oVirt Introduction

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Agenda

- What is oVirt?
- What does it do?
- Architecture
- How To Contribute
What is 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
Virtualization Management the oVirt way

VMWARE
- vCenter Server

oVirt
- oVirt Engine

Enterprise Plus features
- Enterprise features
- Standard features
- vSphere APIs and management engine

oVirt APIs and management engine and ALL features

ESXi

ovirt Node
Goals of the oVirt project

- Build a community around all levels of the virtualization stack – hypervisor, manager, GUI, API, etc.
- To deliver both a cohesive complete stack and discretely reusable components for open virtualization management
- Provide a release of the project on a well defined schedule
- Focus on management of the KVM hypervisor, with exceptional guest support beyond Linux
- Provide a venue for user and developer communication and coordination
Governance

- Merit based, open governance model
- Built using the best concepts taken from Apache and Eclipse Foundations
- Governance split between board and projects
  - oVirt Board
  - Multiple projects under the oVirt brand
Governance (oVirt Board)

- Initial board
  - Canonical, Cisco, IBM, Intel, NetApp & SUSE
  - A few domain leaders from sub-projects
  - Mentors
  - There is no limit to the number of board seats
  - Additional seats are voted based on merit
OPEN VIRTUALIZATION MANAGEMENT

Customers
- Partners and individual contributors

• Integration testing
• Quality engineering
• Security hardening
• Supportability
• Documentation
• Performance
• Scalability testing

Enterprise grade virtualization infrastructure

Virtualization Management the oVirt way
oVirt Node

- Standalone hypervisor
  - Small footprint ~ 170MB
  - Customized 'spin' of Fedora + KVM
  - 'Just enough' Fedora to run virtual machines
  - Runs on all RHEL hardware with Intel VT/AMD-V CPUs
  - Easy to install, configure and upgrade
  - PXE boot, USB boot, CD or Hard drive
oVirt Node
- Small footprint
- Pre-configured, no Linux skills needed.

Full Host
- Flexible
- Add monitoring agents, scripts etc. Leverage existing Fedora infrastructure.
- Hybrid mode capable
## Management Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Availability</td>
<td>Restart guest VMs from failed hosts automatically on other hosts</td>
</tr>
<tr>
<td>Live Migration</td>
<td>Move running VM between hosts with zero downtime</td>
</tr>
<tr>
<td>System Scheduler</td>
<td>Continuously load balance VMs based on resource usage/policies</td>
</tr>
<tr>
<td>Power Saver</td>
<td>Concentrate virtual machines on fewer servers during off-peak hours</td>
</tr>
<tr>
<td>Maintenance Manager</td>
<td>No downtime for virtual machines during planned maintenance windows. Hypervisor patching</td>
</tr>
<tr>
<td>Image Management</td>
<td>Template based provisioning, thin provisioning and snapshots</td>
</tr>
<tr>
<td>Monitoring &amp; Reporting</td>
<td>For all objects in system – VM guests, hosts, networking, storage etc.</td>
</tr>
<tr>
<td>OVF Import/Export</td>
<td>Import and export VMs and templates using OVF files</td>
</tr>
<tr>
<td>V2V &amp; P2V</td>
<td>Convert Physical servers or VMs from Vmware and Xen</td>
</tr>
<tr>
<td>VDI</td>
<td>Virtual Desktop Infrastructure for Windows and Linux</td>
</tr>
<tr>
<td>Power User Portal</td>
<td>Self Service Portal</td>
</tr>
</tbody>
</table>
Search Auto Complete

Virtualization Management the oVirt way

Search

Tree

Expand All
Collapse

Search

Vms: name = myV and status =
  Vms: name = myV and status = unassigned
  Vms: name = myV and status = down
  Vms: name = myV and status = up
  Vms: name = myV and status = poweringup
  Vms: name = myV and status = powersavedown
  Vms: name = myV and status = paused
  Vms: name = myV and status = migratingfrom
  Vms: name = myV and status = migrateto
  Vms: name = myV and status = unknown
  Vms: name = myV and status = notresponding
  Vms: name = myV and status = waketolaunch
  Vms: name = myV and status = reborn

Clusters

myVm13
myVm15
myVm16

Vms

NFS-RC DC
Storage
Templates
Clusters

Network Interfaces
Virtual Disks
Snapshots
Applications
Permissions

General

Installed Applications
### Virtualization Management

#### oVirt Way

**Search Results**

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

**Web Interface**:

The screen shows the oVirt Enterprise Virtualization Engine Web Administration interface. It displays a list of virtual machines (vms) with details such as name, cluster, host, IP address, memory, CPU, network, display, status, and uptime.

**Virtual Machines**

<table>
<thead>
<tr>
<th>Name</th>
<th>Cluster</th>
<th>Host</th>
<th>IP Address</th>
<th>Memory</th>
<th>CPU</th>
<th>Network</th>
<th>Display</th>
<th>Status</th>
<th>Uptime</th>
<th>Logged-in User</th>
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</thead>
<tbody>
<tr>
<td>myVm1</td>
<td>intel-cluster</td>
<td>nott-vds2.qa.lab.tlv.red</td>
<td>nott-vds2.qa.lab.tlv.red</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>myVm10</td>
<td>intel-cluster</td>
<td>nott-vds2.qa.lab.tlv.red</td>
<td>nott-vds2.qa.lab.tlv.red</td>
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<td>0%</td>
<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td></td>
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<td>0%</td>
<td>0%</td>
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<td>1 day</td>
<td></td>
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<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>myVm13</td>
<td>intel-cluster</td>
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<td>nott-vds2.qa.lab.tlv.red</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
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<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>myVm15</td>
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<td>nott-vds2.qa.lab.tlv.red</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td></td>
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<td>nott-vds2.qa.lab.tlv.red</td>
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<td>0%</td>
<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
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<td>nott-vds2.qa.lab.tlv.red</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td></td>
</tr>
</tbody>
</table>
Add Host As Simple As
Power Management

New Host

Enable Power Management

Address
User Name
Password
Type: bladecenter
Port
Slot
Options

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

Test

OK  Cancel
Extend with More LUNs as Needed
Add Servers or Desktops

Virtualization Management the oVirt way

New Server Virtual Machine

- General
  - Data Center
  - Host Cluster
- Name
- Description
- Based on Template
- Memory Size
- Total Cores
- CPU Sockets
- Operating System

- Display
- Status
- Uptime
- Logged-in User

Browser Firefox version 9 is currently not supported.
Even Windows via Sysprep
SPICE or VNC
Highly Available?

<table>
<thead>
<tr>
<th>Name</th>
<th>Work</th>
<th>Display</th>
<th>Status</th>
<th>Uptime</th>
<th>Logged-in User</th>
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</thead>
<tbody>
<tr>
<td>koka</td>
<td>0%</td>
<td>Spice</td>
<td>Down</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm1</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm10</td>
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<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm11</td>
<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
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<tr>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm14</td>
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<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm15</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm16</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm17</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm18</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm19</td>
<td>0%</td>
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<td>Up</td>
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<td>admin@internal</td>
</tr>
<tr>
<td>myVm20</td>
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<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm21</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm22</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm23</td>
<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm24</td>
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<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
<tr>
<td>myVm25</td>
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<td>Up</td>
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<td>admin@internal</td>
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<tr>
<td>myVm27</td>
<td>0%</td>
<td>Spice</td>
<td>Up</td>
<td>1 day</td>
<td>admin@internal</td>
</tr>
</tbody>
</table>

Priority for Run/Migration queue:
- Low
- Medium
- High
Control Allocated Resources (Disk, Memory)
Advanced Options via Custom Properties
Assign Permissions to Objects by Roles
Define Your Own Roles
Virtualization Management the oVirt way
### User Resource View

**Virtual Machines:**
- Defined VMs: 4
- Running VMs: 1

**Virtual CPUs:**
- Defined vCPUs: 4
- Used vCPUs: 1

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

<table>
<thead>
<tr>
<th>Virtual Machine</th>
<th>Disks</th>
<th>Virtual Size</th>
<th>Actual Size</th>
<th>Snapshots</th>
</tr>
</thead>
<tbody>
<tr>
<td>kwa</td>
<td>1</td>
<td>10GB</td>
<td>1GB</td>
<td>1</td>
</tr>
<tr>
<td>Disk1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>myVm1</td>
<td>2</td>
<td>10GB</td>
<td>3GB</td>
<td>1</td>
</tr>
<tr>
<td>Disk1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disk2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rec0</td>
<td>1</td>
<td>10GB</td>
<td>1GB</td>
<td>1</td>
</tr>
<tr>
<td>Disk1</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disk2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>up-vm2</td>
<td>1</td>
<td>10GB</td>
<td>1GB</td>
<td>1</td>
</tr>
<tr>
<td>Disk1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Memory:**
- Defined Memory: 3328MB
- Memory Usage: 256MB
<table>
<thead>
<tr>
<th>Report Name</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Virtual Machines by OS (BR18)</td>
<td>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.</td>
<td>October 18</td>
</tr>
<tr>
<td>Cluster Capacity Vs Usage (BR19)</td>
<td>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.</td>
<td>October 18</td>
</tr>
<tr>
<td>Host OS Break Down (BR22)</td>
<td>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.</td>
<td>October 18</td>
</tr>
<tr>
<td>Summary of Host Usage Resources (BR17)</td>
<td>The report contains a scattered chart of CPU and memory usage data within a requested period and for a selected cluster.</td>
<td>October 18</td>
</tr>
</tbody>
</table>
Virtualization Management the oVirt way
The guest agent provides additional information to oVirt Engine, such as guest memory usage, guest ip address, installed applications and sso.

- Python code, available for both linux and windows guests
- Communication is done over virtio-serial
- SSO for windows is based on a gina module for XP and a credential provider for windows 7
- SSO for Linux is based on a PAM module with support for both KDE and Gnome
oVirt High Level Architecture

- Postgres
- AD
- LDAP
- Shared Storage (FC/iSCSI/NFS)
- Linux/Windows client
- Admin Portal (gwt)
- SDK/CLI (python)
- User Portal (gwt)

- oVirt Engine (Java)
- Guest agent
- Linux VM
- Win VM
- libvirt
- VDSM
- Host | Node
- Local Storage
- SPICE

Virtualization Management the oVirt way
Authentication

• Built-in user **admin@internal**

• AD, IPA, RHDS, ITDS integration
  • Kerberos authentication
  • LDAP - user info, group membership
  • Multiple domains, trusts, etc.
  • Cached for searches, not for login

• Next
  • Open LDAP (patch ready)
  • Internal users (picketlink?)
  • Linux users?
Database

- Postgres
- JDBC based
- Next
  - Hibernate
  - Scheme upgrade management
RESTful Web Service

- Stands for Representational State Transfer
- Modeling entity actions around HTTP verbs
  - GET
  - PUT
  - POST
  - DELETE
- Still uses 'actions' for some state changes
- Self describes – entity navigation and actions
- <api>
  <link rel="capabilities" href="/rhevm-api/capabilities"/>
  <link rel="clusters" href="/rhevm-api/clusters"/>
  <link rel="clusters/search" href="/rhevm-api/clusters?search={query}"/>
  <link rel="datacenters" href="/rhevm-api/datacenters"/>
  <link rel="datacenters/search" href="/rhevm-api/datacenters?search={query}"/>
  <link rel="events" href="/rhevm-api/events"/>
  <link rel="events/search" href="/rhevm-api/events?search={query}"/>
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  <link rel="hosts/search" href="/rhevm-api/hosts?search={query}"/>
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  <link rel="users" href="/rhevm-api/users"/>
  <link rel="groups" href="/rhevm-api/groups"/>
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  <link rel="vmpools" href="/rhevm-api/vmpools"/>
  <link rel="vmpools/search" href="/rhevm-api/vmpools?search={query}"/>
  <link rel="vms" href="/rhevm-api/vms"/>
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  <system_version revision="428" build="0" minor="6" major="4"/>
</api>

- <summary>
  - <vms>
    - <total>22</total>
    - <active>5</active>
  </vms>
  - <hosts>
    - <total>6</total>
    - <active>5</active>
  </hosts>
  - <users>
    - <total>2</total>
  </users>
</summary>
<hosts>
  <host id="15896dce-ed00-415c-a524-c9b0f278895" href="/rhevm/api/hosts/15896dce-ed00-415c-a524-c9b0f278895">
    <name>nr11</name>
  </host>
  <actions>
    <link rel="install" href="/rhevm/api/hosts/15896dce-ed00-415c-a524-c9b0f278895/install"/>
    <link rel="activate" href="/rhevm/api/hosts/15896dce-ed00-415c-a524-c9b0f278895/activate"/>
    <link rel="fence" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/fence"/>
    <link rel="deactivate" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/deactivate"/>
    <link rel="approve" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/approve"/>
    <link rel="iscsiLogin" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/iscsiLogin"/>
    <link rel="iscsiDiscover" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/iscsiDiscover"/>
    <link rel="commitNetworkConfig" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/commitNetworkConfig"/>
  </actions>
  <link rel="storage" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/storage"/>
  <link rel="nics" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/nics"/>
  <link rel="tags" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/tags"/>
  <link rel="permissions" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/permissions"/>
  <link rel="statistics" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b0f278895/statistics"/>
  <address>nr11.eng.lab.tv.redhat.com</address>
  <status>UP</status>
  <cluster id="4a5bafe0-7c6d-4d75-9aba-d60f3a188d0b" href="/rhevm-api/clusters/4a5bafe0-7c6d-4d75-9aba-d60f3a188d0b"/>
  <port>54321</port>
  <storage_manager>false</storage_manager>
  <power_management>
    <enabled>false</enabled>
    <options/>
  </power_management>
  <ksm>
    <enabled>false</enabled>
  </ksm>
  <transparent_hugepages>
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  <iscsi>
    <initiator>iqn.1994-05.com.redhat:a7afc41a35b0</initiator>
  </iscsi>
</host>
</hosts>
Host networks collection

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```xml
--host_nics--
  --host_nic id="dbb39d06-3aef-468c-83e6-88eae0a3f346" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346">  
    --name eth0</name>  
    --actions--  
    --link rel="attach" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346/attach">  
    --link rel="detach" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346/detach">  
    --link rel="statistics" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346/statistics">  
    --host id="15896dce-eddd-415c-a524-c9b02f278895" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895">  
    --network--  
    --name=rhevm</name>  
    --network--  
    --mac address="78:E7:D1:E4:8E:92"/>  
    --ip netmask="255.255.255.0" address="10.35.16.151"/>  
  </host_nic>  
  --host_nic id="0d98b08c-9b42-45a4-a226-b7dd3f0854cf" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854cf">  
    --name eth1</name>  
    --actions--  
    --link rel="attach" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854cf/attach">  
    --link rel="detach" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854cf/detach">  
    --link rel="statistics" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854cf/statistics">  
    --host id="15896dce-eddd-415c-a524-c9b02f278895" href="/rhevm-api.getHosts/15896dce-eddd-415c-a524-c9b02f278895">  
    --mac address="78:E7:D1:E4:8E:93"/>  
    --ip netmask="" address=""/>  
  </host_nic>  
</host_nics>
```
- Creating the proxy

```python
api = API(url='http://localhost:8080', username='user@domain', password='password')
```

- Listing all collections

```python
api.
```

- Listing collection's methods.

```python
api.vms.
```

- Querying collection with oVirt search engine.

```python
vms = api.vms.list(query = 'name=python_vm')
```

- Querying collection by custom constraint.

```python
vms = api.vms.list(memory=1073741824)
```

- Querying collection for specific resource.

```python
vm = api.vms.get(id = '02f0f4a4-9738-4731-83c4-293f3f734782')
```

- Accessing resource methods and properties.

```python
vm.state
```

**Virtualization Management the oVirt way**
oVirt CLI

AVAILABLE COMMANDS

* action
  execute an action on an object
* cd
  change directory
* clear
  clear the screen
* connect
  connect to a RHEV manager
* console
  open a console to a VM
* create
  create a new object
* delete
  delete an object
* disconnect
  disconnect from RHEV manager
* exit
  quit this interactive terminal
* getkey
  dump private ssh key
* help
  show help
* list
  list or search objects
* ping
  test the connection
* pwd
  print working directory
* save
  save configuration variables
* set
  set a configuration variable
* show
  show one object
* status
  show status
* update
  update an object

(oVirt cli) > help connect

USAGE

connect <url> <username> <password>

DESCRIPTION

Connect to a RHEV manager. This command has two forms. In the first form, no arguments are provided, and the connection details are read from their respective configuration variables (see 'show'). In the second form, the connection details are provided as arguments.

The arguments are:

* url
  - The URL to connect to.
* username
  - The user to connect as. Important: this needs to be in the user@domain format.
* password
  - The password to use.
CLI - Smart Auto Completion

```
[oVirt shell (connected)]#
EOF connect create disconnect exit list shell status
action console delete echo help ping show update
[oVirt shell (connected)]#
[oVirt shell (connected)]#
[oVirt shell (connected)]# create
cluster     disk     host     nic     permission     role     storagedomain     template     vm
cluster-id  high_availability-enabled os-type
cluster-name high_availability-priority placement_policy-affinity
cpu-topology-cores memory stateless
cpu-topology-sockets name template-id
custom_properties-custom_property--LIST origin template-name
description  os-boot-dev timezone
display-monitors  os-cmdline type
display-type  os-initRd usb-enabled
domain-name  os-kernel
[oVirt shell (connected)]#
[oVirt shell (connected)]#
[oVirt shell (connected)]#
[oVirt shell (connected)]#
[oVirt shell (connected)]# create nic
host  vm
```

Virtualization Management the oVirt way
[oVirt shell (connected)]$ help create host

create <type> [base identifiers] [attribute options]

DESCRIPTION

Create a new object with type host. See 'help create' for generic help on creating objects.

ATTRIBUTE OPTIONS

The following options are available for objects with type host:

* --name: string
* --address: string
* --root_password: string
* --cluster-id: string
* [--port: int]
* [--storage_manager.priority: int]
* [--power_management.type: string]
* [--power_management-enabled: boolean]
* [--power_management-address: string]
* [--power_management-user_name: string]
* [--power_management-password: string]
* [--power_management-options-option--LIST: {name=string,value=string}]

RETURN VALUES

* 002 (COMMAND_ERROR)
* 003 (INTERRUPTED)
* 011 (NOT_FOUND)
* 000 (OK)
* 010 (REMOTE_ERROR)
* 001 (SYNTAX_ERROR)
* 004 (UNKNOWN_ERROR)

---

[Ovirt shell (connected)]$ help create vm

create <type> [base identifiers] [attribute options]

DESCRIPTION

Create a new object with type vm. See 'help create' for generic help on creating objects.

ATTRIBUTE OPTIONS

The following options are available for objects with type vm:

* --name: string
* --template-id[name: string
* --cluster-id[name: string
* [--timezone: string]
* [--os-boot-dev: string]
* [--custom_properties.custom_property--LIST: {name=string,value=string}]
* [--os-type: string]
* [--usb-enabled: boolean]
* [--type: string]
* [--os-initrd: string]
* [--display-monitors: int]
* [--display-type: string]
* [--os-cmdline: string]
* [--cpu-topology-cores: int]
* [--memory: long]
* [--high_availability.priority: int]
* [--high_availability-enabled: boolean]
* [--domain-name: string]
* [--description: string]
* [--stateless: boolean]
* [--cpu-topology.sockets: int]
* [--placement_policy-affinity: string]
CLI – Create

USAGE

    create <type> [base identifiers] [attribute options]

DESCRIPTION

    Create a new object with type vm. See 'help create' for generic help on creating objects.

ATTRIBUTE OPTIONS

    The following options are available for objects with type vm:

    * --name: string
    * --template-id:name: string
    * --cluster-id:name: string
    * --timezone: string
    * --os-boot-dev: string
    * [--custom_properties:custom_property--LIST: {name=string,value=string}]
    * --os-type: string
    * --usb-enabled: boolean
    * --type: string
    * --os-initrd: string
    * --display-monitors: int
    * --display-type: string
    * --os-cmdline: string
    * --cpu-topology-cores: int
    * --memory: long
    * --high-availability-priority: int
    * --high-availability-enabled: boolean
    * --domain-name: string
    * --description: string
    * --stateless: boolean
    * --cpu-topology-sockets: int
    * --placement_policy-affinity: string
[oVirt shell (connected)]# update vm iscsi_desktop --description myvm

id : f4a51ae1-4f31-45ee-ab6d-d5965e3bcf71
name : iscsi_desktop
description : myvm
cluster-id : e8861726-0b88-11e1-bd8c-27fb0a7aa76
cpu-topology-cores : 1
cpu-topology-sockets : 1
creation_time : 2012-01-04T13:27:05.266+02:00
display-monitors : 4
display-type : spice
high_availability-enabled : True
high_availability-priority : 7
memory : 1073741824
memory_policy-guaranteed : 1073741824
origin : rhev
os-boot-dev : hd
os-type : unassigned
placement_policy-affinity : migratable
start_time : 2012-02-27T15:40:57.480Z
stateless : False
status-state : down
template-id : 9c42b69e-daa3-48d7-bf97-779603892f15
type : desktop
usb-enabled : True
CLI – Delete

```bash
(oVirt cli) > list clusters
id                        name                      description
------------------------------------------------------------------------------
80eed02c-ac7d-11e0-b702-0bf21e6d33af  b                        
7073b1ac-ef46-11e0-aa7c-d3e6f6b5731d  bb                       
82b1c018-ac7d-11e0-ac42-5b8d8dcd7c92  c                        
63bc09b0-8b8b-11e0-bdc2-4356942887b3  Default_iscsi            
99408929-82cf-4dc7-a532-9d998063fa95  Default_nfs              The default server cluster
ff2d112-8cf0-11e0-b34b-7f61455e6a71  Test_iscsi               
ada1672a-8cf1-11e0-9d3e-b75c5a33ec19  Test_nfs                 
ad9bd996-a893-11e0-b174-e3232e67a091  Test_vlans               
```

```
(oVirt cli) > delete cluster bb
(oVirt cli) > list clusters
id                        name                      description
------------------------------------------------------------------------------
80eed02c-ac7d-11e0-b702-0bf21e6d33af  b                        
82b1c018-ac7d-11e0-ac42-5b8d8dcd7c92  c                        
63bc09b0-8b8b-11e0-bdc2-4356942887b3  Default_iscsi            
99408929-82cf-4dc7-a532-9d998063fa95  Default_nfs              The default server cluster
ff2d112-8cf0-11e0-b34b-7f61455e6a71  Test_iscsi               
ada1672a-8cf1-11e0-9d3e-b75c5a33ec19  Test_nfs                 
ad9bd996-a893-11e0-b174-e3232e67a091  Test_vlans               
```
oVirt Host Agent - VDSM

- Guest Agent
- QEMU/KVM
- libvirt
- hooks
- Host Config & Monitor
- Storage Config & Monitor
- Network Config & Monitor
- VM Config & Monitor
- Auto Register

RHEL / RHEV-H

Virtualization Management the oVirt way
Hooks

- “Hook” mechanism for customization
  - Allows administrator to define scripts to modify VM operation
    - eg. Extend or modify VM configuration
Hooks

Virtualization Management the oVirt way
Hooks

• Hook scripts are called at specific VM lifecycle events
  • VDSM (management agent) Start
  • Before VM start
  • After VM start
  • Before VM migration in/out
  • After VM migration in/out
  • Before and After VM Pause
  • Before and After VM Continue
  • Before and After VM Hibernate
  • Before and After VM resume from hibernate
  • Before and After VM set ticket [New in 3.1]
  • On VM stop
  • On VDSM Stop

• Hooks can modify a virtual machines XML definition before VM start
• Hooks can run system commands – eg. Apply firewall rule to VM
### Edit Desktop Virtual Machine

<table>
<thead>
<tr>
<th>General</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Sysprep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Console</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource Allocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boot Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom Properties</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Custom Properties**

- **sap_agent**: true

---

**Virtualization Management the oVirt way**
Hooks installed in /usr/libexec/vdsm/hooks

[root@host1 ~]# cd /usr/libexec/vdsm/hooks/
[root@host1 hooks]# ls -l

total 68
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vdsm_stop
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_cont
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_dehiberate
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_destroy
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_hibernate
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_migrate_destination
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_migrate_source
drwxr-xr-x. 2 root root 4096 Apr 12 03:55 after_vm_pause

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vdsm_start

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_cont

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_dehiberate

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_hibernate

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_migrate_destination

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_migrate_source

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_pause

drwxr-xr-x. 2 root root 4096 Apr 12 03:55 before_vm_start

[root@host1 hooks]#

<table>
<thead>
<tr>
<th>Event Name</th>
<th>Script Name</th>
<th>Property Name</th>
<th>Property Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>before_vm_start</td>
<td>10_faqemu</td>
<td>md5</td>
<td>2c352c04ecf99c</td>
</tr>
</tbody>
</table>
Hooks

```python
#!/usr/bin/python

import os
import sys
import hooking
import traceback
from xml.dom import minidom

... watchdog vdsim hook
11 adding to domain xml
12 <watchdog model='i6300esb' action='reset'/>
13 ''
14
15 if os.environ.has_key('watchdog'):
16     try:
17         sys.stderr.write('watchdog: adding watchdog support\n')
18         domxml = hooking.read_domxml()
19
20         devices = domxml.getElementsByTagName('devices')[0]
21         card = domxml.createElement('watchdog')
22         card.setAttribute('model', 'i6300esb')
23         card.setAttribute('action', 'reset')
24
25         devices.appendChild(card)
26
27         hooking.write_domxml(domxml)
28     except:
29         sys.stderr.write('watchdog: [unexpected error]: %s\n' % traceback.format_exc())
30     sys.exit(2)
```
In the works (engine-devel@ovirt.org)

- Storage Live Migration
- Storage array integration
- SLA Manager
- Network Types
- Backup API
- NetStack/Quantum
- Libguestfs integration
- virt-resize, pv-resize

.....
How To Contribute or Download

- **Website and Repository:**
  - [http://www.ovirt.org](http://www.ovirt.org)
  - [http://www.ovirt.org/wiki](http://www.ovirt.org/wiki)
  - [http://www.ovirt.org/project/subprojects/](http://www.ovirt.org/project/subprojects/)

- **Mailing lists:**
  - [http://lists.ovirt.org/mailman/listinfo](http://lists.ovirt.org/mailman/listinfo)

- **IRC:**
  - #ovirt on OFTC
THANK YOU!

http://www.ovirt.org