Red Hat CloudForms Advanced Workshop

Workshop's Guide
(Open Hybrid Cloud Orchestration)

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INDEX

REVIEW

Change's log

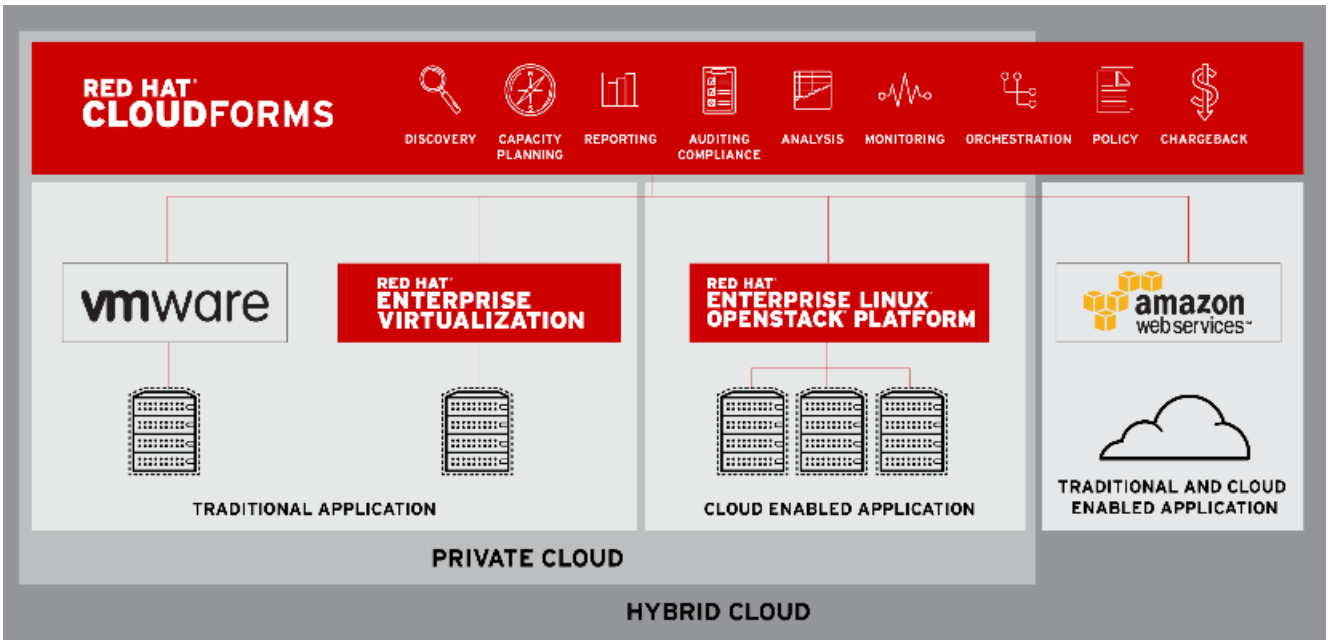
Fecha	Autor	Versión	Referencias
10/26/16	Roberto J. Calva	2.0	Version 1.4
12/12/16	Roberto J. Calva	2.1	Version 2.0
12/18/16	Roberto J. Calva	2.1	Version 2.1
03/02/18	Roberto J. Calva	2.2	Version 2.1

SUMMARY

Business Scenario

The aim of this workshop is to provide a first approach to our customers regarding Red Hat CloudForms, showing how to create reports, manage users and groups, implement policies and provisioning virtual machines and services, showing the benefits of Red Hat CloudForms as an Open Hybrid Cloud Management and Orchestration Console, managing technologies such as VMware, RHEV, Microsoft Hyper-V, OpenStack, OpenShift Docker Container Platform, Amazon AWS, Microsoft Azure and Google Cloud Engine.

Workshop's Architecture



Workshop's Design

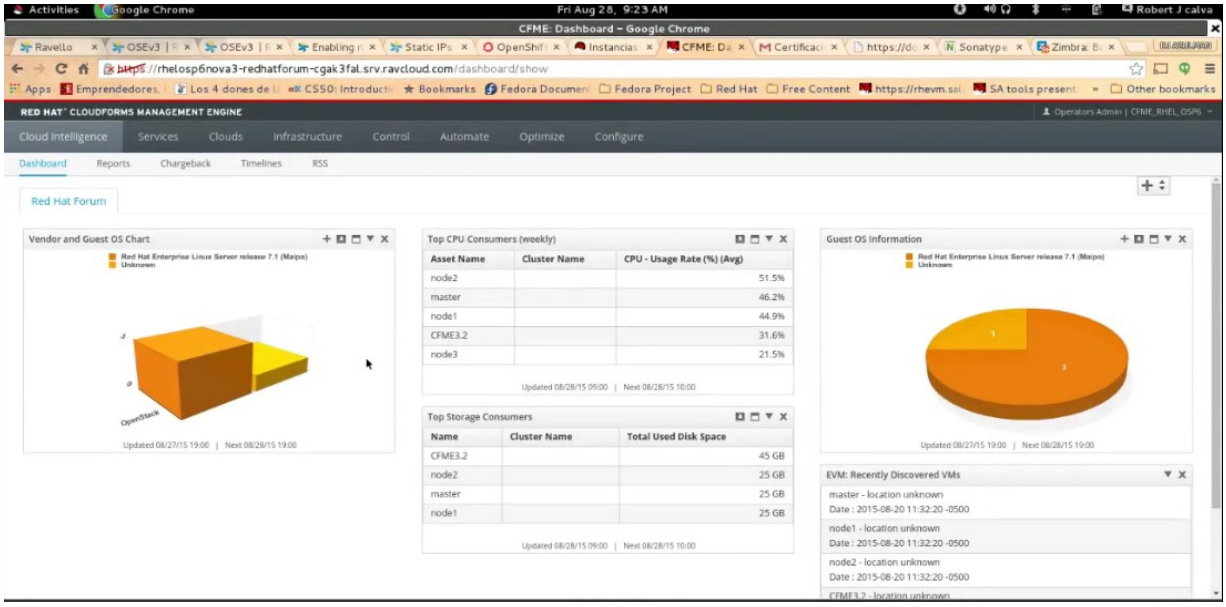
This workshop has hands-on labs and presentations to provide a basic first-hand contact with the product:

- Introductions ~ 20 min
- CloudForms General Presentation ~ 40 min
- Managing Existing Resources **(with Lab)** ~ 60 min
- Discovering New Resources ~ 10 min
- Provisioning Self-Service Resources **(with Lab)** ~ 60 min
- Catalogs and Services **(with Lab)** ~ 60 min
- Roadmap ~ 30 min
- Wrap up/Q&A ~ 20 min

WORKSHOP: RED HAT CLOUDFORMS

Access to CloudForms Cloud Management Engine Portal,

User: cloudadmin **/ Password:** r3dh4t1!



Lab 1: Managing Existing Resources

A huge part of the *CloudForms* value proposition is being able to limit what resources certain end users have access to via tagging. Being able to manage multiple environments from a single pane of glass, as the admin user, but still limit what other end users can access is a major selling point for *CloudForms*. Another advantage is being able to utilize *CloudForms* to control and manage.

1.A: Explore Discovered Infrastructure as the cloudadmin User

This lab will mainly be used as an introduction to the structure of the product, where users can find information about existing Providers/Hosts/Clusters.

In preparation for this lab, simply navigate to the tabs to become familiar with the different portions of the *CloudForms* appliance and where information for each resource is located.

We will be focusing on being able to, among other things:

1. Navigate within the tabs to become familiar with the different portions of the CloudForms Management Engine Appliance. Navigate into the **Cloud Intelligence**, **Red Hat Insights**, **Services**, **Compute**, **Configurations**, **Networks**, **Middleware**, **Storage**, **Control**, **Automate**, **Optimize** and **Settings**.

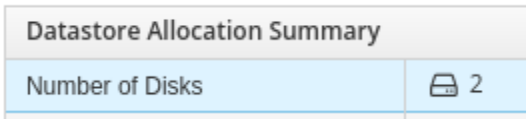
2. Demonstrate the power controls of existing virtual machines:

- Go to **Compute** → **Infrastructure**→**Virtual Machines**, click on Virtual Machine: **rhel6** and then click on: **Power** → **Power On**. Click on **Refresh** Button until Power State = **on**

3. Adding a new disk to a virtual machine:

- Using the same **rhel6** virtual machine, make sure **rhel6** only has 2 Disks (1 Serial (SIO) device and 1 hard disk of 5 GB), taking a look at "**Datastore Allocation Summary"** section

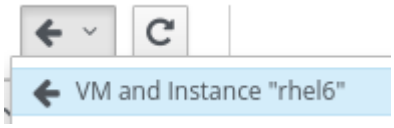
- Click on **Number of Disks** section to make sure of that:



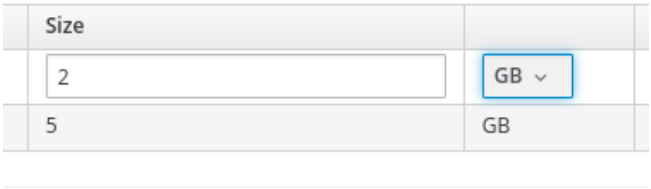
"Number of Disks" for Virtual Machine "rhel6"

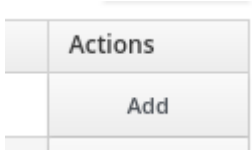
Device Type	Type	Mode	Partitions Aligned	Provisioned Size
sio 0:0			Unknown	
Hard Disk (SCSI 0:0)	thin	persistent	Unknown	5 GB

- Click on **Back** button selecting **VM and Instance "rhel6"**

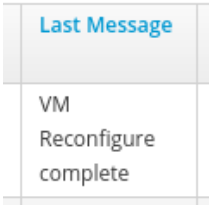


- Click on **Configuration** → **Reconfigure this VM**
- Click on **Add Disk** to create a new disk of **2 GB**. Then click on **Add** button on your right:

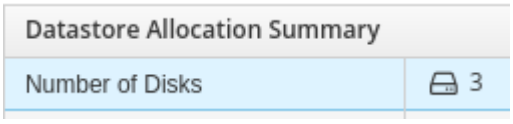




- Finally click on **Submit** to apply the changes.
- Then click on **Reload** until you see a **Finished** task. If so, then your new disk for **rhel6** was created successfully.



- Go back to **Compute** → **Infrastructure** → **Virtual Machines** and see that now you have 3 Disks within "**Datastore Allocation Summary"** section:



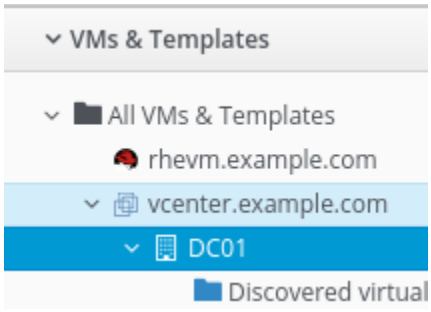
- Click on **Number of Disks** section to make sure of that:

"Number of Disks" for Virtual Machine "rhel6"

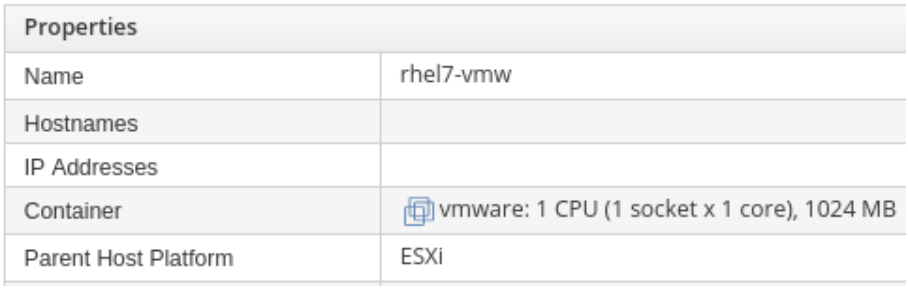
Device Type	Type	Mode	Partitions Aligned	Provisioned Size
sio 0:0			Unknown	
Hard Disk (SCSI 0:0)	thin	persistent	Unknown	5 GB
Hard Disk (SCSI 0:1)	thin	persistent	Unknown	2 GB

4. Modifying CPU and Memory to a virtual machine:

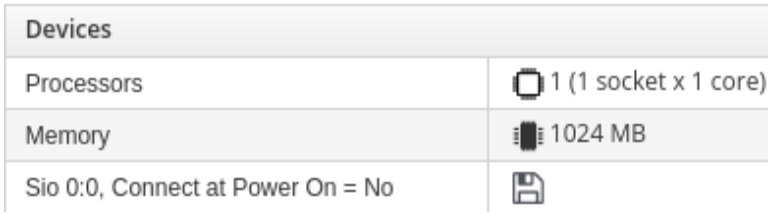
- Go to **Compute** → **Infrastructure** → **Virtual Machines**, and click on "**Vms & Templates"** → **"vcenter.example.com"**. Then, select the **rhel7-vmw** virtual machine



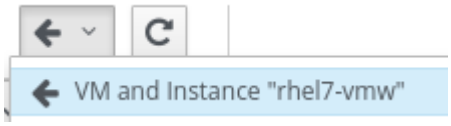
- Make sure **rhel7-vmw** has 1 CPU (1 socket x 1 core) and 1GB (1024MB) of RAM, taking a look at "**Properties"** section:



- Click on **Container** section to make sure of that:

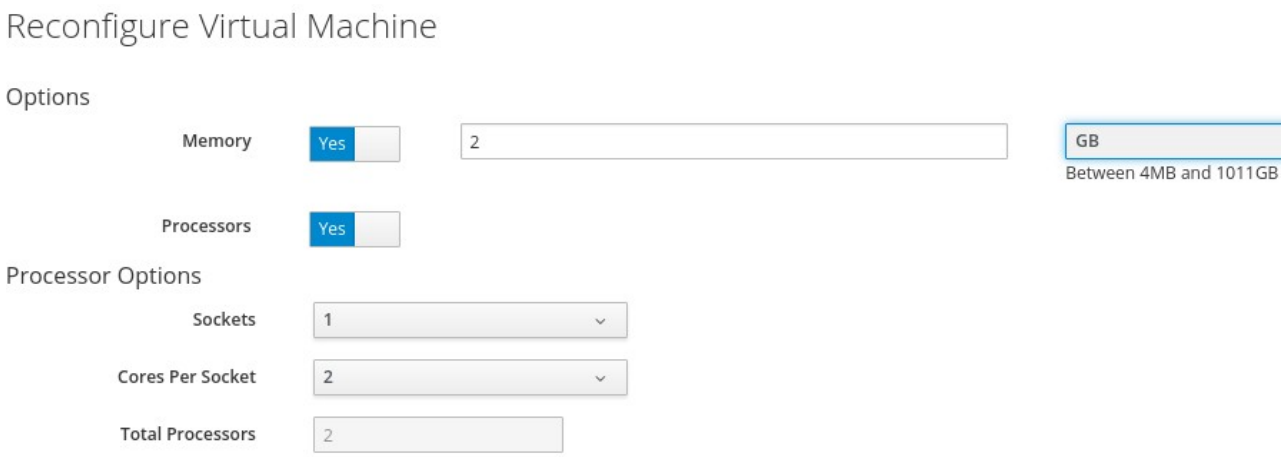


- Click on **Back** button selecting **VM and Instance "rhel7-vmw"**

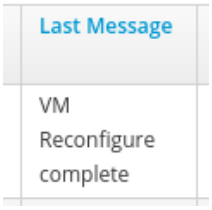


- Click on **Configuration** → **Reconfigure this VM**
- Click on **Memory** and **Processors** to activate the changes:

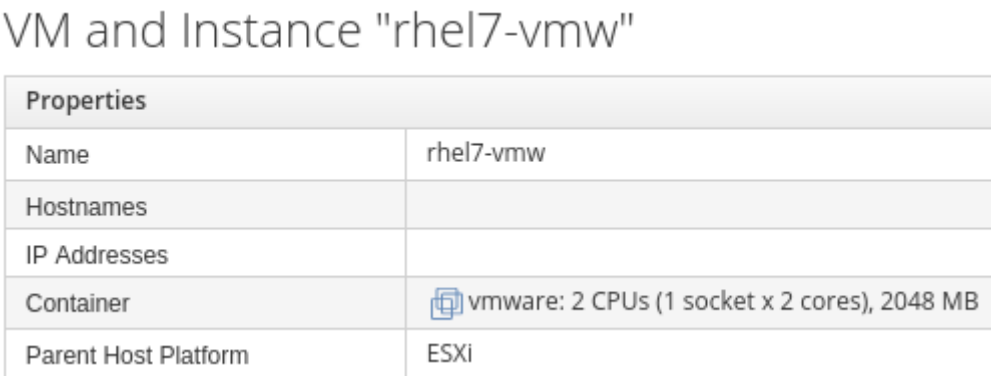
- Reconfigure the virtual machine with 2 GB and 1 Socket / 2 Cores Per Socket as follows:



- Click on **Submit** to apply the changes.
- Then click on **Reload** until you see a **Finished** task. If so, then your new disk for **rhel6** was created successfully.



- Go back to **Compute** → **Infrastructure** → **Virtual Machines** and see that now you have 2 CPUs (1 socket x 2 cores) and 2GB (2048 MB) within "**Properties"** section:



- Click on **Container** section to make sure of that:

Lab 2: Provisioning Self-Service Resources

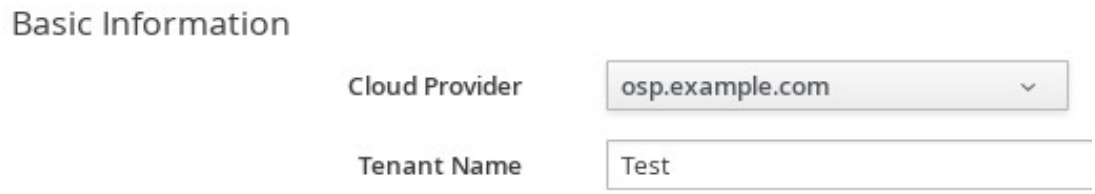
2A Creating an Entire Tenant Environment on OpenStack Cloud Provider

Using *CloudForms* as Cloud Management Platform and **OpenStack** as Private Cloud Provider, you can easily create an entire Tenant environment including its own networks, subnets, Floating IPs, Key Pairs, Routers, Instances and so on.

1. Access to **CloudForms Cloud Management Engine Portal**,

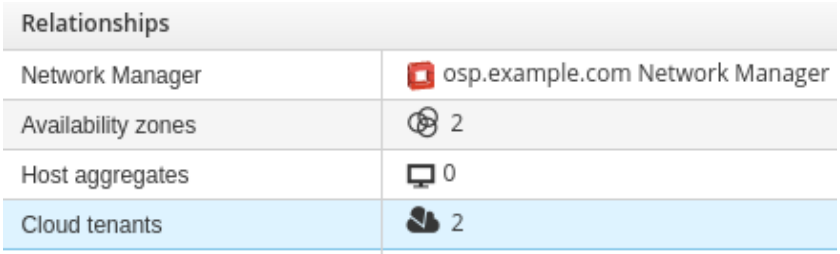
User: cloudadmin **/ Password:** r3dh4t1!

2. Go to: **Compute** → **Clouds** → **Tenants** and click on **Configuration** → **Create Cloud Tenant**, creating it as follows:

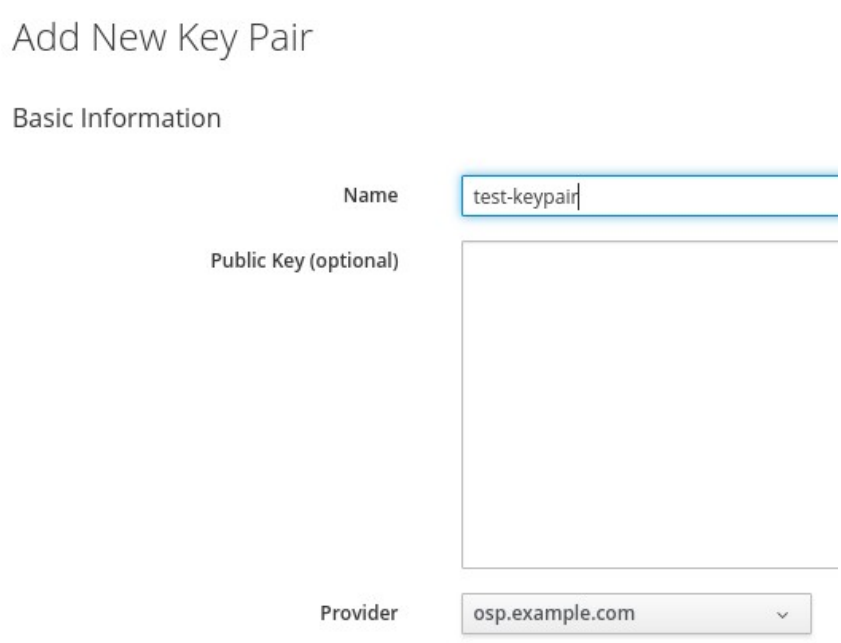


Click on **Save** to create the new Tenant.

2A. Go to **Compute** → **Clouds** → **Providers** and then click on OpenStack (**osp.example.com**). Then click on **Configuration** → **"Refresh Relationships and Power States"**, until you see **Cloud tenants = 2**:



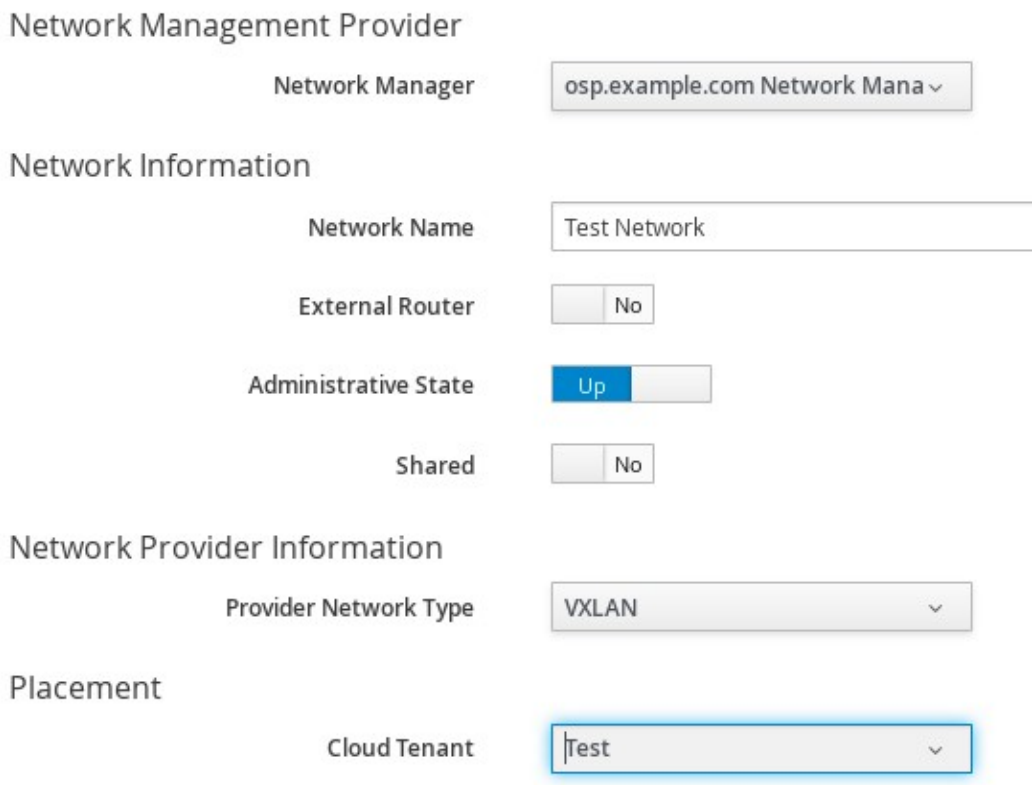
3. Go to: **Compute** → **Clouds** → **Key Pairs** and click on **Configuration** → **Add a new Key Pair**, creating it as follows:



NOTE: leave Public Key space in blank. The new Key Pair will be created automatically.

Click on **Add** to create the new Key Pair.

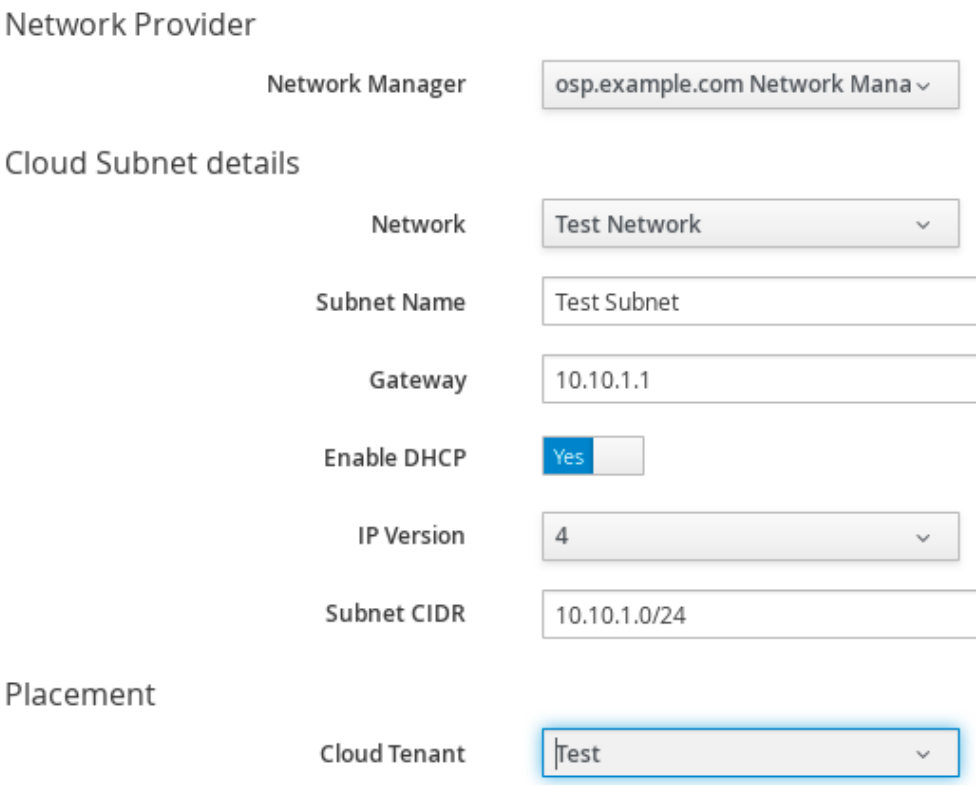
4. Go to: **Networks** → **Networks** and click on **Configuration** → **Add a new Cloud Network**, creating it as follows:



Click on **Add** to create the new Cloud Netwok.

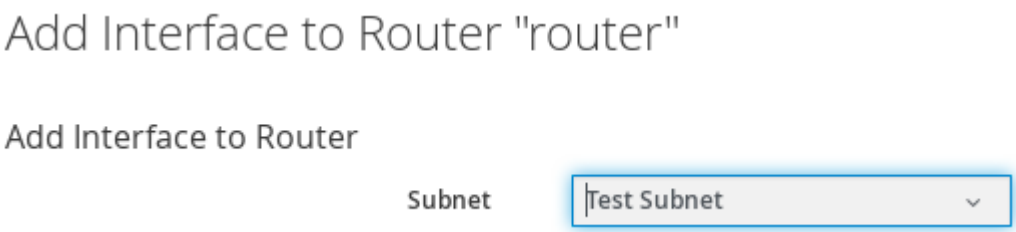
Then Click on **Networks** → **Networks** until you can see your new **Test Network** network.

5. Go to: **Networks** → **Subnets** and click on **Configuration** → **Add a new Cloud Subnet**, creating it as follows:



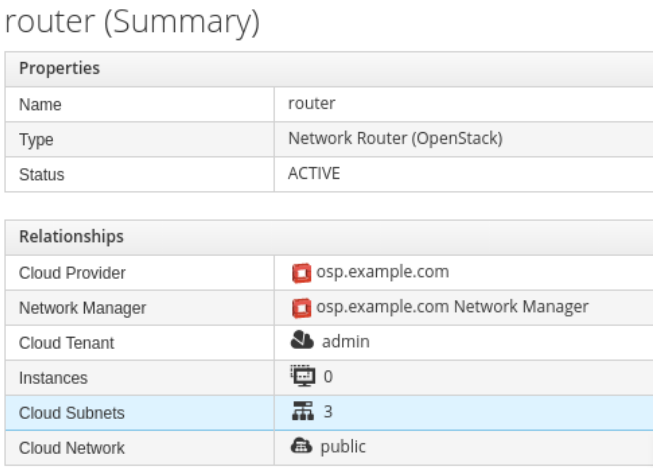
Click on **Add** to create the new Cloud Subnet.

6. Wait for a few seconds and Go to: **Networks** → **Network Routers**, and click on the external router named **router**. Then click on **Configuration** → **Add Interface to this Router**, and add a new interface as follows:

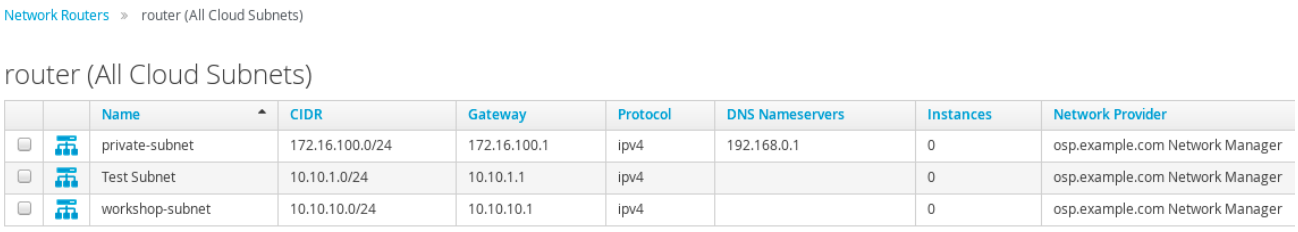


Click on **Add** to create the new Router Interface.

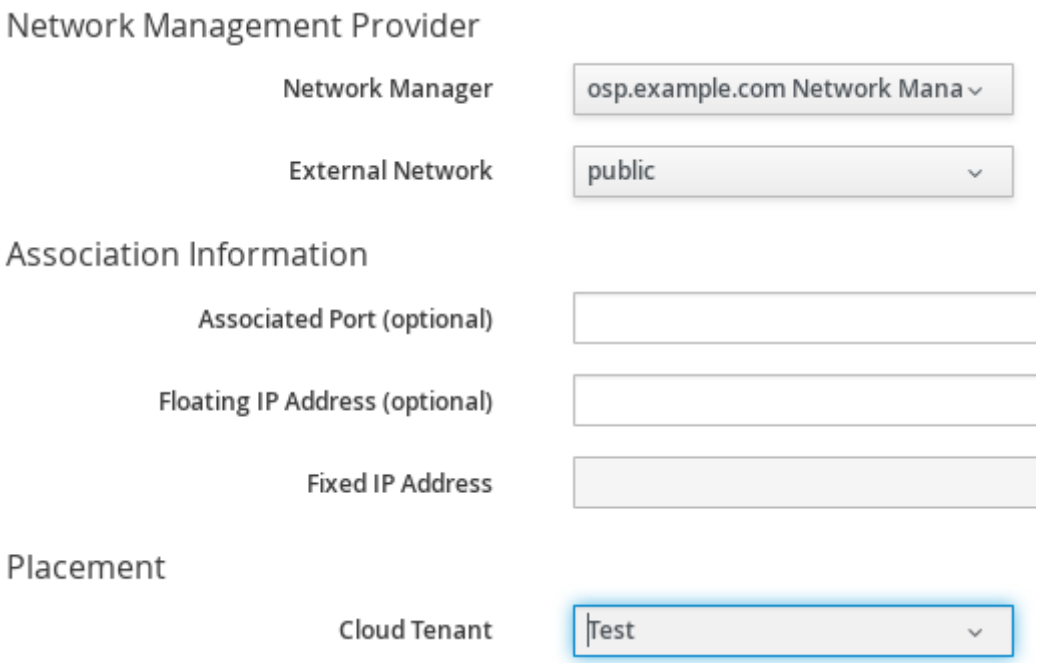
Wait for a few seconds and return to **Networks** → **Network Routers** → **router**, and observe that it has 3 Cloud Subnets:



Click on **Cloud Subnets** and observe those Cloud Subnets (You can see the new Test Subnet):



7. Go to: **Networks** → **Floating IPs** and click on **Configuration** → **Add new Floating IP**, creating it as follows:



Click on **Add** to create the new Floating IP for our new Test Tenant.

2.B: Provisioning an Instance within the New Tenant Environment

Provisioning refers to the capacity an infrastructure has to deliver a resource and manage its life cycle. Provisionable resources can include virtual machines, Instances, storage space, or any resource a given infrastructure can manage. The web interface on a *CloudForms* appliance provides an easy way for end users and administrators to provision new virtual machines and Instances. Virtual machines can be provisioned from virtual machine templates, PXE boot, or ISO images. Instances can be provisioned from images.

1. Access to **CloudForms Cloud Management Engine Portal**,

User: cloudadmin **/ Password:** r3dh4t1!

2. Go to: **Compute** → **Clouds** → **Instances** and click on **Lifecycle** → **+Provision Instances** and Select the Template **"rhel7.2"** as an Image. Click on **Continue** and select:

Request Tab:

- **Email:** cloudadmin@example.com
- **First/Last Name:** your name

Purpose Tab:

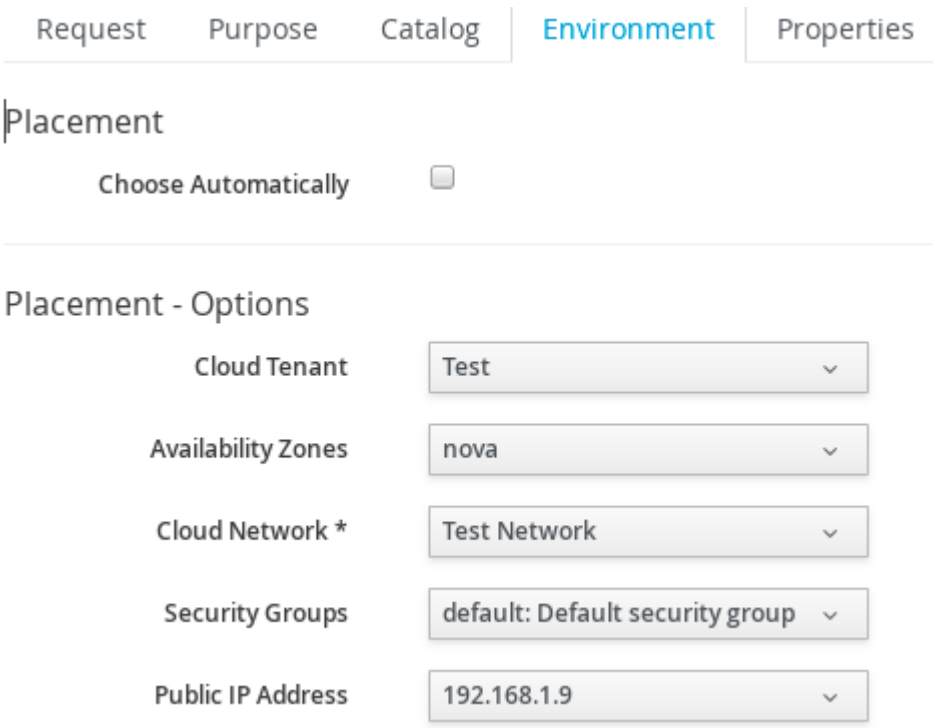
- **Purpose:** Select **Environment** → **Workshop**

Catalog Tab:

- **Number of instances:** 1
- **Instance Name:** test-instance

Environment Tab:

- Set **Placement - Options** as follows:



Properties Tab:

- **Instance Type:** m1.small
- **Guest Access Key Pair:** test-keypair

Customize Tab:

- **Root Password:** Redhat1!
- **Customize Template:** Select the Script Name: **"Basic root pass template"**

Schedule Tab:

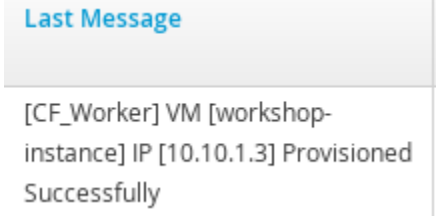
- **Time until Retirement:** 1 Month

3. Click on **Submit** to create the new Instance.

4. Switch to **RHEL OpenStack Platform Web Portal** to observe the deployment of the new OpenStack instance. Click on **Project** → **Test** ***(upper-right corner)*** and then click on **Instances**.

User: admin **/ Password:** r3dh4t1!

5. Return to **CloudForms Management Engine Portal**. Go to **Services** → **Requests**. Click on **Reload** button, until the **Last Message "CF_Worker: VM: workshop-instance Provisioned Successfully"** appears and **Request State** is in **Finished** state:



	Status	Request State	Request ID	Requester	Request Type
✓	Ok	Finished	1,000,000,000,012	Cloud Administrator	VM Provision

2.C: Provisioning a Service

Access to the **CloudForms Self-Service Portal** ***(with a different Web Browser)***:

User: clouduser **/ Password:** r3dh4t1!

A user can provision a service. Here are the steps:

1. Click on **Service Catalog**

2. Click on **RHEL7 Base Service**

3. Enter de **Approval Code**: 1234567890

4. Click on **Add to Shopping Cart** button.

5. Click on your **Shopping Cart** icon and click on **Order** to order your service.

6. Click on **My Requests** until Provisioning Service is Approved

7. Return to the **CloudForms Cloud Management Engine Portal**:

Go to **Services > Requests** and click on **Reload** button until Request State is in **Finished** state

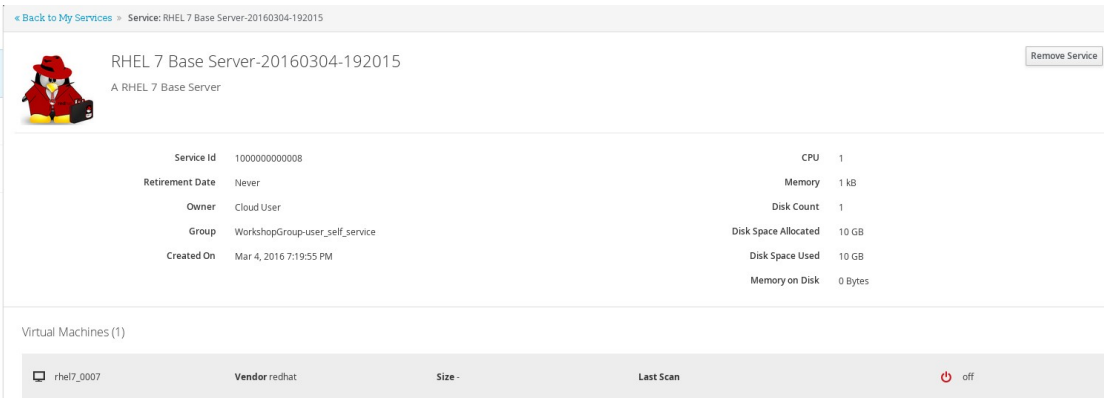
8. Go to the **Red Hat Enterprise Virtualization Web Portal** to observe the automation deployment:

Click on **Administration Portal** (Portals section) and login as follows:

User: admin **/ Password:** r3dh4t1! **/ Profile:** Internal

After that, return to the **CloudForms Self-Service Portal**:

9. Click on **My Services**. You can see your service. Click on the last/new provisioned service:



Lab 3: Catalogs and Services

Scenario

In this lab we'll create a Service Catalog Item to provision a VM into **VMware**. We'll use a service dialog that allows the user to specify a name for both the new VM and the Service, and specify the number of CPUs and memory size of the provisioned VM from a drop-down list.

Task

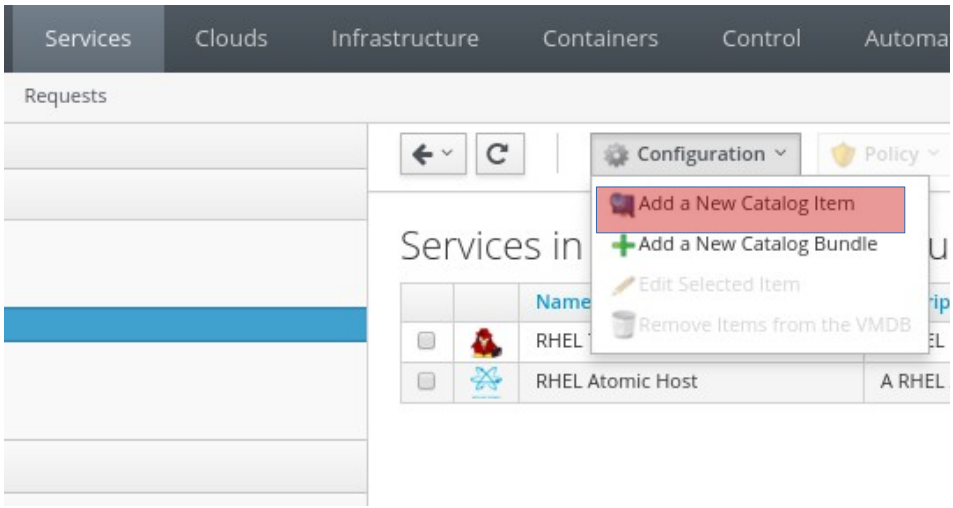
Create a new Service Catalog Item to provision a VM into a **VMware** environment, specifying the *Service Name*, the *Name of the VM*, the *Number of CPUs* and the *Amount of RAM Memory*.

Methodology

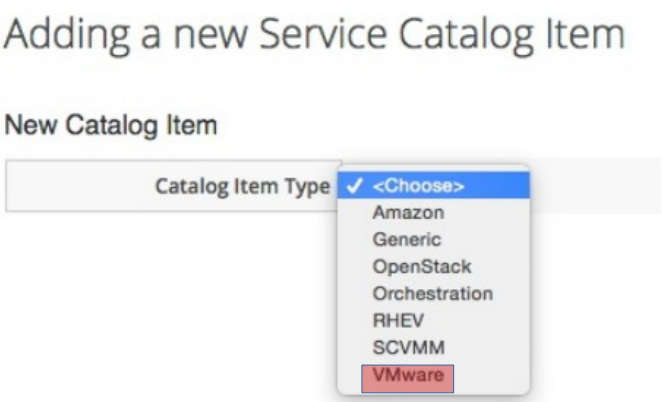
CatalogItemInitialization recognizes and special-cases some element names, including **vm_name** and **service_name**, and so we can create two of our elements with these names. If this is all we wish to prompt for, then we can move straight on to creating the service dialog.

3A: Create the Service Catalog Item:

Navigate to the Catalogs section in the accordion, **Services** → **Catalogs** and then **Catalog Items** → **All Catalog Items** → **Infrastructure Catalog** and select **Configuration** → **Add a New Catalog Item**



Select **VMware** from the **drop-down list**:



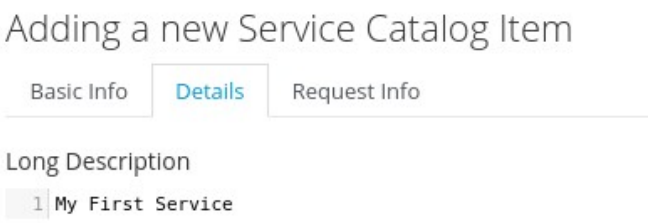
Enter and select next information:

Basic Info:

- **Name/Description:** Generic RHEL Server
- **Display in Catalog:** checked
- **Catalog:** Select "***Infrastructure Catalog***" from drop-down list
- **Dialog:** Select "***Custom Provision VM***" from drop-down list

Details:

Click on **Details** Tab and put "My First Service" as Long Description:

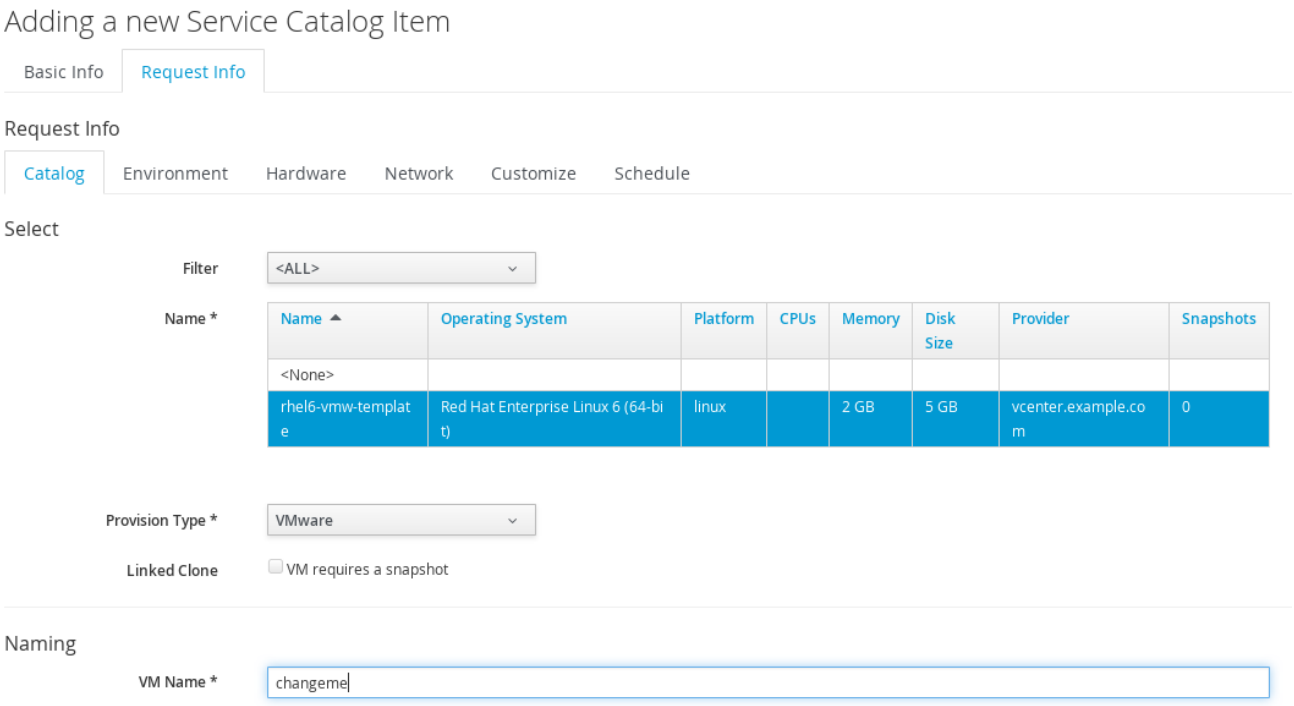


Request Info:

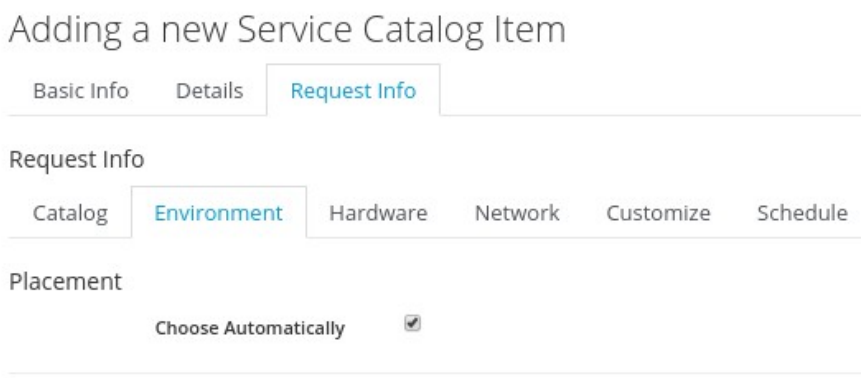
Click on **Request Info** Tab and then:

Catalog:

- **Selected VM:** rhel6-vmw-template
- **Provision Type:** VMware
- **Linked Clone:** unchecked
- **VM Name:** changeme

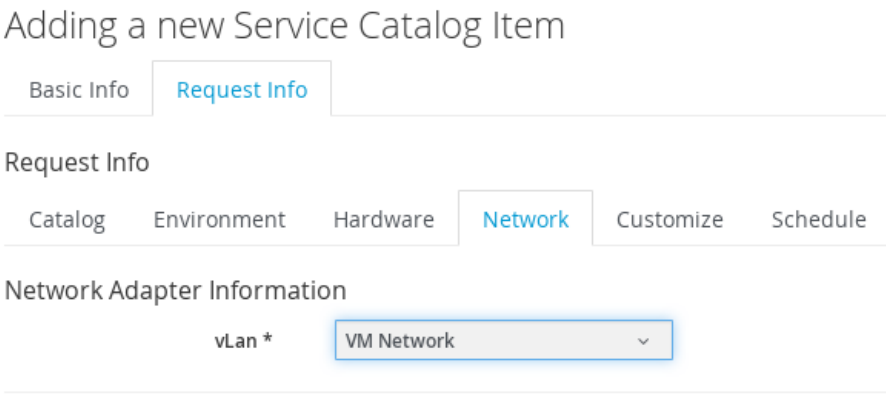


Environment: Check/tick Choose Automatically



Hardware: Keep it as is

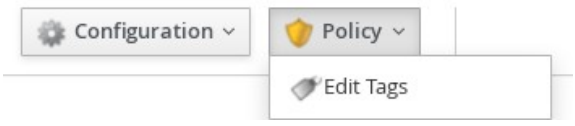
Network: Select **VM Network** VLAN from the drop-down list

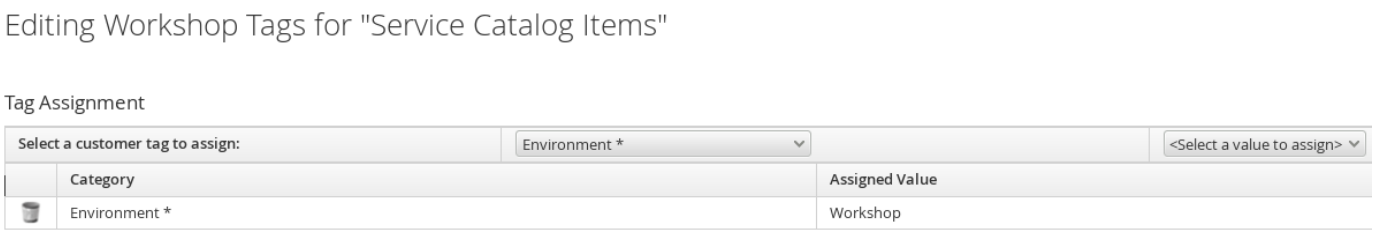


Finally click the **Add** button

Now, we have to tag our new Service to be used by our Cloud User: *clouduser* within the *Workshop* environment. Go to **Services** → **Catalogs** and then **Catalog Items** → **All Catalog Items** → **Infrastructure Catalog** and Select the **Generic RHEL Server** service.

Click on **Policy** → **Edit Tags** and Select ***Environment*** as Category and ***Workshop*** as Assigned Value:





Click on **Save** to do the changes.

3B: Ordering the Catalog Item:

Access to the CloudForms **Self-Service** Portal **(with a different Web Browser)**:

User: clouduser **/ Password:** r3dh4t1!

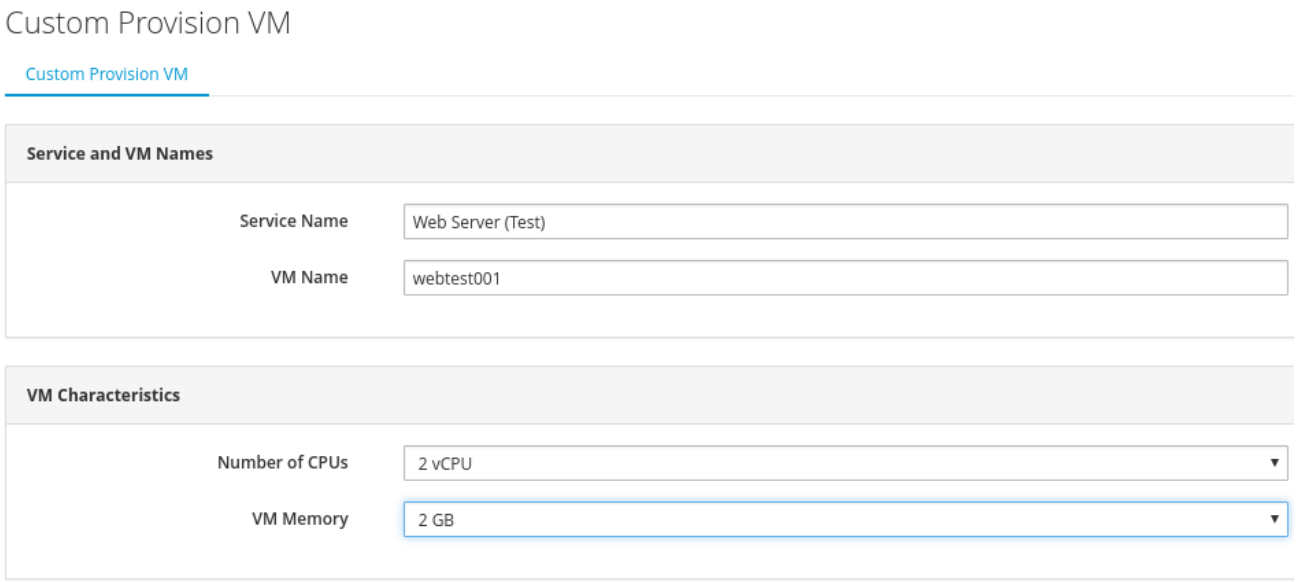
A user can provision a service. Here are the steps:

1. Click on **Service Catalog**

2. Click on ***Generic RHEL Server*** Service

3. Enter next information:

- **Service Name:** Web Server (test)
- **VM Name:** webtest001
- **Number of CPUs:** 2 vCPU
- **VM memory:** 2 GB



4. Click on **Add to Shopping Cart** button. Click on your **Shopping Cart** icon and click on **Order** to order your service.

5. Return to the **CloudForms Cloud Management Engine Portal**:

Go to **Services** → **Requests** and click on **Reload** button until Request State is in **Finished** state

6. Go to **VMware vSphere Web Client**

Check that the new VM is being created with the selected info. Go to **VMs and Templates** and wait for its creation. Check the **Recent Tasks** and **Work in Progress** as well.

Click on **Log in to vSphere Web Client** (For Administrators section) and login as follows:

User: root **/ Password:** r3dh4t1!

7. Return to the **CloudForms Self-Service Portal:**

Click on **My Services**. You can see the **"Web Server (test)"** service. **Click** on it and observe the VM Name, number of CPUs, and amount of RAM memory..

Red Hat - Cloud Management Workshop - Post Survey:

https://docs.google.com/forms/d/e/1FAIpQLSdauHtguNMYICRE5x1nrE0Y11ASfDNnptSEqbLZi_TCsNgb2g/viewform