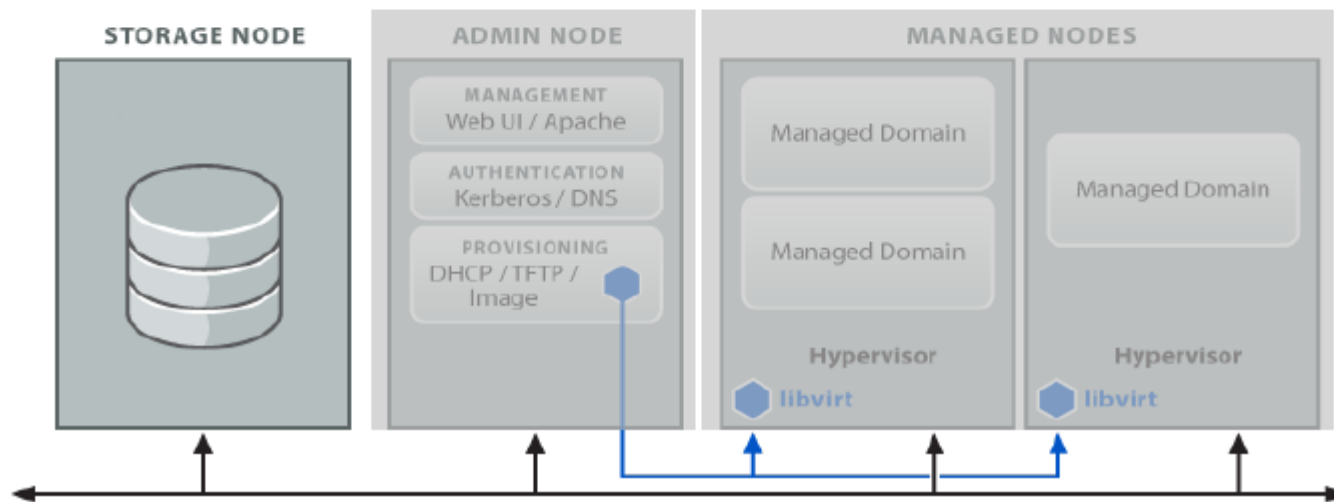


# Che cos'è oVirt?



## Storage Nodes

- Provides External Storage for Guests
  - NFS – File Based Storage
  - iSCSI
  - Fibre Channel
  - Local Disk
  - Logical Volume Management (LVM)



# Che cos'è oVirt?

oVirt Infrastructure

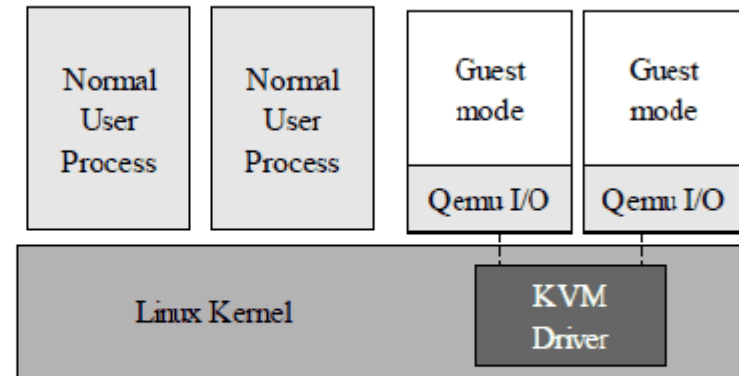


- Integrated with well known Open Source projects:
  - Linux kernel
  - KVM – Hypervisor
  - libvirt – Virtual Machine management
  - FreeIPA – Authentication/Authorization
  - Cobbler/Koan – Provisioning
  - collectd – Performance Data Collection



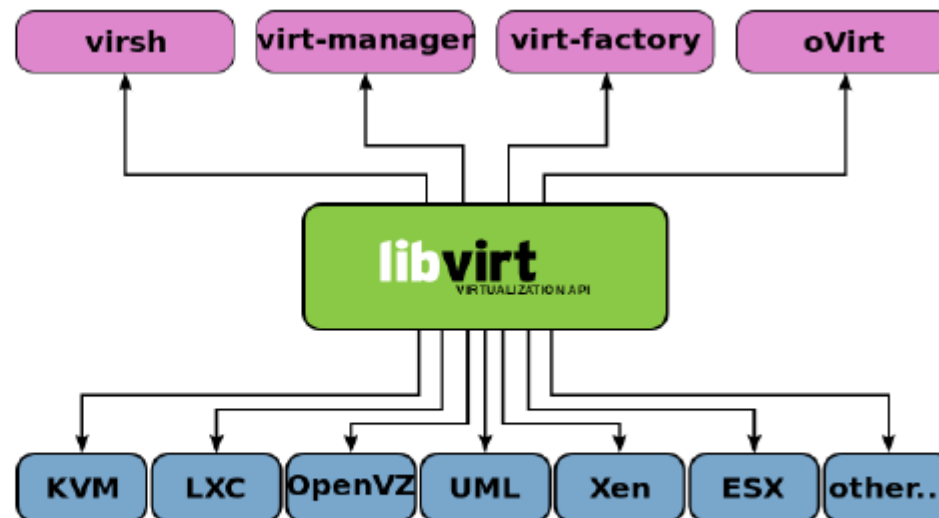
# Che cos'è oVirt?

- KVM
- Qemu



[www.linuxinsight.com](http://www.linuxinsight.com)

- libvirt



<http://en.wikipedia.org/wiki/Libvirt>

# Che cos'è oVirt

oVirt is a dynamically developed product that is based on modern technologies. Ovirt is built on **Linux and Libvirt** (the official FAQ is available at <http://wiki.libvirt.org/page/FAQ>).

Libvirt is a tool for virtualization management that allows managing virtual machines hosted on Qemu/KVM, Xen, VirtualBox, and LXC.

However, oVirt is focused on **Qemu with a Kernel-based Virtual Machine (KVM)**. (For more information about KVM refer to [http://www.linux-kvm.org/page/Main\\_Page](http://www.linux-kvm.org/page/Main_Page).)

oVirt uses KVM that requires processors with **hardware virtualization extensions** (for more information on virtualization extensions refer to [http://en.wikipedia.org/wiki/X86\\_virtualization](http://en.wikipedia.org/wiki/X86_virtualization)), such as **Intel VT-x or AMD-V**. KVM supports x86 processors and has been ported to ARM, IA-64, PowerPC, and S/390 platforms.

# Linux KVM (Kernel Virtual Module)

The most recent news out of Linux is the incorporation of the KVM into the Linux kernel (2.6.20).

KVM is a **full virtualization solution** that is unique in that it turns a Linux kernel into a hypervisor using a kernel module.

This module allows other guest operating systems to then run in user-space of the host Linux kernel (see Figure in the next slide).

The KVM module in the kernel exposes the virtualized hardware through the `/dev/kvm` character device.

The guest operating system interfaces to the KVM module using a modified QEMU process for PC hardware emulation.

# Qemu (emulation)

QEMU supports two modes of operation. The first is the **Full System Emulation mode** which emulates a full personal computer (PC) system with processor and peripherals. This mode emulates a number of processor architectures, such as x86, x86\_64, ARM, SPARC, PowerPC, and MIPS, with reasonable speed using dynamic translation. Using this mode, you can emulate the Windows operating systems and Linux on Linux, Solaris, and FreeBSD. Many other operating system combinations are also supported.

QEMU also supports a second mode called **User Mode Emulation**. In this mode, which can only be hosted on Linux, a binary for a different architecture can be launched. This allows, for example, a binary compiled for the MIPS architecture to be executed on Linux running on x86. Other architectures supported in this mode include ARM, SPARC, and PowerPC, though more are under development.

# libvirt

- È una API C costruita sulle capacità di virtualizzazione di Linux che supporta differenti hypervisors (KVM, Xen, VMWare)
- Offre quindi una interfaccia “Hypervisor agnostic” per costruire strumenti di amministrazione e di monitoring (con compilazioni per molti linguaggi)
- Permette di connettersi a hypervisor remoti (libvirtd) e quindi controllarli

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# oVirt Features

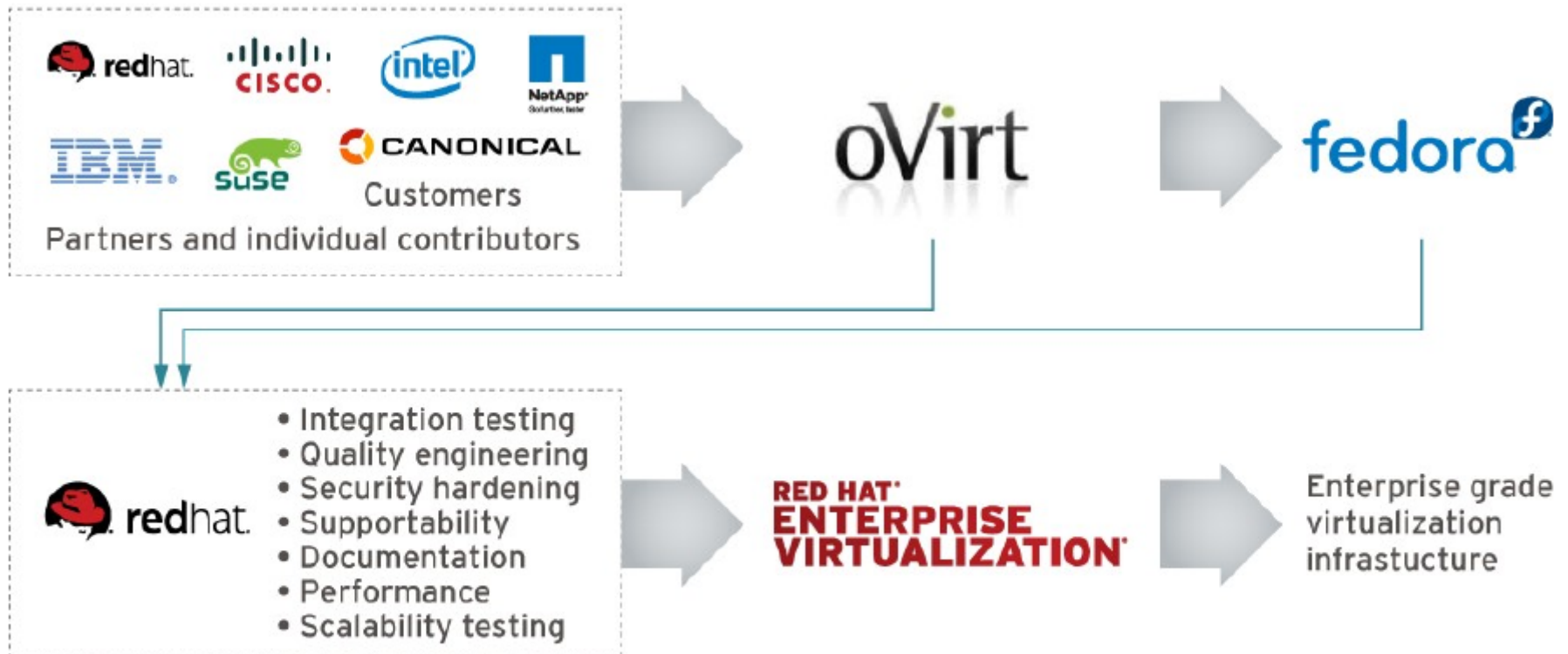
- **Flexible management of virtualization infrastructure:**
  - Centralized management portal for administrative tasks
  - Multilevel control that allows you to manage the physical infrastructure at the level of logical objects
  - The ability to add existing virtual machines on existing servers into the oVirt environment
  - Flexible user management with external directory servers
- **High availability:**
  - Tools for building fault-tolerant virtual machines
  - Live migration tools to move virtual machines between physical hosts

# oVirt Features

- **Resource usage efficiency:**
  - Resource scheduler is able to dynamically maintain the balance of resources used
  - The ability to control a potential reduction in energy costs for cooling
  - Quotas and resource limitations
- **Fast deployment of virtual machines:**
  - VM's template management that may need to create and manage virtual machines
  - Snapshots, cloning, and pre-started virtual machines that are ready for usage
- **Flexible storage management:**
  - Storage virtualization for consistent treatment of shared storage from any server
  - Ability to use different types of storage



# Il progetto oVirt



# How to start

- Build from source..
- Or, just install
  - yum install ovirt-engine
  - ./ovirt-setup
  - Add managed hosts
- Or, New: All-in-one live usb  
[http://wiki.ovirt.org/wiki/OVirt\\_Live](http://wiki.ovirt.org/wiki/OVirt_Live)

# Perchè utilizzare oVirt

- Current generation of solutions built on proprietary architectures and protocols
  - Lack of standards
  - Vendor lock in
    - Hypervisor and management platform intrinsically linked
      - Locked into management solution from hypervisor vendor
  - Lack of interoperability
    - Different management platform required for each hypervisor
  - Not integrated into enterprise
    - Separate tools for physical systems and each hypervisor
  - No centralized authentication, authorization or audit
    - Security concerns limiting deployment of virtualization solutions

# Perchè utilizzare oVirt



## Libvirt : Management based on open standards



- Provides a standard management interface
  - Hypervisor agnostic
    - Will work with multiple hypervisors
  - Stable API
    - Shield users from hypervisor changes
  - Consistent tools across hypervisors
    - eg. Same interface for Xen, QEMU, KVM, OpenVZ, LXC, LDoms, etc
  - Scriptable
    - Provides APIs for developers / tool vendors
  - Secure
    - Encryption and authentication GSSAPI/SASL2
  - Allows vendors to build cross platform tools

# Perchè utilizzare oVirt?

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# Perchè utilizzare oVirt?

## LEGACY WORKLOAD

- Stateful VMs, application defined in VM
- Big VMs: vCPU, vRAM, local storage inside VM
- Application SLA = SLA of VM
- SLA requires enterprise virtualization features to keep VMs highly available
- Lifecycle measured in years
- VMs scale up: add vCPU, vRAM, etc.
- Applications not designed to
- tolerate failure of VMs

## CLOUD WORKLOAD

- Stateless VMs, application distributed
- Small VMs: vCPU, vRAM, storage separate
- Application SLA not dependent on any one VM
- SLA requires ability to create and destroy Vms where needed
- Lifecycle measured in hours to months
- Applications scale out: add more VMs
- Applications designed to tolerate failure of VMs

# Administration Console



Activities Firefox

Fri 22:13

en [system icons] Itamar Heim

oVirt Enterprise Virtualization Engine Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

oVirt Enterprise Virtualization E...

hateya-fed16.qa.lab.tlv.redhat.com:8080/webadmin/webadmin/WebAdmin.html#vms

Google

oVirt Open Virtualization Manager

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

Search: Vms:

Data Centers Clusters Hosts Storage **Virtual Machines** Pools Templates Users

Events

Tree

Expand All Collapse All

- System
  - Default
  - ISCSI-RC-DC
    - Storage
    - Templates
    - Clusters
      - intel-cluster
        - Hosts
          - nott-vids2.qa.lab.tlv.n
          - nott-vids3.qa.lab.tlv.n
        - VMS
  - NFS-RC-DC
    - Storage
    - Templates
    - Clusters

New Server New Desktop Edit Remove Run Once Migrate Make Template Export Move Change CD Assign Tags

<< Prev Next >>

Name	Cluster	Host	IP Address	Memory	CPU	Network	Display	Status	Uptime	Logged in User
kaka	intel-cluster			0%	0%	0%		Down		
myVm1	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	6%	0%	Spice	Up	1 day	
myVm10	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm11	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm12	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm13	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm15	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm16	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm17	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm18	intel-cluster			0%	0%	0%		Down		
myVm19	intel-cluster			0%	0%	0%		Down		
myVm2	intel-cluster			0%	0%	0%		Down		
myVm20	intel-cluster			0%	0%	0%		Down		
myVm21	intel-cluster			0%	0%	0%		Down		
myVm22	intel-cluster			0%	0%	0%		Down		
myVm23	intel-cluster			0%	0%	0%		Down		
myVm24	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	
myVm25	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	6%	0%	Spice	Paused	5 days	
myVm26	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	
myVm27	intel-cluster	nott-vids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	

Last Message: 2012-Jan-31, 23:18:41 User admin@internal logged in

3 Alerts Events

# Search Auto Complete



Search: Vms: name = my\* and status =

- Vms: name = my\* and status = unassigned
- Vms: name = my\* and status = down
- Vms: name = my\* and status = up
- Vms: name = my\* and status = poweringup
- Vms: name = my\* and status = powerdown
- Vms: name = my\* and status = paused
- Vms: name = my\* and status = migratingfrom
- Vms: name = my\* and status = migratingto
- Vms: name = my\* and status = unknown
- Vms: name = my\* and status = notresponding
- Vms: name = my\* and status = waitforlaunch
- Vms: name = my\* and status = reboottimerprogress

## Tree

Expand All Collapse All

- System
  - Default
  - ISCSI-RC
  - Storage
  - Templates
  - Clusters
    - intel-cluster
      - Hosts
        - nott-uds2.qa.lab.tlv.redhat.com
        - nott-uds3.qa.lab.tlv.redhat.com
      - VMs
  - NFS-RC-DC
    - Storage
    - Templates
    - Clusters



Events

Prev Next

Work	Display	Status	Uptime	Logged-in User
0%		Down		
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	
0%	Spice	Up	1 day	

General Network Interfaces Virtual Disks Snapshots Applications Permissions

### Installed Applications

- Bookmarks
- Tags



# Search Results



Search: Vms: name = my\* and status = up

Data Centers Clusters Hosts Storage Virtual Machines Pools Templates Users

Events

Tree

Expand All Collapse All

- System
  - Default
  - ISCSI-RC-DC
    - Storage
    - Templates
    - Clusters
      - intel-cluster
        - Hosts
          - nott-uds2.qa.lab.tlv.red
          - nott-uds3.qa.lab.tlv.red
        - VMs
  - NFS-RC-DC
    - Storage
    - Templates
    - Clusters

New Server New Desktop Edit Remove Run Once Migrate Make Template Export Move Change CD Assign Tags

Name	Cluster	Host	IP Address	Memory	CPU	Network	Display	Status	Uptime	Logged-in User
myVm1	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm10	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm11	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm12	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm13	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm15	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm16	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
myVm17	intel-cluster	nott-uds2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	

Bookmarks

Tags

# Add Host As Simple As



Search: Host

Data Centers Clusters **Hosts** Storage Virtual Machines Pools Templates Users

Tree Expand All Collapse All

- System
  - Default
  - ISCSI-RC-DC
    - Storage
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  - Clusters
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      - Hosts
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        - nott-uds3.qa.lab.tlv.redhat.com
      - VMs
    - NFS-RC-DC
      - Storage
      - Templates
      - Clusters

New Edit Remove Activate Maintenance Configure Local Storage Assign Tags

- nott-uds2.qa.lab.tlv.redhat.com
- nott-uds3.qa.lab.tlv.redhat.com
- nott-uds4.qa.lab.tlv.redhat.com

### New Host

**General**

Data Center: Default

Host Cluster: Default

Name:

Address:

Root Password:

Override IP tables:

Power Management

OK Cancel

	Memory	CPU	Network	SpmStatus
8 VMs	25%	0%	0%	SPM
0 VMs	0%	0%	0%	None
0 VMs	0%	0%	0%	None

Bookmarks

Tags

# Power Management



Activities Firefox

Fri 22:23

en [system icons] Itamar Heim

oVirt Enterprise Virtualization Engine Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

oVirt Enterprise Virtualization E...

hateya-fed16.qa.lab.tlv.redhat.com:8080/webadmin/webadmin/WebAdmin.html#hosts

Google

oVirt Open Virtualization Manager

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

Search: Host

Data Centers Clusters **Hosts** Storage Virtual Machines Pools Templates Users

Events

Tree Expand All Collapse All

- System
  - Default
  - ISCSI-RC-DC
    - Storage
    - Templates
  - Clusters
    - intel-cluster
      - Hosts
        - nott-vds2.qa.lab.tlv
        - nott-vds3.qa.lab.tlv
      - VMs
    - NFS-RC-DC
      - Storage
      - Templates
      - Clusters

- | Name                              |
|-----------------------------------|
| ▲ nott-vds2.qa.lab.tlv.redhat.com |
| ▼ nott-vds3.qa.lab.tlv.redhat.com |
| 🔗 nott-vds4.qa.lab.tlv.redhat.com |

### New Host

Enable Power Management

Address

User Name

Password

Type

Port

Slot

Options

*Please use a comma-separated list of 'key=value' or 'key'*

Secure

Memory	CPU	Network	SpinsStatus	
8 VMs	25%	0%	0%	SPM
0 VMs	0%	0%	0%	None
0 VMs	0%	0%	0%	None

Bookmarks

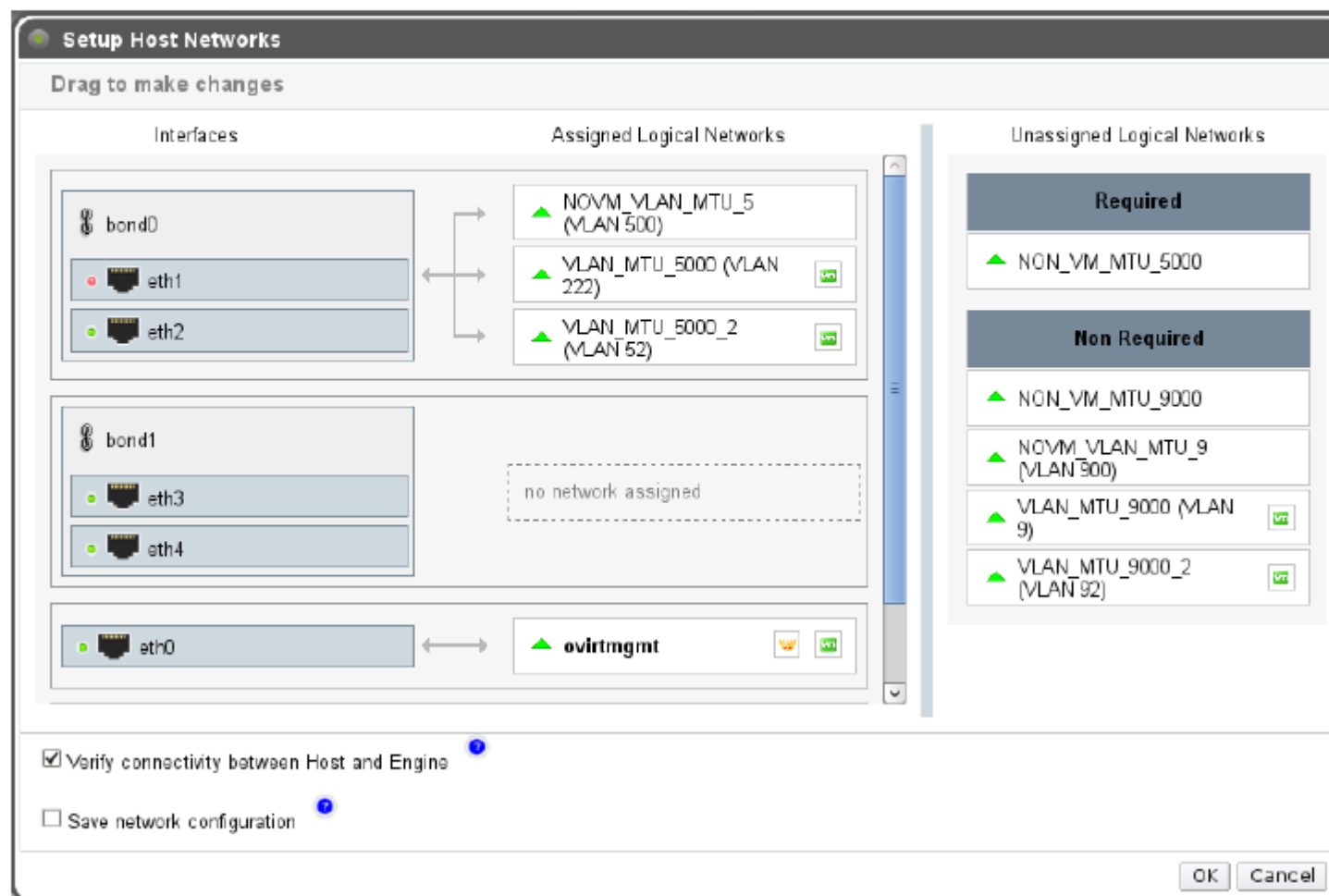
Tags

Last Message: 2012-Jan-31, 23:18:41 User admin@internal logged in

3 Alerts

Events

# Setup Networks: Dialog



# Configure Storage Once for Entire Cluster oVirt

Activities Firefox Fri 22:18 oVirt Enterprise Virtualization Engine Web Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

oVirt Enterprise Virtualization E... +

hateya-fed16.qa.lab.tlv.redhat.com:8080/webadmin/webadmin/WebAdmin.html#storage-general

oVirt Open Virtualization Manager Logged in user: admin@internal | Configure | Guide | About | Sign Out

Search: Storage

Tree

- System
  - Default
  - ISCSI-RC-DC
    - Storage
    - Templates
  - Clusters
    - intel-cluster
      - Hosts
        - nott-uds2.qa.lab.tlv.redhat.com
        - nott-uds3.qa.lab.tlv.redhat.com
      - VMs
    - NFS-RC-DC
      - Storage
      - Templates
      - Clusters

Domain Name

- export\_test
- hateya-ovirt-rc-1
- hateya-ovirt-rc-2
- ntfs-ovirt-rc-2
- ntfs-ovirt-rc-4
- OvirtShareIso

General Data Center Virtual

Size: 74 GB  
Available: 18 GB  
Used: 56 GB  
Over Allocation Ratio: 2100%

**Edit Domain**

Name: hateya-ovirt-rc-1

Domain Function / Storage Type: Data / iSCSI

Use Host: nott-uds2.qa.lab.tlv.redhat.com

<input type="checkbox"/>	LUN ID	Dev. Size	#path	Vendor ID	Product ID	Serial
<input checked="" type="checkbox"/>	1hateya-ovirt-rc11	75GB	0	IET	VIRTUAL-C SIET_VIRTUAL-DISK	
<input type="checkbox"/>	1hateya-ovirt-rc31	75GB	1	IET	VIRTUAL-C SIET_VIRTUAL-DISK	
<input type="checkbox"/>	1hateya-ovirt-rc41	75GB	1	IET	VIRTUAL-C SIET_VIRTUAL-DISK	

OK Cancel

Cross Data-Center Status Free Space

Cross Data-Center Status	Free Space
Active	326 GB
Active	18 GB
Active	20 GB
Inactive	357 GB
Unattached	< 1 GB
Active	29 GB

Last Message: 2012-Jan-31, 23:18:41 User admin@internal logged in 3 Alerts Events

# Add Servers or Desktops



Manager

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

Navigation tabs: Data Centers, Clusters, Hosts, Networks, Storage, Disks, **Virtual Machines**, Pools, Templates, Volumes, Users

Toolbar: New Server, New Desktop, Edit, Remove, Run Once, Nigrate, Cancel Migration, Make Template, Export, Change CD, Assign Tags, Guide Me

Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6: zeus02	zeus02	Up	2 h	
rhel33-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

### New Server Virtual Machine

- General
- Initial Run
- Console
- Host
- High Availability
- Resource Allocation
- Boot Options
- Custom Properties

Data Center: demo-dc-32

Host Cluster: cluster-32

Name:

Description:

Based on Template: Blank

Memory Size: 512 MB

Total Virtual CPUs: 1

Advanced Parameters

Operating System: Unassigned

OK Cancel

Name	Host	General	Network Interfaces
Name:	nwfilter-vm-		
Description:			
Template:	Blank		
Operating System:	Red Hat Ent		
Default Display Type:	Spice		
Priority:	Low		

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2

# Even Windows via Sysprep

oVirt Manager

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

New Server | New Desktop | Edit | Remove | Run Once | Migrate | Cancel Migration | Make Template | Export | Change CD | Assign Tags | Guide Me

Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32 (hel-6; zeus02)		Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

### New Server Virtual Machine

- General
- Initial Run**
- Console
- Host
- High Availability
- Resource Allocation
- Boot Options
- Custom Properties

**General**

Time Zone: (GMT-12:00) GMT-12:00

**Windows**

Domain: \_\_\_\_\_

OK Cancel

General | Network Interfaces

Name: nwfilter-vm-1

Description:

Template: Blank

Operating System: Red Hat Enterprise Linux 6

Default Display Type: Spice

Priority: Low

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2

# Console Details (SPICE or VNC)



Manager

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Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6: zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-dal-net-2		Down		
vm-dal-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

### New Server Virtual Machine

**General** | Protocol:

**Initial Run** | USB Support:

**Console** |  Smartcard enabled

**Host**

**High Availability**

**Resource Allocation**

**Boot Options**

**Custom Properties**

OK Cancel

**General** | Network Interfaces

Name: nwfilter-vm-32

Description:

Template: Blank

Operating System: Red Hat Enterprise Linux 6

Default Display Type: Spice

Priority: Low

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2



# Host Aspects



anager

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Virtual Machines

New Server Virtual Machine

General

Initial Run

Console

**Host**

High Availability

Resource Allocation

Boot Options

Custom Properties

Run On:

Any Host in Cluster

Specific:

Run/Migration Options:

Run VM on the selected host (no migration allowed)

Allow VM migration only upon Administrator specific request (system will not trigger automatic migration of this VM)

CPU Pinning topology

Format: v#p[\_v#p]

Examples:

- 0#0 => pin vCPU 0 to pCPU 0
- 0#0\_1#3 => pin vCPU 0 to pCPU 0 and pin vCPU 1 to pCPU 3
- 1#1-4.^2 => pin vCPU 1 to pCPU set 1 to 4, excluding 2

OK Cancel

Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6: zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

General

Name: nwfilter-vm-1

Description:

Template: Blank

Operating System: Red Hat Ent

Default Display Type: Spice

Priority: Low

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2

# High Availability



Manager

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Navigation tabs: Data Centers, Clusters, Hosts, Networks, Storage, Disks, **Virtual Machines**, Pools, Templates, Volumes, Users

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Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6: zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-tempalte-test-1		Down		
vm-tempalte-test-2		Down		
vm-tempalte-test-3		Down		
vm-tempalte-test-4		Down		
win2008		Down		

### New Server Virtual Machine

**General**

Highly Available

**Initial Run**

**Console**

**Host**

**High Availability**

**Priority for Run/Migration queue:**

Low

Medium

High

**Resource Allocation**

**Boot Options**

**Custom Properties**

OK Cancel

General	Network Interfaces
Name: nwfilter-vm-	
Description:	
Template: Blank	
Operating System: Red Hat Ent	
Default Display Type: Spice	
Priority: Low	

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

# Control Allocated Resources (Disk, Memory)



Manager

Logged in user: admin@internal | [Configure](#) | [Guide](#) | [About](#)

Navigation tabs: Data Centers, Clusters, Hosts, Networks, Storage, Disks, **Virtual Machines**, Pools, Templates, Volumes, Users

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Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6-zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

### New Server Virtual Machine

**General**

**Initial Run**

**Console**

**Host**

**High Availability**

**Resource Allocation**

**Boot Options**

**Custom Properties**

**Memory Allocation:**

Physical Memory Guaranteed:

**Storage Allocation:** (Available only when a template is selected)

Template Provisioning:  Thin  Clone

OK Cancel

Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6-zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2

# Boot Devices



Manager

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

Navigation tabs: Data Centers, Clusters, Hosts, Networks, Storage, Disks, **Virtual Machines**, Pools, Templates, Volumes, Users

Actions: New Server, New Desktop, Edit, Remove, Run Once, Migrate, Cancel Migration, Make Template, Export, Change CD, Assign Tags, Guide Me

Name	Host	Status	Uptime	Logged-in User
demo-vm	zeus02	Up	2 days	
demo-vm-2		Down		
linux-vm		Down		
nw-filter-vm-1		Down		
nwfilter-vm-32-rhel-6-zeus02	zeus02	Up	2 h	
rhel63-vm	zeus02	Up	2 h	
vm-1-dc-30-cluster-3		Down		
vm-del-net-2		Down		
vm-del-net-bug		Down		
vm-template-test-1		Down		
vm-template-test-2		Down		
vm-template-test-3		Down		
vm-template-test-4		Down		
win2008		Down		

### New Server Virtual Machine

**General**

Initial Run:

Console:

Host:

High Availability:

Resource Allocation:

**Boot Options**

Custom Properties:

**Boot Sequence:**

First Device:

Second Device:

Attach CD:

**Linux Boot Options:**

kernel path:

initrd path:

kernel parameters:

OK Cancel

**General** | Network Interfaces

Name: nwfilter-vm-

Description:

Template: Blank

Operating System: Red Hat Ent

Default Display Type: Spice

Priority: Low

Origin: oVirt

Run On: Any Host in Cluster

Custom Properties: Not-Configured

Cluster Compatibility Version: 3.2

# Assign Permissions to Objects by Roles



Search: Vms

Tree

- Expand All Collapse All
- System
  - Default
  - ISCSI-RC-DC
    - Storage
    - Templates
  - Clusters
    - intel-cluster
      - Hosts
        - notf-vds2.qa.lab.tlv
        - notf-vds3.qa.lab.tlv
  - VMs
  - NFS-RC-DC
    - Storage
    - Templates
    - Clusters

Bookmarks

Tags

### Configure

Roles

Show  All Roles  Administrator Roles  User Roles

System Permissions

New Edit Copy Remove

Name	Description
UserRole	Standard User Role
PowerUserRole	User Role, allowed to create/manage Vms and Templates
UserVmManager	User Role, with permission for any operation on Vms
TemplateAdmin	Administrator Role, permission for all operations on a specific Template
UserTemplateBasedVm	User Role, with permissions only to use Templates
SuperUser	System Administrators with permission for all operations
ClusterAdmin	Administrator Role, permission for all the objects underneath a specific Cluster
DataCenterAdmin	Administrator Role, permission for all the objects underneath a specific Data Center
StorageAdmin	Administrator Role, permission for all operations on a specific Storage Domain
HostAdmin	Administrator Role, permission for all operations on a specific Host
NetworkAdmin	Administrator Role, permission for all operations on a specific Logical Network
VmPoolAdmin	Administrator Role, permission for all operations on a specific VM Pool

Close

Events

Uptime	Logged-in User
1 day	
1 day	
1 day	
1 day	
1 day	
1 day	
1 day	

Events


# Gluster Management



File Edit View History Bookmarks Tools Help

oVirt Engine Web Administrati...

127.0.1.1:8080/webadmin/webadmin/WebAdmin.html#volumes

Google

oVirt Open Virtualization Manager

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

Search: Volumes:

Clusters Hosts Volumes Users

Tree

Expand All Collapse All

- System
  - Clusters
    - Default
      - Hosts
    - data
      - Hosts
        - server1
        - server2
      - Volumes

Create Volume Remove Start Stop

Name

### Create Volume

Volume Cluster: data

Name: data

Type: Distribute

Transport Type:  TCP

Bricks: [Add Bricks](#) (0 bricks selected)

**Access Protocols**

Gluster:

NFS:

CIFS:

Allow Access From: \*

(Comma separated list of IP addresses/hostnames)

OK Cancel

Transport Types

Status

Bookmarks

Tags

Last Message: 2012-Aug-22, 16:55:53 Warning, Low disk space. Host server2 has less than 1000 MB of free space left on: /var/run/vdsm/.

0 Alerts Events Tasks (0)

# User Portal



The screenshot shows the oVirt User Portal interface. At the top, there is a navigation bar with the oVirt logo, user information (User: admin@internal | Sign out | Guide | About), and tabs for 'Basic' and 'Extended'. Below this, a grid of four virtual machine cards is displayed:

- kaka**: Machine is Down
- myVm1**: Machine is Ready
- repro**: Machine is Down
- up-vm2**: Machine is Down

Each card features a penguin icon and a power button. A detailed view for the 'kaka' VM is shown on the right, listing the following specifications:

- Operating System**: Unassigned
- Defined Memory**: 1GB
- Number of Cores**: 1 (1 Socket(s), 1 Core(s) per Socket)
- Drives**: Disk 1: 16GB
- Console**: Spice (Edit)

# User Resource View



Virtual Machines

Templates

Resources

**Virtual Machines:**  
25%

Defined VMs: 4  
Running VMs: 1

**Virtual CPUs:**  
25%

Defined vCPUs: 4  
Used vCPUs: 1

**Memory:**  
7%

Defined Memory: 3328MB  
Memory Usage: 256MB

**Storage:**  
Total Size: 70GB  
Number of Snapshots: 5  
Total Size of Snapshots: 15GB

Virtual Machine	Disks	Virtual Size	Actual Size	Snapshots
laka	1	10GB	1GB	1
Disk1		10GB	1GB	1
myVm1	2	40GB	3GB	1
Disk1		10GB	2GB	1
Disk2		30GB	1GB	1
repro	1	10GB	10GB	1
Disk1		10GB	10GB	1
up-vm2	1	10GB	1GB	1
Disk1		10GB	1GB	1



# oVirt Reports



oVirt Reports



ovirt-admin | Log Out

View Manage

## Folders

- root
  - Organizations
    - oVirt Reports
      - Reports
        - Executive**
        - Inventory
        - Service Level
        - Trend
        - Resources
        - temp
  - Themes
    - default
    - ovirt-reports-them

## Repository

Sort By: Name | Modified Date

Run Edit Open Copy Cut Paste Delete

<b>Active Virtual Machines by OS (BR18)</b> <a href="#">/organizations/ovirtreports/Reports/Executive/active_vms_by_os_br18</a>	The report contains comparative measurements number of running virtual machines and OS usage in for a selected cluster and a selected virtual machine's type within the requested period.	Report	October 18
<b>Cluster Capacity Vs Usage (BR19)</b> <a href="#">/organizations/ovirtreports/Reports/Executive/cluster_capacity_vs_usage_br19</a>	This report contains charts displaying host's resources usage measurements (CPU core; physical Memory) and charts displaying virtual machine's resources usage measurements (virtual machine's total vCPU; Virtual Memory size) for a selected cluster.	Report	October 18
<b>Host OS Break Down (BR22)</b> <a href="#">/organizations/ovirtreports/Reports/Executive/host_os_break_down_BR22</a>	This report contains a table and a chart displaying the number of hosts for each OS version for a selected cluster within a requested period.	Report	October 18
<b>Summary of Host Usage Resources (BR17)</b> <a href="#">/organizations/ovirtreports/Reports/Executive/summary_of_host_usage_resources_br17</a>	The report contains a scattered chart of CPU and memory usage data within a requested period and for a selected cluster.	Report	October 18

# oVirt Reports



oVirt  
oVirt Reports

Oct 31, 2011

## Active Virtual Machines by OS in Clusters of Data Center Default

**Criteria:** **Datacenter:** Default **Date Range:** 2011-08-01 - 2011-10-31 **VM Type:** All  
**Cluster:** All **Period:** Quarterly **Show Deleted Virtual Machines:** Yes

**Input Controls**

\* Show Deleted Entities?: Yes

\* Data Center: RHEVM-3

\* Cluster: RHEVM-3

\* VM Type: Server

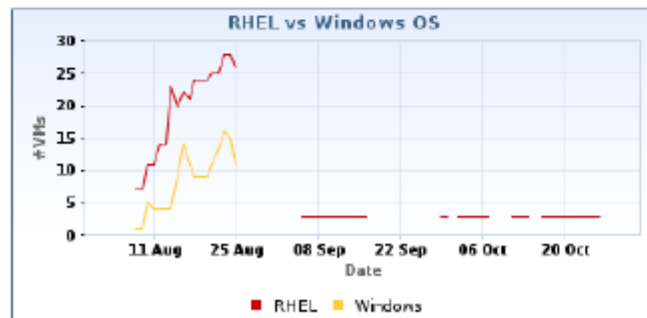
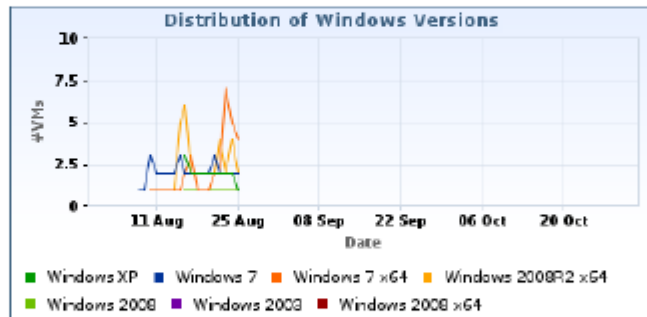
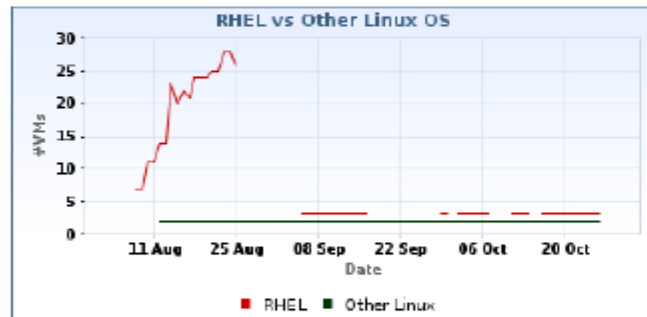
\* Period Range: Monthly

\* Select Month: August 2011

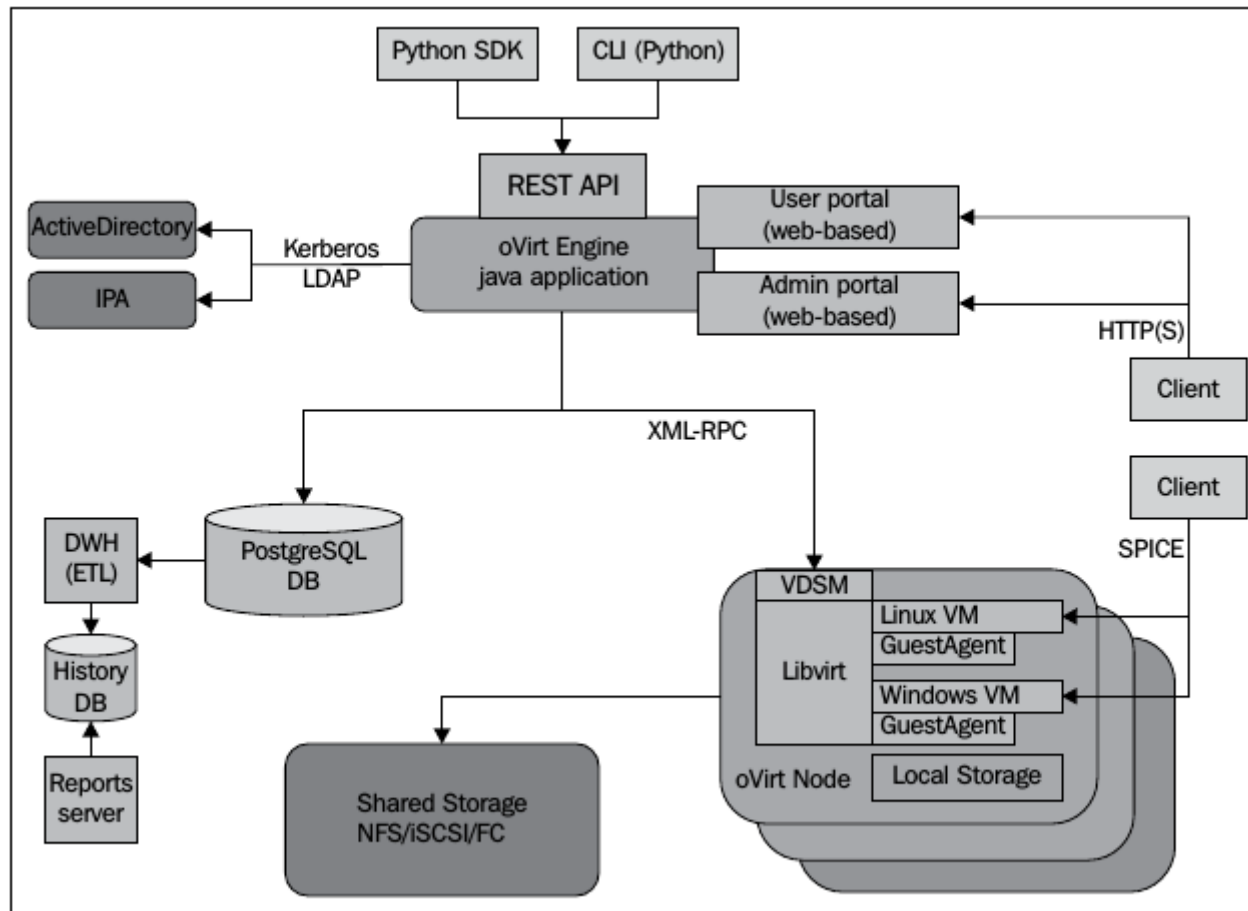
\* Start Date: 2011-08-01

\* End Date: 2011-08-31

Apply OK Reset Cancel



# I componenti di oVirt



# Ovirt Advanced Features

## **Installer**

- VDSM now uses tuned profiles for virtual hosts.
- Users can now remove virtual machines while leaving the virtual machine disks as floating disks.

## **Storage**

- Support has been added for storage domain live upgrade.

## **Infrastructure**

- Support has been added for the Windows 8, Windows 8 x64, and Windows 2012 virtual machine operating systems
- Support has been added for live snapshots.
- Smartcard support has been added for virtual machines.
- Support has been added for a certified cloud provider inventory report.

# Ovirt Advanced Features

## Performance

- The performance of the SSL communication between the oVirt Engine and VDSM has been improved with the implementation of SSL session caching, as the engine does not have to perform a new SSL handshake for each request. oVirt Engine now uses the PKCS#12 format to store keys, replacing the previous Java Key Store format. Memory Overcommit Manager (MOM) is enabled by default for hosts.

# Ovirt Advanced Features

## **Virtualization**

- Improvements have been made to the quota implementation, including its logic, calculation, and monitoring. VDSM hooks have been added for hot plugging and unplugging network interface cards.

# Ovirt Advanced Features

## User Interface

- The "Disks" tab has been added under the "Storage" tab, allowing users to easily view, add or remove disks from each storage domain.
- Support has been added for UTF8 characters including names and descriptions of virtual machines, templates, snapshots, and disk aliases.
- Users can now change the auto-generated name of a virtual machine that was created as part of a pool.
- A new "Network" tab has been added to the main resource tabs, and a "Networks" entry has been added to the Tree pane.

# Ovirt Advanced Features

## Networking

- Users can now dynamically change the network of a running virtual machine without unplugging the virtual network interface card (vNIC), and maintain the device address of the vNIC
- The Guest Agent now reports the IP addresses and internal name of the vNIC to the oVirt Engine

## Power Management

- Host power management policies have been improved. Users can define each host's priority to act as a proxy for fencing operations
- Dual-power hosts can now support two power management agents connected to the same power switch.
- Support has been added for iLo2 and iLo4 power management devices.



# Ovirt Advanced Features

- Many more ...