

# Utilizing oVirt's extensibility to fit your needs

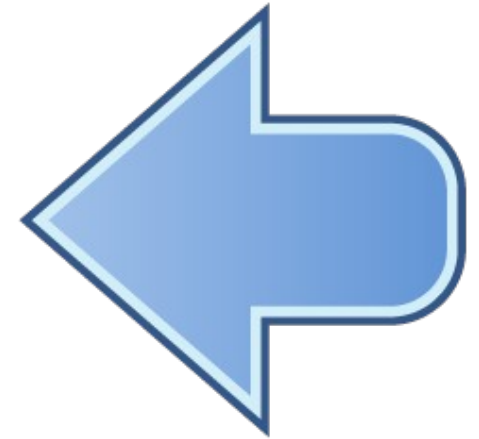
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Red Hat

Infrastructure.Next  
February 2014

# Agenda

oVirt

- Part 1 – Consuming oVirt
  - oVirt API
  - oVirt SDK
  - SNMP (New in 3.4!)
- Part 2 – Extending oVirt
  - VDSM hooks
  - Scheduling API
  - UI Plugins



# **oVirt API**

# What can I do via API?

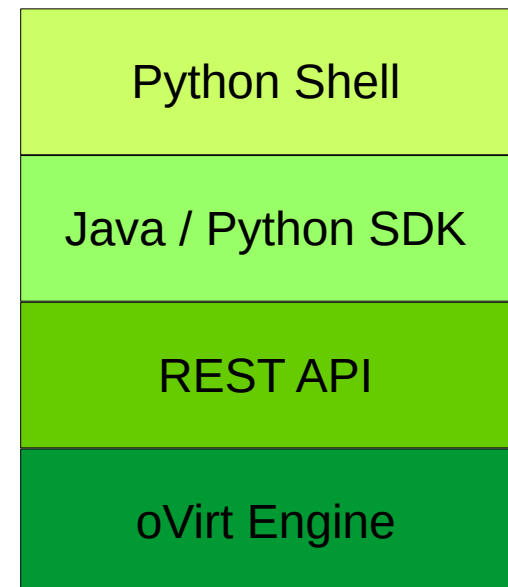


- Access via REST/SDK/Shell
- Infrastructure configuration
- Virtual machine (VM) configuration and management
  - Networking for the Guest, Virtual disks, VM properties
- User permissions management
- Advanced operations not available in the GUI

# API Concepts



- All APIs integrate through the oVirt engine
- All types of APIs are based on web services interface
- Backward and forward compatibility
- Secure access
- Session-based access



# API methods



## REST

`https://host:port  
/api/vms`

Returns:

- XML/JSON/...

```
<vm id="aee0dbce-1591-44d4-9052-  
c2209b3e45b8" href="/api/vms/aee0dbce-  
1591-44d4-9052-c2209b3e45b8">  
  <name>Austin</name><actions>  
    <link rel="shutdown"  
href="/api/vms/aee0dbce-1591-44d4-  
9052-c2209b3e45b8/shutdown"/>  
    <link rel="start"  
href="/api/vms/aee0dbce-1591-44d4-  
9052-c2209b3e45b8/start"/>  
  .....</vm>
```

## SDK

(Python/Java)

`api.vms.list()`

Returns:

- list of VM objects

## Shell

`list vms`

Returns:

- Formatted text

```
id                :  
18df94a7-048f-4306-9cfd-  
a74e8ea3b907  
name              : Boston  
description       : Main  
service for Boston  
cluster-id       :  
99408929-82cf-4dc7-a532-  
9d998063fa95  
cpu-topology-cores : 2  
cpu-topology-sockets : 1
```

# **oVirt SDK**

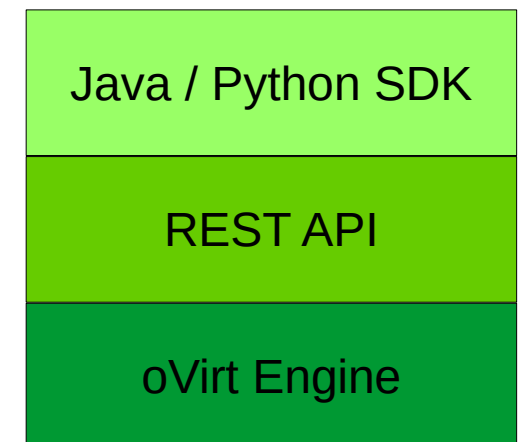
- Mainly used for integration or advanced automation
- Object oriented
- Current bindings
  - Java - <http://www.ovirt.org/Java-sdk>
  - Python - <http://www.ovirt.org/Python-sdk>
  - libgovirt (GObject wrapper for the oVirt REST API) - <https://github.com/GNOME/libgovirt>
  - rbovirt: ruby binding for the oVirt REST API - <https://github.com/abenari/rbovirt>



# oVirt SDK - Concepts



- Complete protocol abstraction
- Full compliance with the oVirt API architecture
- Self descriptive, intuitive and easy to use
- Auto-generated
- Auto-completion\*



\* On supported environments

# oVirt SDK - Example: Basics

```
from ovirtsdk.api import API
```

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

# oVirt SDK - Example: Basics

```
from ovirtsdk.api import API
```

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

```
api.v
```

• vmpools

• vms

• vnicrofiles

Press Ctrl+Space for templates.

# oVirt SDK - Example: Basics

```
from ovirtsdk.api import API
```

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

```
api.vms.
```

 `add(vm, correlation_id, expect_`

 `context()`

 `get(name, id)`

 `list(query, case_sensitive, m`

Press Ctrl+Space for templates.

# oVirt SDK Example: Adding a VM



```
from ovirtsdk.api import API
from ovirtsdk.xml import params

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

cluster = api.clusters.get(name='Default')
template = api.templates.get(name='RHEL7_0')
param = params.VM(name='RHEL_VM1',
                  cluster=cluster,
                  template=template,
                  memory=4*1024**3)
vm1 = api.vms.add(param)
```

# **SNMP support**

- Coming in oVirt 3.4
- oVirt generated events may be sent as traps

Allows integration with monitoring systems such as Nagios, BMC Patrol, HP OpenView, etc.

- Raw example

```
SNMPv2-MIB::snmpTrapOID.0 = OID: SNMPv2-SMI::enterprises.2312.13.1.0.30
SNMPv2-SMI::enterprises.2312.13.1.0.30.0 = STRING: "User admin@internal logged
in." SNMPv2-SMI::enterprises.2312.13.1.0.30.1 = STRING: "NORMAL" SNMPv2-
SMI::enterprises.2312.13.1.0.30.2 = STRING: "alertMessage" SNMPv2-
SMI::enterprises.2312.13.1.0.30.3 = STRING: "2014-01-12 07:14:22.576"
```

## Trap structure

OID	Type	Value
SNMPv2-MIB::snmpTrapOID.0	STRING	event message
SNMPv2-MIB::snmpTrapOID.1	STRING	Severity (NORMAL, WARNING or ERROR)
SNMPv2-MIB::snmpTrapOID.2	STRING	Type (ALERT_MESSAGE or RESOLVED_MESSAGE)
SNMPv2-MIB::snmpTrapOID.3	STRING	Log time



- Every event type will have '**Up**'
  - VM\_MIGRATION\_START
- Some have '**Down**'
  - VM\_MIGRATION\_DONE

**More:** <http://www.ovirt.org/Features/engine-snmp>



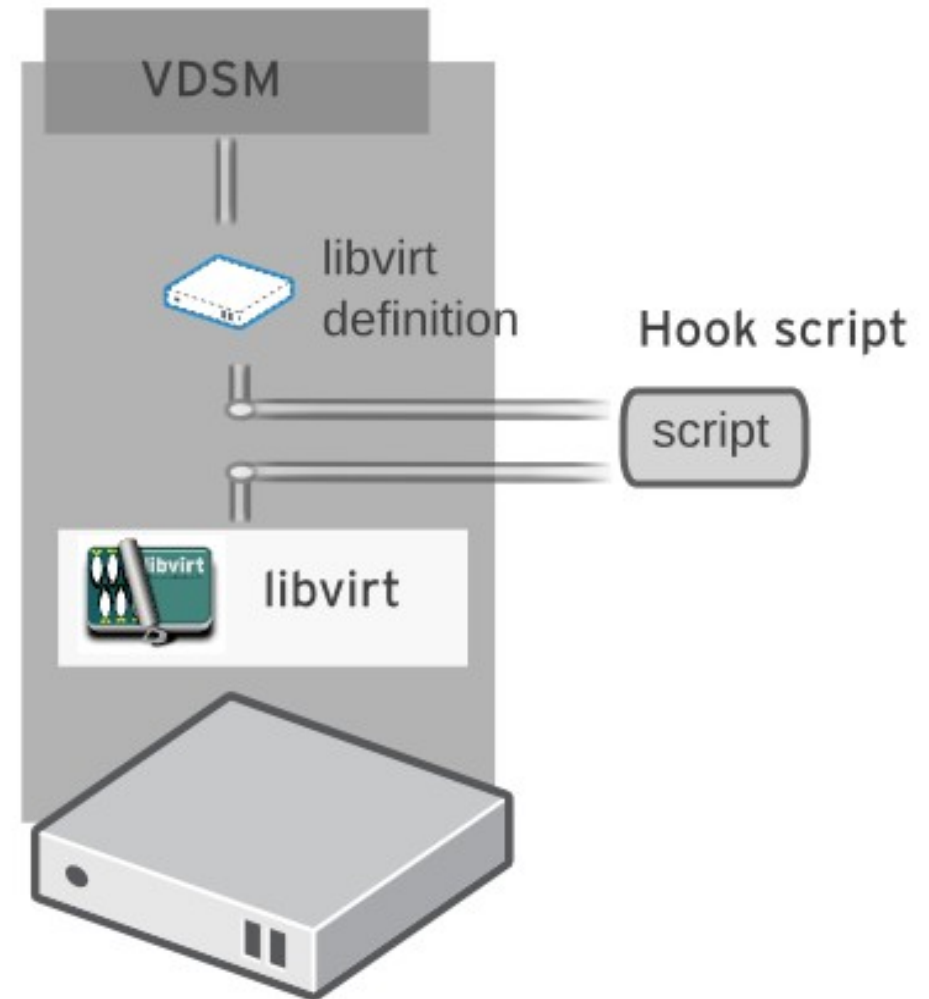
- Part 1 – Consuming oVirt
  - Introduction
  - oVirt API
  - oVirt SDK
  - SNMP (New in 3.4!)
- Part 2 – Extending oVirt
  - VDSM hooks
  - Scheduling API
  - UI Plugins



# **VDSM Hooks**

# Hooks

- VDSM manages a hypervisor
- “Hook” mechanism for customization
  - Allows administrator to define scripts to modify VM/VDSM operation
    - Extend or modify VM configuration
    - Run different system scripts

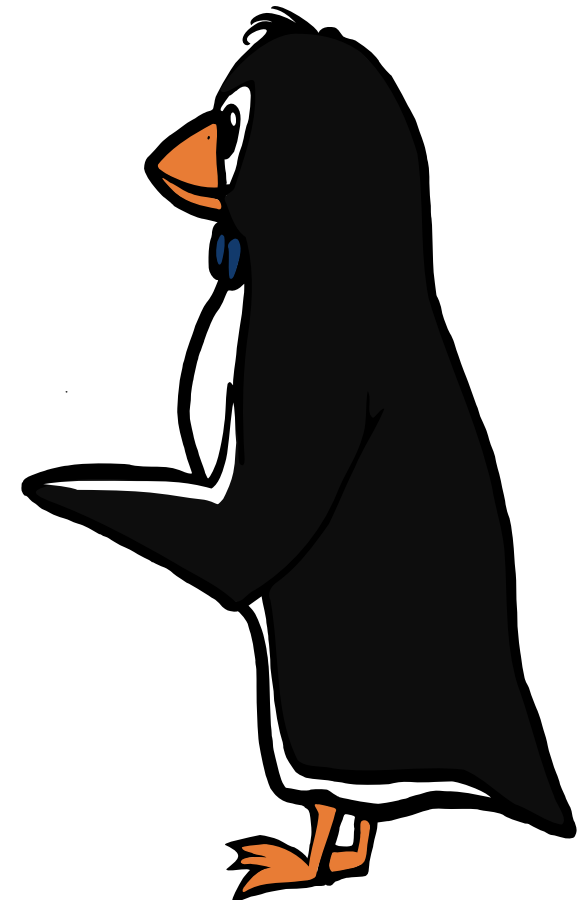


- Hook scripts are called at specific events
- Hooks can modify a virtual machines XML definition before VM start
- Hooks can run system commands – eg. Apply firewall rule to VM
- More info:
  - [http://www.ovirt.org/Vdsm\\_Hooks](http://www.ovirt.org/Vdsm_Hooks)
  - [http://www.ovirt.org/VDSM-Hooks\\_Catalogue](http://www.ovirt.org/VDSM-Hooks_Catalogue)

# Hook Entry Points



- Lifecycle events where you can apply hooks
  - VDSM (management agent) start
  - VDSM stop
  - VM start
  - VM stop
  - VM migration in/out
  - VM Pause
  - VM Continue
  - VM Hibernate
  - VM resume from hibernate
  - VM set ticket
  - NIC hotplug / hotunplug
  - On host networking configuration change



# Hook Example

```
import os
import hooking

def removeMacSpoofingFilter(interface):
    for filterElement in interface.getElementsByTagName('filterref'):
        if isMacSpoofingFilter(filterElement):
            interface.removeChild(filterElement)

def isMacSpoofingFilter(filterElement):
    """
    Accept a filter DOM element
    and checks if it's a mac spoofing filter
    """
    filterValue = filterElement.getAttribute('filter')
    return filterValue == 'vdsm-no-mac-spoofing'

if __name__ == '__main__':
    if hooking.tobool(os.environ.get('ifacemacspoof')):
        domxml = hooking.read_domxml()
        interface, = domxml.getElementsByTagName('interface')
        removeMacSpoofingFilter(interface)
        hooking.write_domxml(domxml)
```

# Scheduling API



## The need - **construct user-defined scheduling policy**

*Re: [Users] How to define max number of running VMs on a host?*

*....*

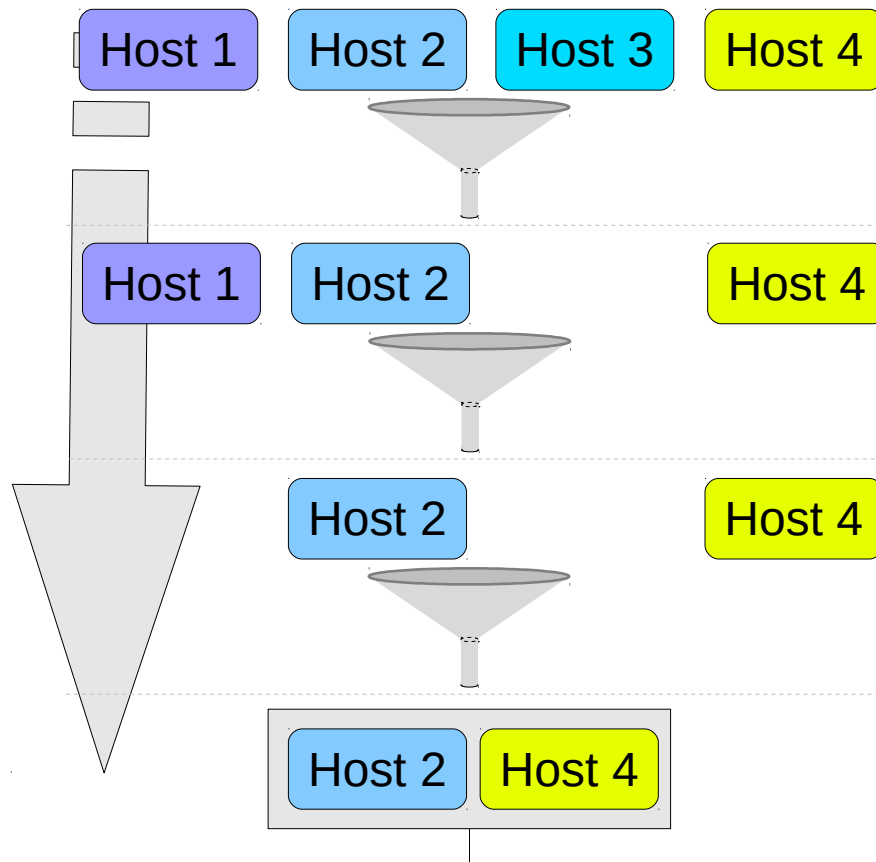
*I have 4 graphic workstations with 3 graphic cards on each. I wanna passthrough graphic cards to the VMs one by one, since one workstation has only 3 cards, I must limit the number of running VM on a host to 3.*

# Scheduling Mechanism



- Scheduling policy consists of
  - Filter(s)
  - Weight(s)
  - Load balancing module
- Python supported external modules
- Assign the desired policy for a cluster
- More info:
  - <http://goo.gl/senjQA> - Sample policy units catalog
  - [http://www.ovirt.org/External\\_Scheduler\\_Samples](http://www.ovirt.org/External_Scheduler_Samples)

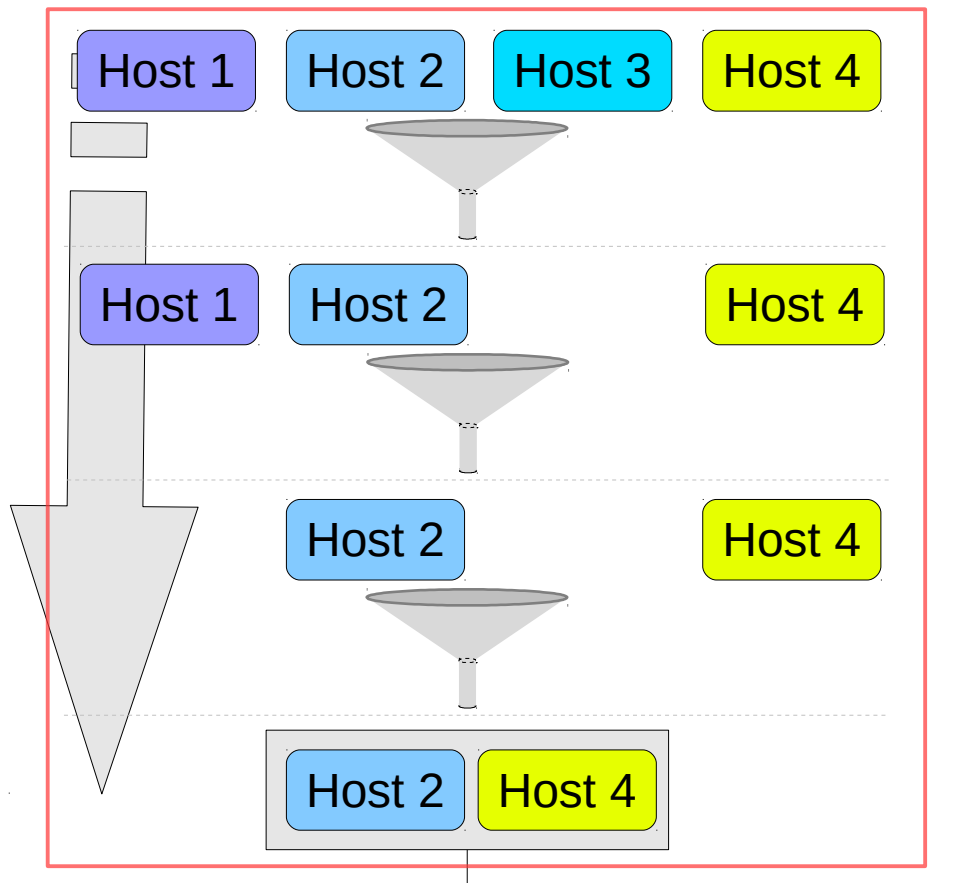
# Scheduling Mechanism



	func 1	func 2	sum
Factor	5	2	
Host 2	10	2	54
Host 4	3	12	<b>39*</b>

\*Host 4 sum:  $3*5+12*2 = 39$

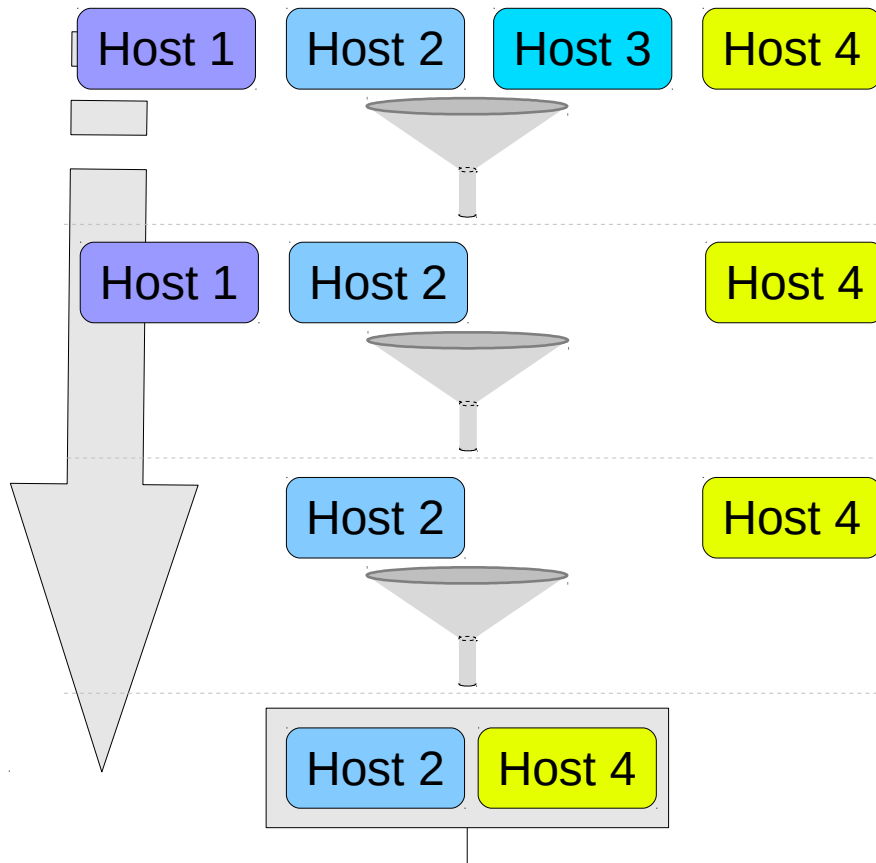
# Filter Module



	func 1	func 2	sum
Factor	5	2	
Host 2	10	2	54
Host 4	3	12	<b>39*</b>

\*Host 4 sum:  $3*5+12*2 = 39$

# Weight Module

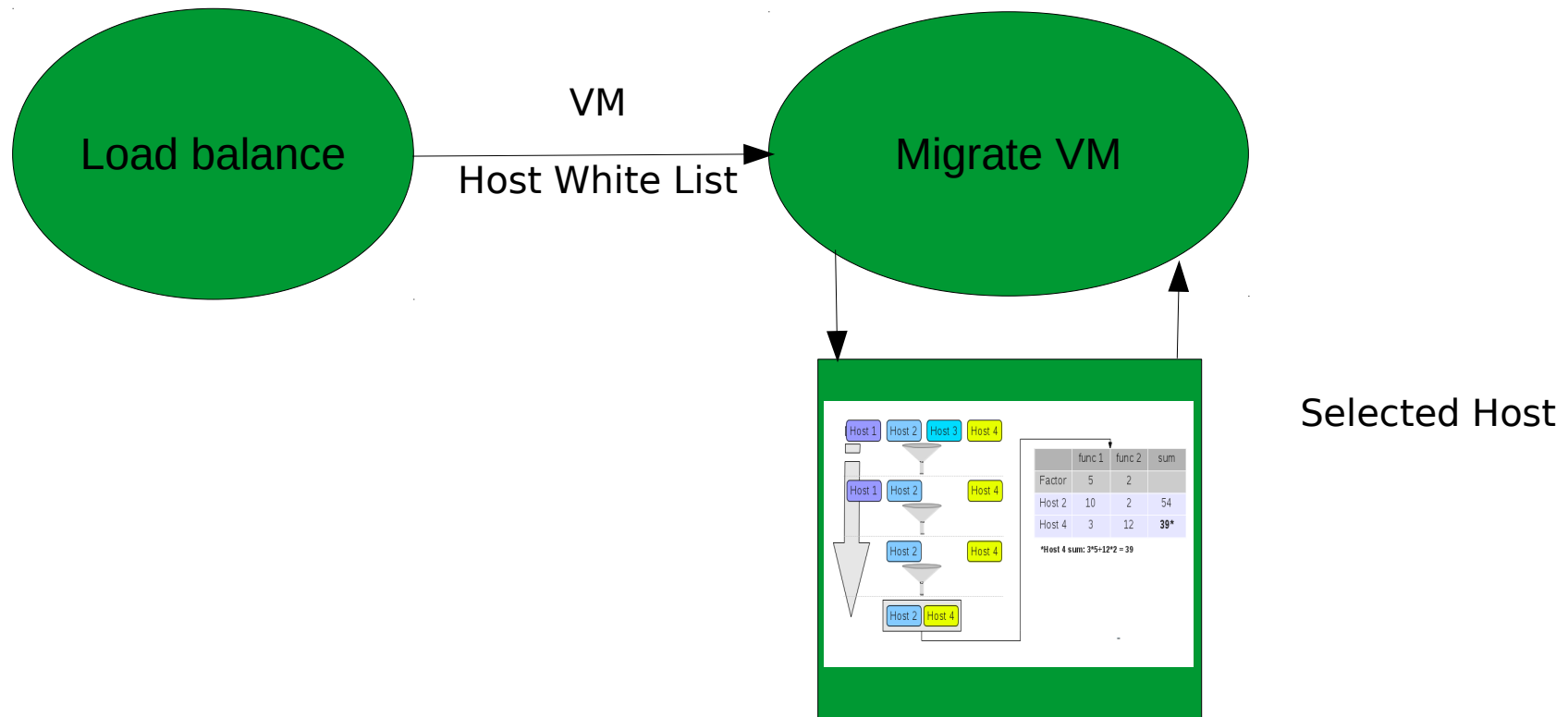


	func 1	func 2	sum
Factor	5	2	
Host 2	10	2	54
Host 4	3	12	<b>39*</b>

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# Load Balancing

- Triggers a scheduled task to determine which VM needs to be migrated
- A single load balancing logic is allowed per cluster



# Let's go back to the example



*Re: [Users] How to define max number of running VMs on a host?*

*....*

*I have 4 graphic workstations with 3 graphic cards on each. I wanna passthrough graphic cards to the VMs one by one, since one workstation has only 3 cards, I must limit the number of running VM on a host to 3.*

**Filter: filters out hosts with number running of vms > 3**

# Filter Example



```
class max_vms():
    '''returns only hosts with less running vms then the maximum'''

    #What are the values this module will accept, used to present
    #the user with options
    properties_validation = 'maximum_vm_count=[0-9]*'

    def do_filter(self, hosts_ids, vm_id, args_map):
        #open a connection to the rest api
        try:
            connection = API(url='http://host:port',
                             username='user@domain', password='')
        except BaseException as ex:
            #letting the external proxy know there was an error
            print >> sys.stderr, ex
            return

        #get our parameters from the map
        maximum_vm_count = int(args_map.get('maximum_vm_count', 100))

        #get all the hosts with the given ids
        engine_hosts = \
            connection.hosts.list(
                query=" or ".join(["id=%s" % u for u in hosts_ids]))

        #iterate over them and decide which to accept
        accepted_host_ids = []
        for engine_host in engine_hosts:
            if(engine_host and
                engine_host.summary.active < maximum_vm_count):
                accepted_host_ids.append(engine_host.id)
        print accepted_host_ids
```



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```

# External Policy Units



- Scheduler proxy is scanning directory /usr/share/ovirt-scheduler-proxy/plugins for python source files
- Analyze for filter / weight / balance functions
- Cache results
- Expose source files as external policy units

# Cluster Policy Management



Configure

Roles

System Permissions

Cluster Policies

New Edit Copy Remove

Name
Evenly_Distributed
None
Power_Saving
Copy_of_None
max_vms

Attached Clusters

Edit Cluster Policy

Name max\_vms Description

Filter Modules Drag or use context menu to make changes

Enabled Filters

CPU

Network

(EXT) max\_vms

Disabled Filters

(EXT) dummy

(EXT) example

Weights Modules Drag or use context menu to make changes

Enabled Weights & Factors

1 (EXT) even\_vm\_distribution

Disabled Weights

None

(EXT) dummy

PowerSaving

EvenDistribution

Load Balancer

vm\_balance (EXT)

Properties

maximum\_vm\_count 3

OK Reset Cancel

# Cluster Policy Management



The screenshot displays the oVirt Cluster Policy Management interface. On the left, a sidebar shows the 'Configure' menu with options for Roles, System Permissions, and Cluster Policies. The 'Cluster Policies' section is active, showing a list of policies: 'Evenly\_Distributed', 'None', and 'Power\_Saving'. A red box highlights the 'Filter Modules' section, which is also highlighted in the main window. The 'Filter Modules' section is titled 'Filter Modules' and includes a subtitle 'Drag or use context menu to make changes'. It contains two columns: 'Enabled Filters' and 'Disabled Filters'. The 'Enabled Filters' column lists 'CPU' and 'Network'. The 'Disabled Filters' column lists '(EXT) dummy' and '(EXT) example'. A red box also highlights the 'Properties' section, which shows the 'maximum\_vm\_count' property set to 3. The interface includes standard buttons for 'OK', 'Reset', and 'Cancel'.

**Edit Cluster Policy**

Name: max\_vms Description:

**Filter Modules** Drag or use context menu to make changes

Enabled Filters

- CPU
- Network

Disabled Filters

- (EXT) dummy
- (EXT) example

**Filter Modules** Drag or use context menu to make changes

Enabled Filters

- CPU
- Network
- (EXT) max\_vms

Disabled Filters

- (EXT) dummy
- (EXT) example

**Properties**

maximum\_vm\_count 3 + -

OK Reset Cancel

# Cluster Policy Management



Configure

Roles

System Permissions

Cluster Policies

New Edit Copy Remove

Name
Evenly_Distributed
None
Power_Saving
Copy_of_None
max_vms

Edit Cluster Policy

Name max\_vms Description

Filter Modules Drag or use context menu to make changes

Enabled Filters

CPU

Network

(EXT) max\_vms

Disabled Filters

(EXT) dummy

(EXT) example

Weights Modules Drag or use context menu to make changes

Enabled Weights & Factors

1 + (EXT) even\_vm\_distribution

Disabled Weights

None

(EXT) dummy

PowerSaving

maximum\_vm\_count 3 + -

OK Reset Cancel



# Cluster Policy Management



Configure

Roles

System Permissions

Cluster Policies

New Edit Copy Remove

Name
Evenly_Distributed
None
Power_Saving
Copy_of_None
max_vms

Edit Cluster Policy

Name max\_vms Description

Filter Modules Drag or use context menu to make changes

Enabled Filters

CPU

Network

(EXT) max\_vms

Disabled Filters

(EXT) dummy

(EXT) example

Weights Modules Drag or use context menu to make changes

Enabled Weights & Factors

Disabled Weights

vm\_balance (EXT)

Load Balancer

vm\_balance (EXT)

Properties

maximum\_vm\_count 3

Attached Clusters

OK

Reset

Cancel

# Apply Cluster Policy



The image shows a screenshot of the "Edit Cluster" dialog box in oVirt. The "Cluster Policy" tab is selected in the left-hand menu. The "Select Policy" dropdown is set to "max\_vms". Under the "Properties" section, the "maximum\_vm\_count" is set to 2. A red box highlights the "Select Policy" and "Properties" sections. Below this, a larger red box provides a magnified view of the "Select Policy" dropdown, showing "max\_vms" as the selected option. At the bottom right of the dialog are "OK" and "Cancel" buttons.

**Edit Cluster**

General  
Optimization  
Resilience Policy  
**Cluster Policy**

Select Policy: max\_vms

**Properties**

maximum\_vm\_count: 2

Select Policy: max\_vms

Properties

OK Cancel

# UI Plugins

# Web Admin user interface



## Extend oVirt Web Admin user interface

The screenshot displays the oVirt Web Admin interface. The top navigation bar includes the oVirt logo, "Open Virtualization Manager", and a login status for "admin@internal". A search bar is located below the navigation bar. The main content area is divided into a left sidebar and a central table.

**Left Sidebar:**

- Tree:** Expand All, Collapse All
- System:**
  - Default
  - MyDC
    - Storage
    - Networks
    - Templates
  - Clusters
    - MyCluster
      - Hosts
        - dev01aaa
  - VMs

**Central Table:**

Tab: Hosts

Actions: New, Edit, Remove, Activate, Maintenance, Configure Local Storage, Power Management, Assign Tags

Name	Hostname/IP	Cluster	Data Center	Status	Running VMs	Memory	CPU	Network	SPM
dev01aaa	10.34.63.161	MyCluster	MyDC	Up	0	16%	0%	0%	Normal
test	10.34.60.88	Default	Default	Maintenance	0	0%	0%	0%	Normal

**Bottom Bar:**

Last Message: 2013-Jan-09, 17:01 User admin@internal logged in. Alerts (5) Events Tasks (0)

# Web Admin user interface



oVirt Open Virtualization Manager

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

Search: Host:

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

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags

Name	Hostname/IP	Cluster	Data Center	Status	Running VMs	Memory	CPU	Network	SPM
dev01aaa	10.34.63.161	MyCluster	MyDC	Up	0	16%	0%	0%	Normal
test	10.34.60.88	Default	Default	Maintenance	0	0%	0%	0%	Normal

**Tree**

Expand All Collapse All

- System
  - Default
  - MyDC
    - Storage
    - Networks
    - Templates
  - Clusters
    - MyCluster
      - Hosts
        - dev01aaa
        - VMs

**Bookmarks**

**Tags**

Last Message: 2013-Jan-09, 17:01 User admin@internal logged in.

Alerts (5) Events Tasks (0)

# Web Admin user interface



oVirt Open Virtualization Manager

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

Search: Host:

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

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags

Name	Hostname/IP	Cluster	Data Center	Status	Running VMs	Memory	CPU	Network	SPM
dev01aaa	10.34.63.161	MyCluster	MyDC	Up	0	16%	0%	0%	Normal
test	10.34.60.88	Default	Default	Maintenance	0	0%	0%	0%	Normal

Tree

Expand All Collapse All

- System
  - Default
  - MyDC
    - Storage
    - Networks
    - Templates
    - Clusters
      - MyCluster
        - Hosts
          - dev01aaa
            - VMs

Bookmarks

Tags

General Virtual Machines Network Interfaces Host Hooks Permissions Hardware Information Events

OS Version: RHEL - 6Server - 6.1.0.2.e Active VMs: 0 Physical Memory: 7861 MB total, 1258 MB use

Kernel Version: 2.6.32 - 131.6.1.el6.x86\_64 CPU Name: Intel Nehalem Family Swap Size: 1023 MB total, 0 MB used, 1

KVM Version: 0.12.1.2 - 2.184.el6 CPU Type: Intel(R) Xeon(R) CPU Shared Memory: 0%

LIBVIRT Version: 0.9.4 - 7.2.el6 CPU Sockets: 1 Max free Memory for scheduling new VMs: 7605 MB

VDSM Version: vdsd-4.9-104.el6 CPU Cores per Socket: 8 Memory Page Sharing: Inactive

SPICE Version: 0.8.2 - 3.el6 CPU Threads per Core: Unsupported Automatic Large Pages: Always

iSCSI Initiator Name: iqn.1994-05.com.redhat:b

Action Items

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

Last Message: 2013-Jan-09, 17:05 User admin@internal logged in. Alerts (5) Events Tasks (0)

# Web Admin user interface



oVirt Open Virtualization Manager

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

Search: Host:

**Hosts**

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags

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dev01aaa	10.34.63.161	MyCluster	MyDC	Up	0	16%	0%	0%	Normal
test	10.34.60.88	Default	Default	Maintenance	0	0%	0%	0%	Normal

**Tree**

Expand All Collapse All

- System
  - Default
  - MyDC
    - Storage
    - Networks
    - Templates
  - Clusters
    - MyCluster
      - Hosts
        - dev01aaa
        - VMs

**Bookmarks**

**Tags**

Last Message: 2013-Jan-09, 17:01 User admin@internal logged in.

Alerts (5) Events Tasks (0)

# Web Admin user interface



oVirt Open Virtualization Manager

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

Search: Host: [x] [star] [magnifying glass]

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

New Edit Remove Activate **Maintenance** Configure Local Storage Power Management Assign Tags

Name	Hostname/IP	Cluster	Data Center	Status	Running VMs	Memory	CPU	Network	SPM
dev01aaa	10.34.63.161	MyCluster		Up	0	16%	0%	0%	Normal
test	10.34.60.88	Default		Maintenance	0	0%	0%	0%	Normal

**test** context menu: New, Edit, Remove, Activate, **Maintenance**, Confirm Host has been Rebooted, Configure Local Storage, Assign Tags

**General** | Virtual Machines | Network Interfaces | Host Hooks | Permissions | Hardware Information | Events

OS Version: RHEL - 6Server - 6.1.0.2.e    Active VMs: 0    Physical Memory: 7861 MB total, 1258 MB use  
Kernel Version: 2.6.32 - 131.6.1.el6.x86\_64    CPU Name: Intel Nehalem Family    Swap Size: 1023 MB total, 0 MB used, 1  
KVM Version: 0.12.1.2 - 2.184.el6    CPU Type: Intel(R) Xeon(R) CPU    Shared Memory: 0%  
LIBVIRT Version: 0.9.4 - 7.2.el6    CPU Sockets: 1    Max free Memory for scheduling new VMs: 7605 MB  
VDSM Version: vdsmd-4.9-104.el6    CPU Cores per Socket: 8    Memory Page Sharing: Inactive  
SPICE Version: 0.8.2 - 3.el6    CPU Threads per Core: Unsupported    Automatic Large Pages: Always  
iSCSI Initiator Name: iqn.1994-05.com.redhat:b:

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

Bookmarks  
Tags

Last Message: 2013-Jan-09, 17:11    User admin@internal logged in.    Alerts (5)    Events    Tasks (0)



# What's currently possible



oVirt Open Virtualization Manager

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Search: Host: [x] [star] [magnifying glass]

Data Centers Clusters **Hosts** Networks Storage Disks Virtual Machines Pools Templates Volumes Users **Custom Main Tab** Events

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags **Custom Action Button**

Name	Hostname/IP	Cluster	Data Center	Status	Running VMs	Memory	CPU	Network	SPM
dev01aaa	10.34.63.161	MvCluster	MvDC	Up	0	16%	0%	0%	Normal
test	10.34.60.88			Maintenance	0	0%	0%	0%	Normal

General Virtual Machines Network Interface **Hardware Information** **Custom Sub Tab** Events

OS Version: RHEL - 6Server - 6.1.0.2.e Active VMs: 0 Physical Memory: 7861 MB total, 1258 MB use  
Kernel Version: 2.6.32 - 131.6.1.el6.x86\_64 CPU Name: Intel Nehalem Family Swap Size: 1023 MB total, 0 MB used, 1  
KVM Version: 0.12.1.2 - 2.184.el6 CPU Type: Intel(R) Xeon(R) CPU Shared Memory: 0%  
LIBVIRT Version: 0.9.4 - 7.2.el6 CPU Sockets: 1 Max free Memory for scheduling new VMs: 7605 MB  
VDSM Version: vdsm-4.9-104.el6 CPU Cores per Socket: 8 Memory Page Sharing: Inactive  
SPICE Version: 0.8.2 - 3.el6 CPU Threads per Core: Unsupported Automatic Large Pages: Always  
iSCSI Initiator Name: iqn.1994-05.com.redhat:b:

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

Bookmarks

Tags

Last Message: 2013-Jan-09, 17:19 User admin@internal logged in. Alerts (5) Events Tasks (0)

- Plugin host page
  - Hosts actual plugin code (JavaScript)  
`/usr/share/ovirt-engine/ui-plugins/<resourcePath>/<hostPage>.html`
- Plugin descriptor
  - Meta-data + default configuration  
`/usr/share/ovirt-engine/ui-plugins/<descriptorName>.json`
- Plugin user configuration
  - Override default configuration, tweak runtime behavior  
`/etc/ovirt-engine/ui-plugins/<descriptorName>-config.json`

# Writing UI plugins



```
<!DOCTYPE html>
<html>
<head>
  <!-- Fetch additional resources if necessary -->
  <script type="text/javascript" src="jquery-min.js"></script>

  <!-- Actual plugin code -->
  <script>
    // Access plugin API from iframe context
    var api = parent.pluginApi('myPlugin');

    // Register plugin event handler functions
    api.register({
      UiInit: function() {
        api.addMainTab('Foo Tab', 'foo-tab', 'http://foo.com/');
      }
    });

    // Tell plugin infrastructure that we are ready
    api.ready();
  </script>
</head>
<body> <!-- HTML body is intentionally empty --> </body>
</html>
```

# Plugin descriptor



## Meta-data + default configuration

/usr/share/ovirt-engine/ui-plugins/<descriptorName>.json

```
{  
  
  // A name that uniquely identifies the plugin (required)  
  "name": "foo",  
  
  // URL of plugin host page that invokes the plugin code (required)  
  "url": "/webadmin/webadmin/plugin/foo/start.html",  
  
  // Default configuration object associated with the plugin (optional)  
  "config": { "band": "ZZ Top", "classic": true, "score": 10 },  
  
  // Path to plugin static resources (optional)  
  // Used when serving plugin files through PluginResourceServlet  
  // This path is relative to /usr/share/ovirt-engine/ui-plugins  
  "resourcePath": "foo-files"  
}
```

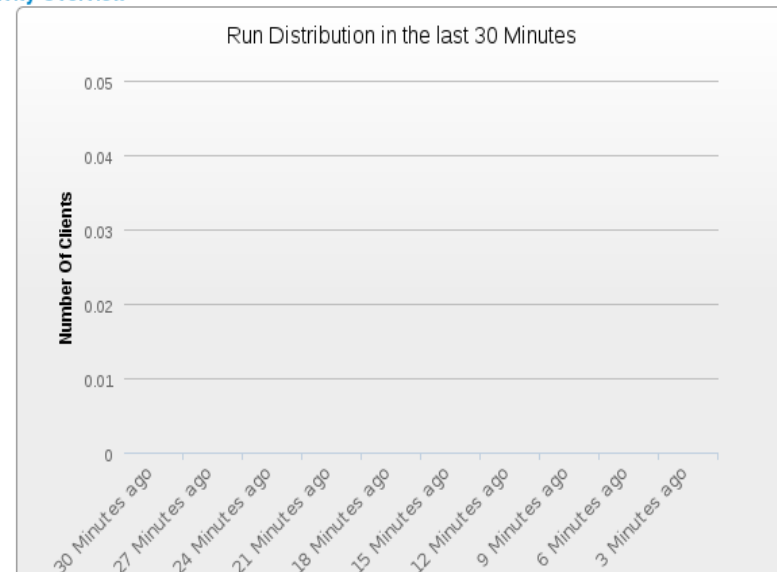
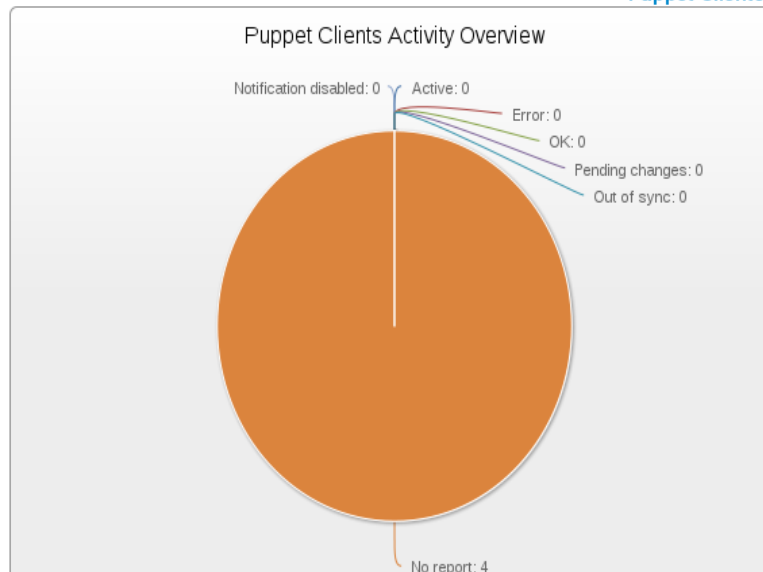
# UI-Plugin: Foreman main tab



Generated at 20 Dec 13:41

Description	Data
<a href="#">Hosts that had performed modifications without error</a>	0
<a href="#">Hosts in Error State</a>	0
<a href="#">Good Host Reports in the last 35 minutes</a>	0 / 4 hosts (0%)
<a href="#">Hosts that had pending changes</a>	0
<a href="#">Out Of Sync Hosts</a>	0
<a href="#">Hosts With No Reports</a>	4
<a href="#">Hosts With Alerts Disabled</a>	0

## Puppet Clients Activity Overview



# UI-Plugin: VM Foreman Details



Search: Vms:

Tree: [Expand All](#) [Collapse All](#)

- System

Navigation: [Data Centers](#) [Clusters](#) [Hosts](#) [Networks](#) [Storage](#) [Disks](#) [Virtual Machines](#) [Pools](#) [Templates](#) [Volumes](#) [Users](#) [Foreman Dashboard](#) [Events](#)

Actions: [New Server](#) [New Desktop](#) [Edit](#) [Remove](#) [Run Once](#) [Migrate](#) [Cancel Migration](#) [Make Template](#) [Export](#) [Change CD](#) [Assign Tags](#) [Guide Me](#)

Name	Host	IP Address	Cluster	Data Center	Memory	CPU	Network	Display	Status	Uptime	Logged-in User
aaa			europa-cl	europa	0%	0%	0%		Down		
abcd1-redhat.com	10.35.1.160		Default	Default	0%	0%	0%	VNC	Up	9 days	admin@internal
abcd-redhat.com			Default	Default	0%	0%	0%		Down		
c-1353422137			Default	Default	0%	0%	0%		Down		
cimi_machine			ZZZ-barcelona	Default	0%	0%	0%		Down		
cimi_machine1			ZZZ-barcelona	Default	0%	0%	0%		Down		
cimi_machine222			ZZZ-barcelona	Default	0%	0%	0%		Down		
desktop			Default	Default	0%	0%	0%		Down		

Navigation: [General](#) [Network Interfaces](#) [Disks](#) [Snapshots](#) [Applications](#) [Permissions](#) [Foreman Details](#) [Foreman Graphs](#) [Events](#)

Sub-navigation: [Properties](#) [Metrics](#) [Templates](#) [Virtual Machine](#)

Properties	
Domain	redhat.com
IP Address	1.2.3.4
MAC Address	00:1a:4a:16:01:b5
Puppet Environment	puppet
Host Architecture	x86_64
Operating System	oved 9.2
Host Group	new
Owner	Admin User
Certificate Name	abcd1.redhat.com

Runtime last 7 days

Time in Seconds

Legend: ■ Runtime ■ Config Retrieval

Resources last 7 days

Alerts (1) Events Tasks (0)

Last Message: ✓ 2012-Dec-20, 16:38 User admin@internal logged out.

# UI-Plugin: oVirt Monitoring sub-tab (Nagios)



oVirt Open Virtualization Manager

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Search: Host: [x] [star] [magnifying glass]

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

New Edit Remove Activate Maintenance Configure Local Storage Power Management Assign Tags

System

Expand All Collapse All

System

- ovido-local
  - Storage
  - Networks
  - Templates
  - Clusters

Name	Hostname/IP	Cluster	Data Center	Status	Virtual Machines	Memory	CPU	Network	SPM
centos-hyp01.lab.ovido.at	10.0.100.42	ovido-local	ovido-local	Up	4	75%	1%	0%	SPM

General Virtual Machines Network Interfaces Host Hooks Permissions Hardware Information **Monitoring Details** Events

Acknowledge Comment Downtime Notifications Schedule

Service	Output
RHEV CPU Load Check	RHEV OK: cpu ok - 1% used (centos-hyp01.l
RHEV Host Load Check	RHEV OK: cpu.load.avg.5m ok - 0.020 (cento
RHEV Host Status Check	RHEV OK: Hosts ok - 1/1 Hosts with state UF
RHEV KSM Load Check	RHEV CRITICAL: ksm.cpu.current critical - 90:
RHEV Memory Check	RHEV WARNING: memory warning - 75.00%
RHEV Network Status Chec	RHEV CRITICAL: Hosts critical - 1/2 Nics with
RHEV Network Traffic Check	RHEV OK: traffic ok - eth1: 0 Mbit/s eth0: 0 M
RHEV Swap Check	RHEV OK: swap ok - 19.27% used (centos-h

Bookmarks

Tags

Last Message: 2013-Feb-18, 17:58 User admin@internal logged in.

Alerts (0) Events Tasks (0)

Monitoring Details

Details Graphs

PNP Performance Graphs

4 Hours

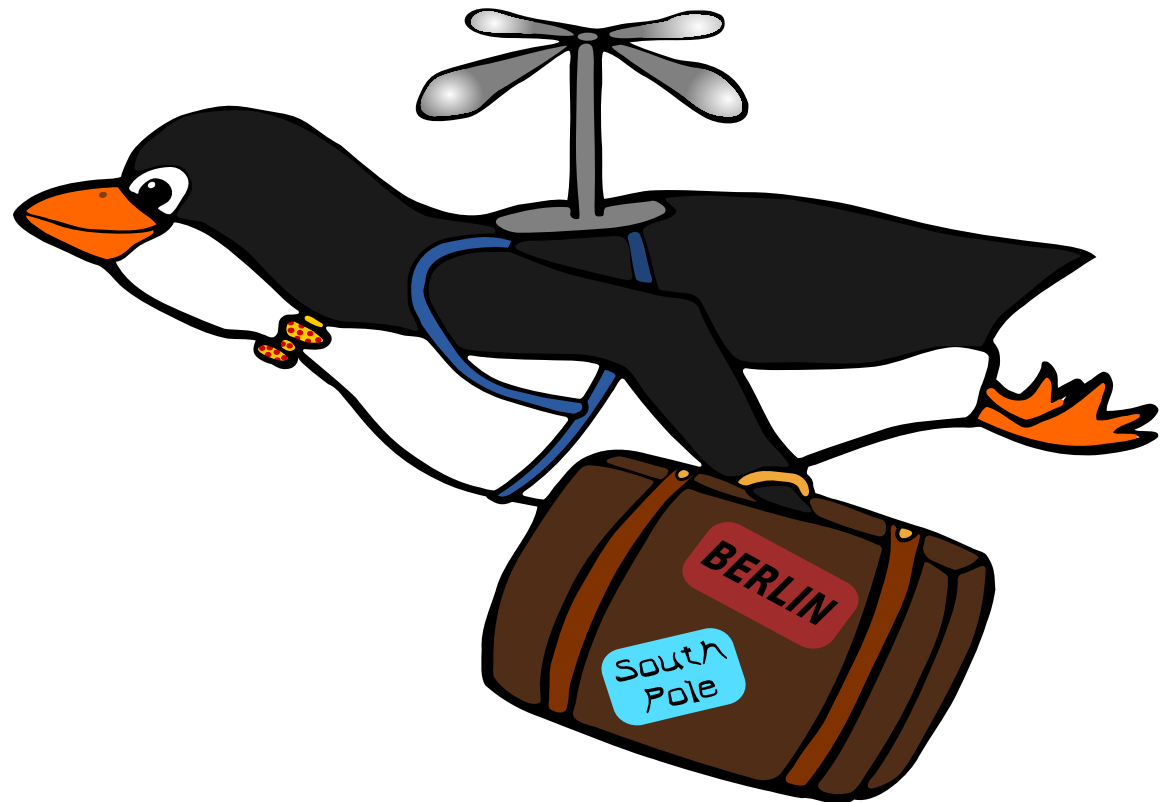
Load utilization for 10.0.100.42

Load utilization

cpu.load.avg.5m last: 0.031 max: 0.138 average: 0.07794

More info at: <https://labs.ovido.at/monitoring/wiki/ovirt-monitoring-ui-plugin>

Scary demo....





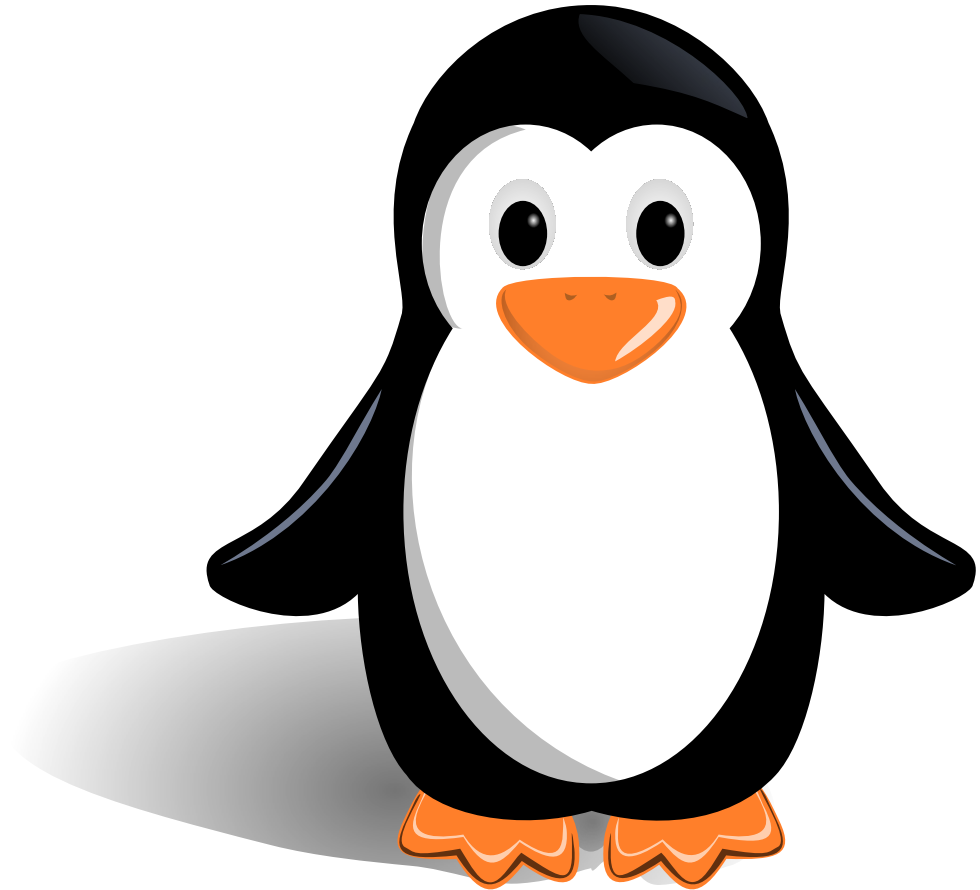
# Summary

oVirt

- Consuming oVirt
  - oVirt API
  - oVirt SDK
  - SNMP
- Extending oVirt
  - VDSM hooks
  - Scheduling API
  - UI Plugins



# Questions?



# THANK YOU!

<http://www.ovirt.org>

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

<http://lists.ovirt.org/mailman/listinfo>  
[vdsm-devel@lists.fedorahosted.org](mailto:vdsm-devel@lists.fedorahosted.org)

#ovirt irc.oftc.net

doron@redhat.com

