

Working with libvirt



David Clinton

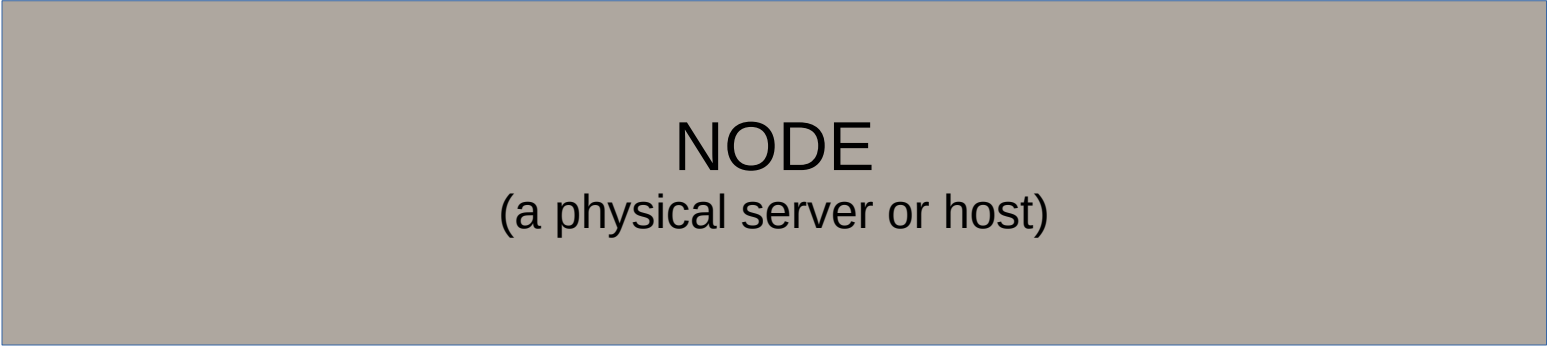
LINUX SYSTEM ADMINISTRATOR

@davidbclinton | www.bootstrap-it.com | www.bootstrap-it.com/blog

libvirt Interfaces

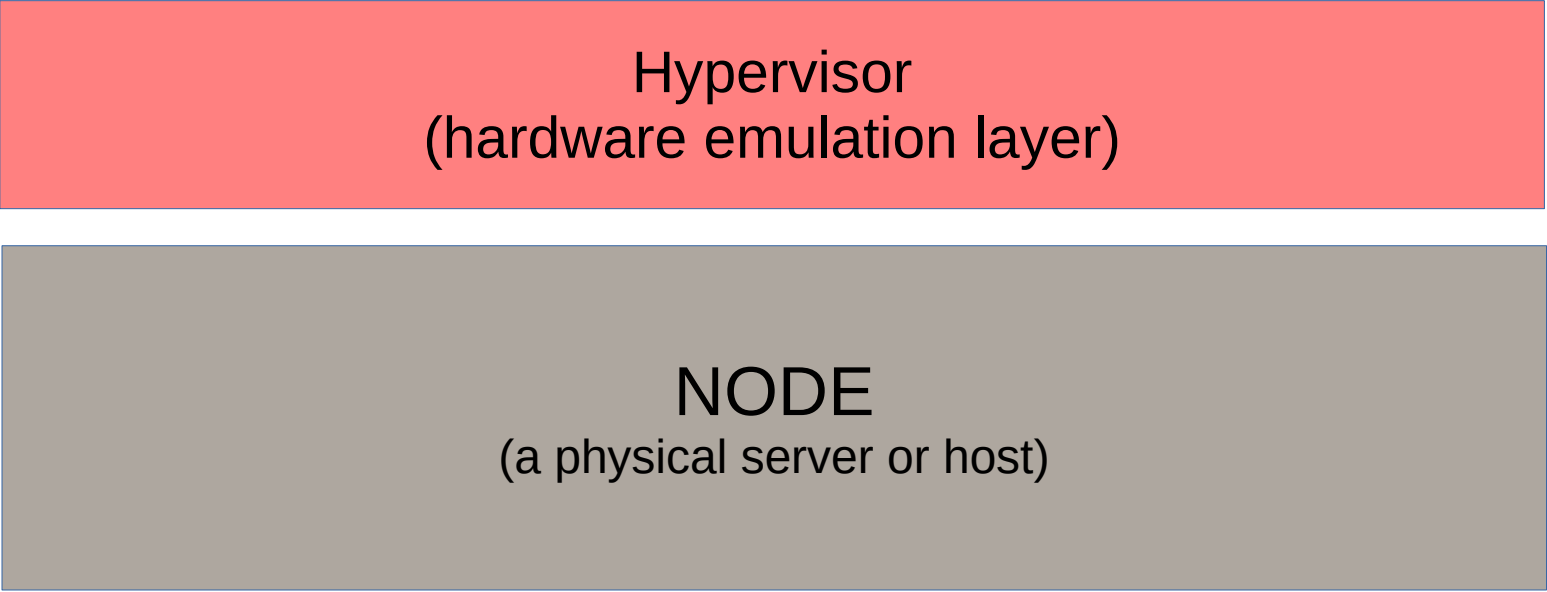
- Hypervisor drivers
- Command line shell (or GUI)
- API

The libvirt Naming Scheme



NODE
(a physical server or host)

The libvirt
Naming
Scheme

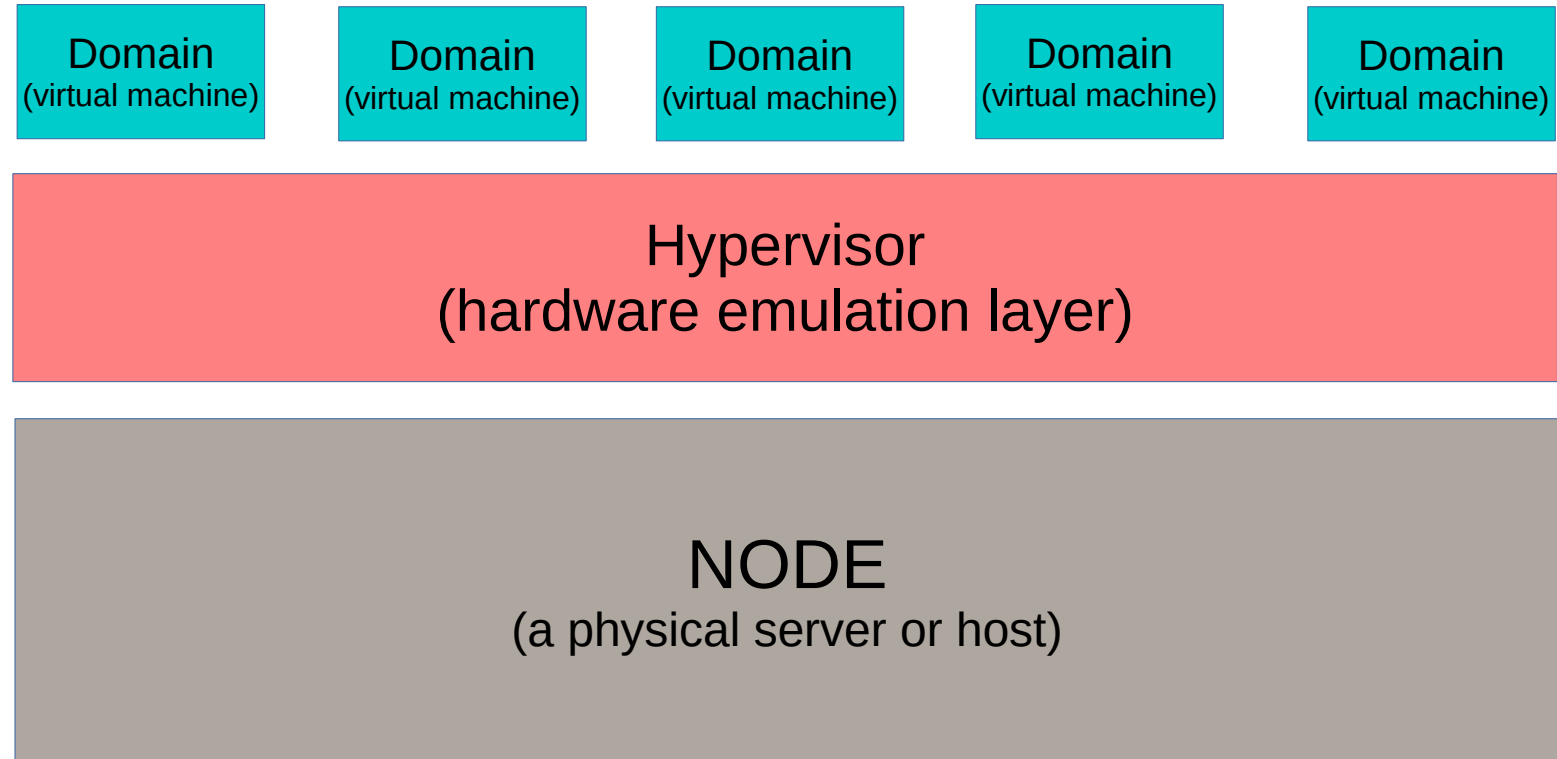


Hypervisor
(hardware emulation layer)

The diagram consists of two stacked rectangular boxes. The top box is light red and contains the text 'Hypervisor (hardware emulation layer)'. The bottom box is light gray and contains the text 'NODE (a physical server or host)'. A vertical orange line is positioned to the left of the boxes.

NODE
(a physical server or host)

The libvirt Naming Scheme



Environments
with libvirt
Emulation
Drivers

- Xen
- QEMU
- LXC
- OpenVZ
- UML (User Mode Linux)
- VirtualBox
- VMware ESX
- VMware Workstation/Player
- Microsoft Hyper-V
- IBM PowerVM (phyp)
- Virtuozzo
- Bhyve (the BSD hypervisor)
- Test (used for testing)

Storage
Backends
with libvirt
Emulation
Drivers

- Directory
- Local filesystem
- Network filesystem
- Logical Volume Manager (LVM)
- Disk
- iSCSI
- SCSI
- Multipath
- RBD (RADOS Block Device)
- Sheepdog

Working with VirtualBox

Installing libvirt and Creating a Domain

virt-install Parameters

```
virt-install -n my_vm -r 256  
--disk path=/var/lib/libvirt/images/my_vm.img,bus=virtio,size=4 \  
-c ubuntu-14.04.4-server-amd64.iso \  
--network network=default,model=virtio \  
--graphics vnc,listen=0.0.0.0 --noautoconsole -v
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```

Working with Virsh

Sample XML Configuration File

Courtesy of:
<http://libvirt.org/drvqemu.html>

```
<domain type='qemu'>
  <name>QEmu-fedora-i686</name>
  <uuid>c7a5fdbd-cdaf-9455-926a-d65c16db1809</uuid>
  <memory>219200</memory>
  <currentMemory>219200</currentMemory>
  <vcpu>2</vcpu>
  <os>
    <type arch='i686' machine='pc'>hvm</type>
    <boot dev='cdrom'/>
  </os>
  <devices>
    <emulator>/usr/bin/qemu-system-x86_64</emulator>
    <disk type='file' device='cdrom'>
      <source file='/home/user/boot.iso'/>
      <target dev='hdc'/>
      <readonly/>
    </disk>
    <disk type='file' device='disk'>
      <source file='/home/user/fedora.img'/>
      <target dev='hda'/>
    </disk>
    <interface type='network'>
      <source network='default'/>
    </interface>
    <graphics type='vnc' port='-1'/>
  </devices>
```

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Virsh
Editing
Tools

Virtual networks:

net-edit

net-dumpxml

Storage pools:

pool-edit

pool-dumpxml

Storage volumes:

vol-edit

vol-dumpxml

Interfaces:

iface-edit

iface-dumpxml

Working with GUI Administration Managers

The libvirt API

A Python API Call

```
import libvirt
conn = libvirt.open('qemu:///system')
for id in conn.listDomainsID():
    dom = conn.lookupByID(id)
    print "Dom %s State %s" % ( dom.name(), dom.info()[0] )
    dom.suspend()
    print "Dom %s State %s (after suspend)" % ( dom.name(), dom.info()[0] )
    dom.resume()
    print "Dom %s State %s (after resume)" % ( dom.name(), dom.info()[0] )
    dom.destroy()
```

A Python API Call

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import libvirt
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API Access
by Object

- network (virNetworkPtr)
- storage volume (virStorageVolPtr)
- storage pool (virStoragePoolPtr)

Review

Node: physical host (server)

Hypervisor: VM management software

Domain: virtual machine

Configuration file: /etc/libvirt/

File systems: /var/lib/libvirt

virt-install -n my_vm -r 256 ...

--network network=default

--disk path=/var/lib/libvirt/images/my_vm.img

sudo virsh create /etc/libvirt/qemu/filename.xml

sudo virsh edit my_vm

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virt-manager

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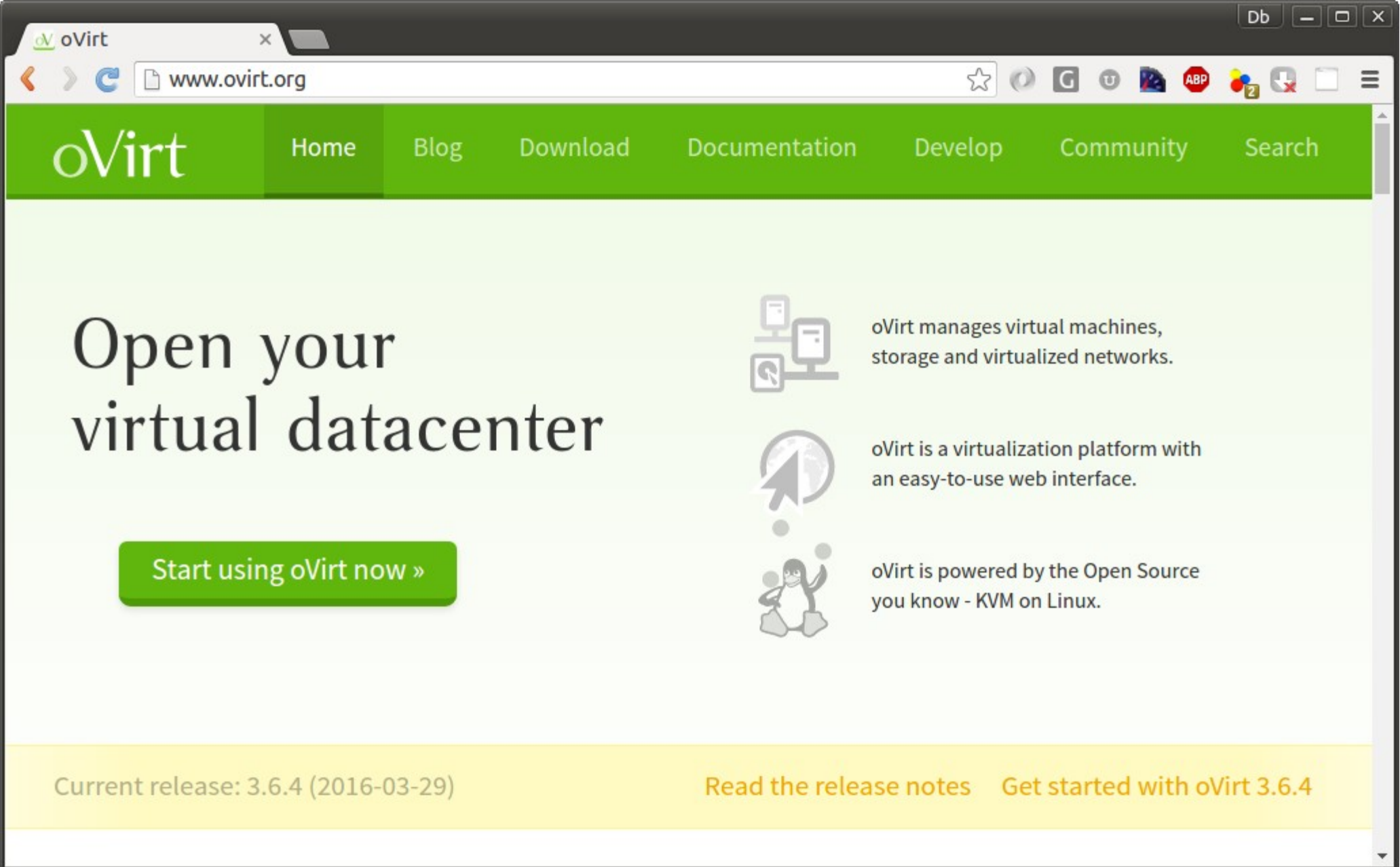
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- storage volume (virStorageVolPtr)
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libvirt API documentation:

www.libvirt.org/html/index.html

oVirt






The screenshot shows the oVirt website homepage in a web browser. The browser's address bar displays 'www.ovirt.org'. The website has a green header with the oVirt logo and navigation links: Home, Blog, Download, Documentation, Develop, Community, and Search. The main content area features the headline 'Open your virtual datacenter' and a green button labeled 'Start using oVirt now »'. To the right, three icons with accompanying text describe oVirt's capabilities: managing virtual machines and networks, providing an easy-to-use web interface, and being powered by Open Source KVM on Linux. A yellow footer bar contains the text 'Current release: 3.6.4 (2016-03-29)' and two links: 'Read the release notes' and 'Get started with oVirt 3.6.4'.

oVirt

Home Blog Download Documentation Develop Community Search

Open your virtual datacenter

[Start using oVirt now »](#)

-  oVirt manages virtual machines, storage and virtualized networks.
-  oVirt is a virtualization platform with an easy-to-use web interface.
-  oVirt is powered by the Open Source you know - KVM on Linux.

Current release: 3.6.4 (2016-03-29) [Read the release notes](#) [Get started with oVirt 3.6.4](#)

oVirt Interface

Activities Firefox Fri 22:13 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

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

Tree

- System
 - Default
 - ISCSI-RC-DC
 - Storage
 - Templates
 - Clusters
 - intel-cluster
 - Hosts
 - nott-ids2.qa.lab.tlv.red
 - nott-ids3.qa.lab.tlv.red
 - VMs
 - NFS-RC-DC
 - Storage
 - Templates
 - Clusters

Bookmarks

Tags

Name	Cluster	Host	IP Address	Memory	CPU	Network	Display	Status	Uptime	Logged-in User
kaka	intel-cluster			0%	0%	0%		Down		
my/vm1	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	6%	0%	Spice	Up	1 day	
my/vm10	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm11	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm12	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm13	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm15	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm16	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm17	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Up	1 day	
my/vm18	intel-cluster			0%	0%	0%		Down		
my/vm19	intel-cluster			0%	0%	0%		Down		
my/vm2	intel-cluster			0%	0%	0%		Down		
my/vm20	intel-cluster			0%	0%	0%		Down		
my/vm21	intel-cluster			0%	0%	0%		Down		
my/vm22	intel-cluster			0%	0%	0%		Down		
my/vm23	intel-cluster			0%	0%	0%		Down		
my/vm24	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	
my/vm25	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	6%	0%	Spice	Paused	5 days	
my/vm26	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	
my/vm27	intel-cluster	nott-ids2.qa.lab.tlv.red		0%	0%	0%	Spice	Paused	5 days	

Last Message: 2012-Jan-31, 23:18 A1 User admin@internal logged in

3 Alerts Events

Browser Firefox version 9 is currently not supported.