Intro to oVirt

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oVirt Workshops

• Barcelona – 7-9 November 2012
  http://kvmforumovirtworkshop2012.sched.org/
  • Wednesday – oVirt for Users
  • Thursday – oVirt for Integrators
  • Friday – oVirt for Developers

• Sunnyvale, California - 22-24 January 2013
  (hosted by NetApp)
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
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
OPEN VIRTUALIZATION MANAGEMENT

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
## 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>

Virtualization Management the oVirt way
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
Adminsitration Console

Virtualization Management the oVirt way

<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>kaka</td>
<td>intel-cluster</td>
<td>ntt-wds2.qa.lab.u.red</td>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Down</td>
<td>1 day</td>
<td></td>
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<td>0%</td>
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<td>Up</td>
<td>1 day</td>
<td></td>
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<td>0%</td>
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<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Down</td>
<td>1 day</td>
<td></td>
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<td>0%</td>
<td>0%</td>
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<td>Down</td>
<td>1 day</td>
<td></td>
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<td>0%</td>
<td>0%</td>
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<td>Down</td>
<td>1 day</td>
<td></td>
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<td>Spice</td>
<td>Down</td>
<td>1 day</td>
<td></td>
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<td>intel-cluster</td>
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<td>0%</td>
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<td>Spice</td>
<td>Down</td>
<td>1 day</td>
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<td>intel-cluster</td>
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<td>0%</td>
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<td>Spice</td>
<td>Passed</td>
<td>5 days</td>
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<td>intel-cluster</td>
<td>ntt-wds2.qa.lab.u.red</td>
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<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Passed</td>
<td>5 days</td>
<td></td>
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<td>intel-cluster</td>
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<td>0%</td>
<td>Spice</td>
<td>Passed</td>
<td>5 days</td>
<td></td>
</tr>
<tr>
<td>myVm27</td>
<td>intel-cluster</td>
<td>ntt-wds2.qa.lab.u.red</td>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>Spice</td>
<td>Passed</td>
<td>5 days</td>
<td></td>
</tr>
</tbody>
</table>
Virtualization Management the oVirt way
Virtualization Management the oVirt way

Search Results
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
Virtualization Management the oVirt way
Setup Networks: Create Bond

• Drag an interface on top of another interface to bond the interfaces or to extend an existing bond
Setup Networks: Create Bond

- Drag an interface on top of another interface to bond the interfaces or to extend an existing bond.
Setup Networks: Edit Bond

- Click the pencil icon to edit bond configuration
Setup Networks: Attach Network

- Drag a network from the unassigned networks list to the interface/bond to be attached
Configure Storage Once for Entire Cluster

**Edit Domain**

- **Name**: hateya-ovirt-rc-1
- **Domain Function / Storage Type**: Data / iSCSI
- **Use Host**: ntt-edts2.qa.lab.tlv.redhat.com

### Targets

<table>
<thead>
<tr>
<th>LUN ID</th>
<th>Dev Size</th>
<th>Path</th>
<th>Vendor ID</th>
<th>Product ID</th>
<th>Serial</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>75 GB</td>
<td>/dev/virt/virt-sc-1</td>
<td>IET</td>
<td>VIRTUAL-C SIET_VIRTUAL-DISK</td>
<td></td>
</tr>
</tbody>
</table>

**General**

- **Size**: 74 GB
- **Available**: 18 GB
- **Used**: 56 GB
- **Over Allocation Ratio**: 2100%
Extend with More LUNs as Needed

Edit Domain

Name: hateya-ovirt-rc-1

Domain Function / Storage Type: Data / iSCSI

Use Host: net-ovts2.qa.lab.tlv.redhat.com

Discover Targets

Address: 10.35.64.81
Port: 3260

Targets - LUNs

Target Name: hateya-ovirt-rc1
Address: 10.35.64.81
Port: 3260

Browser Firefox version 9 is currently not supported.
Guide Me Dialogs

Virtualization Management the oVirt way

Data Centers

<table>
<thead>
<tr>
<th>Name</th>
<th>Storage Type</th>
<th>Status</th>
<th>Compatibility Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dc-30</td>
<td>NFS</td>
<td>Non-Responsive</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>dc-30-with-various-cluster NFS</td>
<td>NFS</td>
<td>Non-Responsive</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>dc-30-with-vlan-51</td>
<td>NFS</td>
<td>Uninitialized</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>dc-31</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dc-31-vlan-ovirtmgmt</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Default</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>demo-dc-32</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>test-net-on-31-dc</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>test-net-on-32-dc</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>test-vlan</td>
<td>NFS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New Data Center - Guide Me

There are still unconfigured entities:
- Configure Cluster
- Configure Host
- Configure Storage
- Attach Storage

Optional actions:
- Attach ISO Library

There should be at least one active Host in the Data Center

Configure Later
## Add Servers or Desktops

### New Server Virtual Machine

**General**
- **Data Center**: demo-dc-32
- **Host Cluster**: cluster-32

**Name**

**Description**

**Based on Template**: Blank

**Boot Options**

**Memory Size**: 512 MB

**Total Virtual CPUs**: 1

**Operating System**: Unassigned

### General
- **Host**: Zeus02

### Network Interfaces
- **Name**: nwfilter-vm
- **Description**:
- **Template**: Blank
- **Operating System**: Red Hat Enterprise Linux
- **Default Display Type**: Spice
- **Priority**: Low
Even Windows via Sysprep
Console Details (SPICE or VNC)
Host Aspects

New Server Virtual Machine

General
- Run On: Any Host in Cluster

Console
- Specific: grey-vdsh

Host

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
High Availability

Virtualization Management the oVirt way
Control Allocated Resources (Disk, Memory)
Virtualization Management the oVirt way

Boot Devices
Advanced Options via Custom Properties
Virtualization Management the oVirt way
Assign Permissions to Objects by Roles

Roles

System Permissions

New | Edit | Copy | Remove

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

Close
Define Your Own Roles
Gluster Management

Virtualization Management the oVirt way
Create Volume – Add Bricks
User Portal

Virtualization Management the oVirt way
## Self Provisioning Portal

### oVirt User Portal

### Virtual Machines

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Template</th>
<th>Operating System</th>
<th>Default Display Type</th>
<th>Priority</th>
<th>Defined Memory</th>
<th>Physical Memory Guaranteed</th>
<th>Number of CPU Cores</th>
<th>Highly Available</th>
<th>USB Policy</th>
<th>Resides on Storage Domain</th>
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<tbody>
<tr>
<td>kaka</td>
<td></td>
<td>fed16</td>
<td>Unassigned</td>
<td>Space</td>
<td>Low</td>
<td>1024 MB</td>
<td>512 MB</td>
<td>1 (1 Socket), 1 Core(s) per Socket</td>
<td>False</td>
<td>Enabled</td>
<td>hotplug-c-1</td>
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<td>myVm1</td>
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</table>
Virtualization Management the oVirt way

User Resource View

Virtual Machines:
- Defined VMs: 4
- Running VMs: 1
- Usage: 25%

Virtual CPUs:
- Defined vCPUs: 4
- Used vCPUs: 1
- Usage: 25%

Storage:
- Total Size: 700GB
- 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>
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<td>30GB</td>
<td>1</td>
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<td>Disk1 Disk2</td>
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<td>Disk1</td>
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### Repository

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Virtual Machines by OS (BR19)</strong></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><strong>Cluster Capacity Vs Usage (BR19)</strong></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><strong>Host OS Break Down (BR22)</strong></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><strong>Summary of Host Usage Resources (BR17)</strong></td>
<td>The report contains a scattered chart of CPU and memory usage date within a requested period and for a selected cluster.</td>
<td>October 18</td>
</tr>
</tbody>
</table>
ovirt Guest Agent

- 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
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
REST API

Virtualization Management the oVirt way
<hosts>
  - <host id="15896dce-eddd-415c-a524-c9b02f278895" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895">
    <name>naril1</name>
  </host>
  <actions>
    <link rel="install" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/install"/>
    <link rel="activate" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/activate"/>
    <link rel="fence" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/fence"/>
    <link rel="deactivate" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/deactivate"/>
    <link rel="approve" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/approve"/>
    <link rel="iscsilogin" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/iscsilogin"/>
    <link rel="iscsidiscover" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/iscsidiscover"/>
    <link rel="commitnetconfig" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/commitnetconfig"/>
  </actions>
  <link rel="storage" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/storage"/>
  <link rel="nics" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/nics"/>
  <link rel="tags" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/tags"/>
  <link rel="permissions" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/permissions"/>
  <link rel="statistics" href="/rhevm-api hosts/15896dce-eddd-415c-a524-c9b02f278895/statistics"/>
  <address>naril1.eng.lab.tv.redhat.com</address>
  <status>UP</status>
  <cluster id="4a5baf0e-7c6d-4d75-9aba-d60f3a188d0b" href="/rhevm-api/clusters/4a5baf0e-7c6d-4d75-9aba-d60f3a188d0b"/>
  <port>54321</port>
  <storage_manager>false</storage_manager>
  <power_management>
    <enabled>false</enabled>
  </power_management>
  <ksm>
    <enabled>false</enabled>
  </ksm>
  <transparent_hugepages>
    <enabled>true</enabled>
  </transparent_hugepages>
  <iscsi>
    <initiator>iqn.1994-05.com.redhat:a7afc41a35b0</initiator>
  </iscsi>
</hosts>
This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<host_nics>
  <host_nic id="dbb39d06-3aef-468c-83e6-88eae0a3f346" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346">
    <name>eth0</name>
  </host_nic>
  <actions>
    <link rel="attach" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346/attach"/>
    <link rel="detach" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/dbb39d06-3aef-468c-83e6-88eae0a3f346/detach"/>
  </actions>
</host_nics>
```

```
<host_nics>
  <host_nic id="0d98b08c-9b42-45a4-a226-b7dd3f0854c8f" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854c8f">
    <name>eth1</name>
  </host_nic>
  <actions>
    <link rel="attach" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854c8f/attach"/>
    <link rel="detach" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895/nics/0d98b08c-9b42-45a4-a226-b7dd3f0854c8f/detach"/>
  </actions>
</host_nics>
```

```
<host id="15896dce-ed00-415c-a524-c9b02f278895" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895">
  <name>rhevm</name>
</host>

<network>
  <ip netmask="255.255.255.0" address="10.35.16.151"/>
</network>
```

```
<host id="15896dce-ed00-415c-a524-c9b02f278895" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895">
  <name>rhevm</name>
</host>
```

```
<host id="15896dce-ed00-415c-a524-c9b02f278895" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895">
  <name>rhevm</name>
</host>
```

```
<host id="15896dce-ed00-415c-a524-c9b02f278895" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895">
  <name>rhevm</name>
</host>
```

```
<host id="15896dce-ed00-415c-a524-c9b02f278895" href="/rhevm-api/hosts/15896dce-ed00-415c-a524-c9b02f278895">
  <name>rhevm</name>
</host>
```
- Creating the proxy
  api = API(url='http://localhost:8080', username='user@domain', password='password')

- Listing all collections
  api.vms

- Listing collection's methods.
  api.vms.

- Querying collection with oVirt search engine.
  vms = api.vms.list(query = 'name=python_vm')

- Querying collection by custom constraint.
  vms = api.vms.list(memory=1073741824)

- Querying collection for specific resource.
  vm = api.vms.get(id = '02f0f4a4-9738-4731-83c4-293f3f734782')

- Accessing resource methods and properties.
  vm.start()
VIRTUALIZATION MANAGEMENT THE oVIRT WAY

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
    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

[vVirt shell (connected)]#
EOF connect create disconnect exit list shell status
action console delete echo help ping show update
[vVirt shell (connected)]#
[vVirt shell (connected)]#
[vVirt shell (connected)]# create
cdrom datacenter group network permission role storagedomain template vm
cluster disk host nic permit snapshot tag user vmpool
[vVirt shell (connected)]#
[vVirt shell (connected)]#
[vVirt shell (connected)]# create 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
domain-name os-cmdline type
display-monitors os-initRd usb-enabled
display-type os-kernel
[vVirt shell (connected)]#
[vVirt shell (connected)]#
[vVirt shell (connected)]#
[vVirt shell (connected)]#
[vVirt shell (connected)]# create nic
host vm
CLI - Smart Help

[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-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

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

```
(oVirt cli) > list clusters
id                        name                      description
---------------------------------- ------- ----------------------------------
80eed02c-ac7d-11e0-b702-0bf21e6d33af  b                      
7073b1ac-ef46-11e0-aa7c-d3e6f6b5731d  bb                     
82b1c018-ac7d-11e0-ac42-5b8d8dc7c92  c                      
63bc09b0-8b8b-11e0-bdc2-4356942887b3 Default_iscsi The default server cluster
99408929-82cf-4dc7-a532-9d998063fa95  Default_nfs          
ffb2d112-8cf0-11e0-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-ac42-5b8d8dc7c92  c                      
63bc09b0-8b8b-11e0-bdc2-4356942887b3 Default_iscsi The default server cluster
99408929-82cf-4dc7-a532-9d998063fa95  Default_nfs          
ffb2d112-8cf0-11e0-b34b-7f61455e6a71 Test_iscsi            
ada1672a-8cf1-11e0-9d3e-b75c5a33ec19  Test_nfs              
ad9bd996-a893-11e0-b174-e3232e67a091  Test_vlans            
```
oVirt High Level Architecture

- Postgres
- AD
- LDAP
- Shared Storage FC/iSCSI/NFS
- Admin Portal gwt
- SDK/CLI python
- User Portal gwt
- Linux/Windows client
- oVirt Engine Java
- REST
- Guest agent
- Guest agent
- Linux VM
- Win VM
- libvirt
- VDSM
- Host | Node
- Local Storage
- SPICE

Virtualization Management the oVirt way
oVirt Host Agent - VDSM

Host Config & Monitor

Storage Config & Monitor

Network Config & Monitor

VM Config & Monitor

Auto Register

Guest Agent

QEMU/KVM

libvirt

hooks

RHEL / RHEV-H

KSM

virto-serial

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
Hooks

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_dehibernate
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_terminate
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 after_vm_start
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_dehibernate
drwxr-xr-x.  2 root  root  4096 Apr 12 03:55 before_vm_terminate
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]#
#!/usr/bin/python

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

... 

watchdog v DSM hook
adding to domain xml
<watchdog model='i6300esb' action='reset'/>
```
if os.environ.has_key('watchdog'):
    try:
        stderr.write('watchdog: adding watchdog support\n')
        domxml = hooking.read_domxml()

        devices = domxml.getElementsByTagName('devices')[0]
        card = domxml.createElement('watchdog')
        card.setAttribute('model', 'i6300esb')
        card.setAttribute('action', 'reset')

        devices.appendChild(card)

        hooking.write_domxml(domxml)
    except:
        stderr.write('watchdog: [unexpected error]: %s\n' % 
                      traceback.format_exc())
        exit(2)
Release Cadence

- 02/2012 – oVirt 3.0 released
- 08/2012 – oVirt 3.1 released
- 12/2012 – oVirt 3.2 planned

oVirt Workshops

- Barcelona – 7-9 November 2012
  - Wednesday – oVirt for Users
  - Thursday – oVirt for Integrators
  - Friday – oVirt for Developers
- California - 22-24 January 2013
How To Contribute or Download

• Website and Repository:
  • http://www.ovirt.org
  • http://www.ovirt.org/wiki
  • http://www.ovirt.org/project/subprojects/

• Mailing lists:
  • http://lists.ovirt.org/mailman/listinfo

• IRC:
  • #ovirt on OFTC
THANK YOU!

http://www.ovirt.org