

Transformation For Growth

2014 Consultants &
System Integrators Interchange

September 17-19, 2014  The Lalit, Jaipur



Compete in
the Era of
SMART.



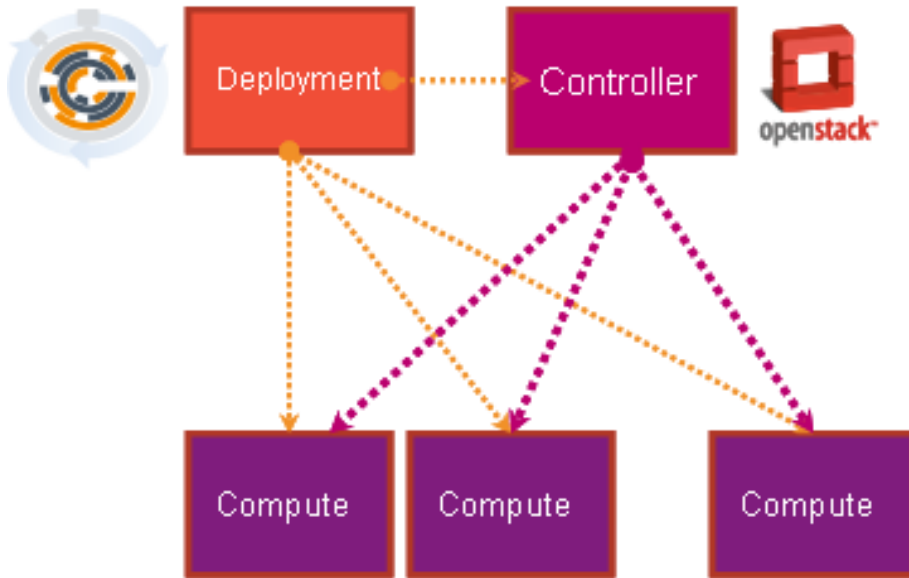
Experience Center

*Private Cloud Solution with IBM Cloud
Manager with OpenStack 4.1*

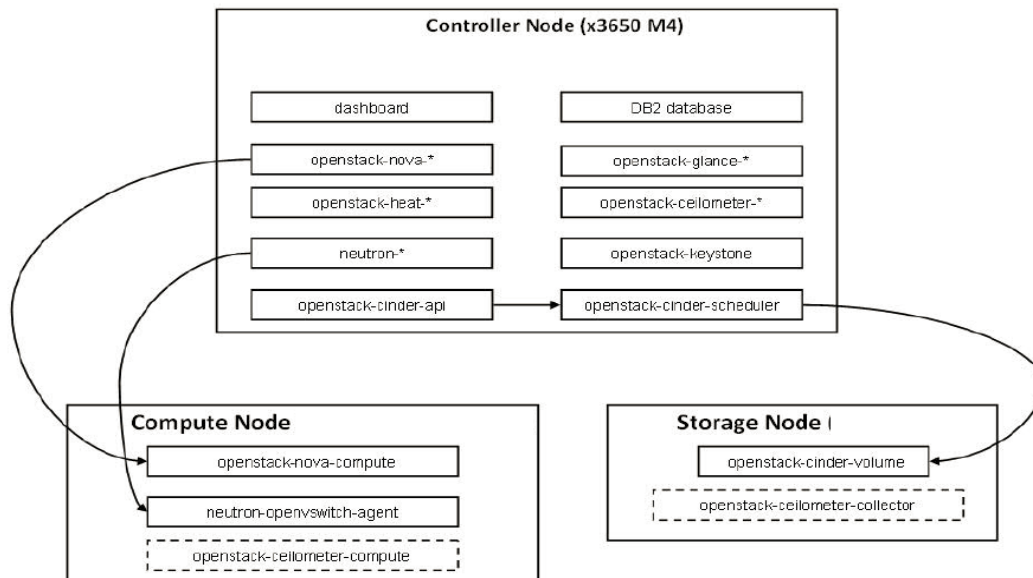
Demo Objective

1. Exposure to IBM Cloud Manager with OpenStack 4.1 (CMO) Self Service Portal
2. Explore and perform select functions and tasks in Cloud User and Cloud Admin Roles

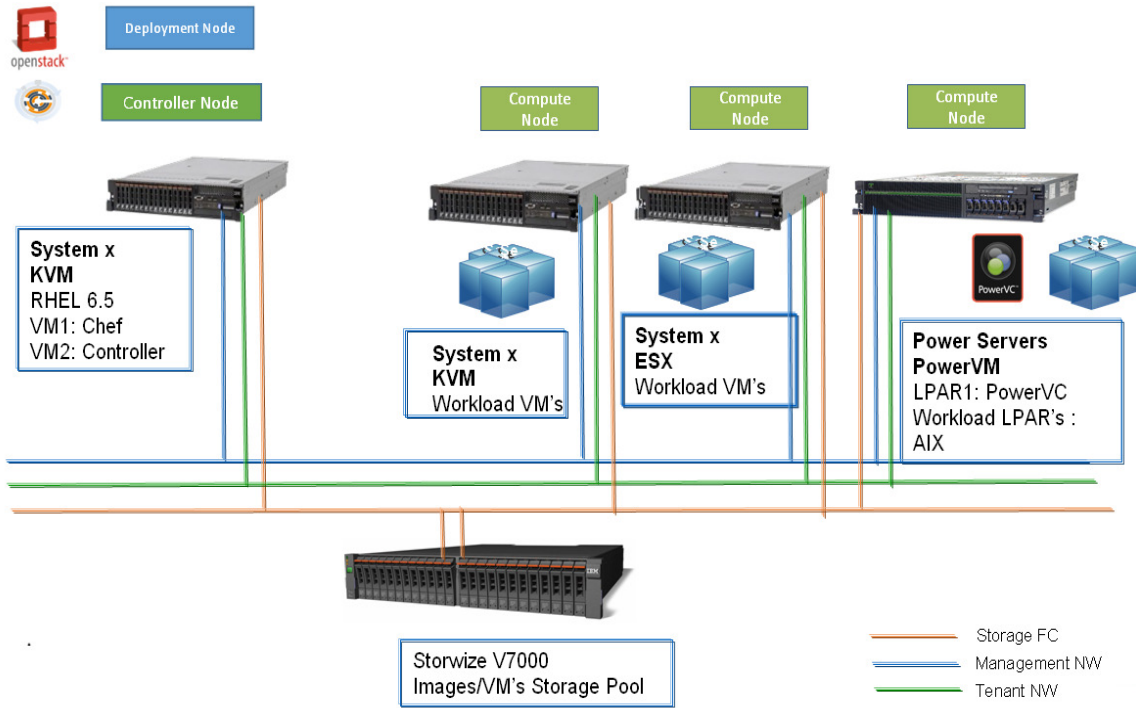
Software Component Placements



All-In-One + n compute scenario



Demo Environment Setup

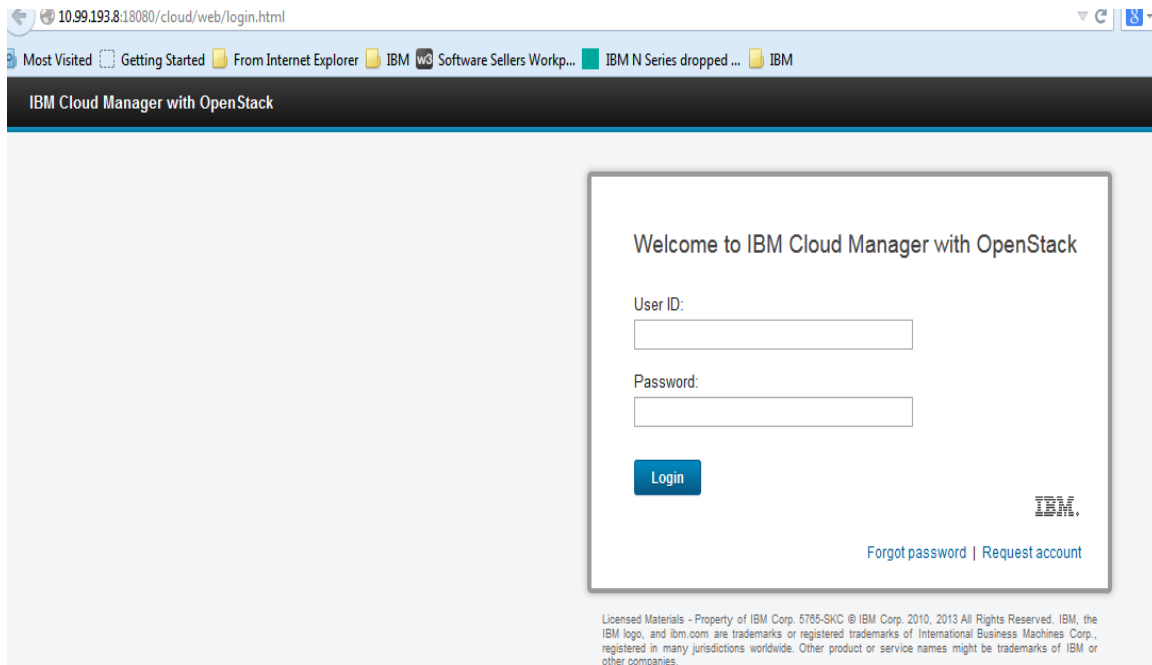


Demo Objective Details for Cloud Manager

- IBM CMO 4.1 Cloud Management (Admin) Capabilities glimpse to be experienced :
 - Create a Demo Cloud
 - Configure to generate metering records
 - Configure billing for charging accounts and manage account assignment
 - Provision and De-provision Servers
 - Capture Images
 - Starting and Stopping an Instance
 - Re-sizing VM's
 - Create and Manage Project
 - View Capacity Utilization

Log in to CMO Portal

On your browser will see following Log in Screen of IBM CMO portal:



10.99.193.8:18080/cloud/web/login.html

Most Visited Getting Started From Internet Explorer IBM Software Sellers Workp... IBM N Series dropped ... IBM

IBM Cloud Manager with OpenStack

Welcome to IBM Cloud Manager with OpenStack

User ID:

Password:

Login

IBM.

[Forgot password](#) | [Request account](#)

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Use following credentials to login

Username: admin

Password: passw0rd

You will be taken to Welcome screen, observe various options available as Cloud Administrator

Welcome | Instances | Volumes | Images | Access | Reports | Configuration

You are in: Welcome

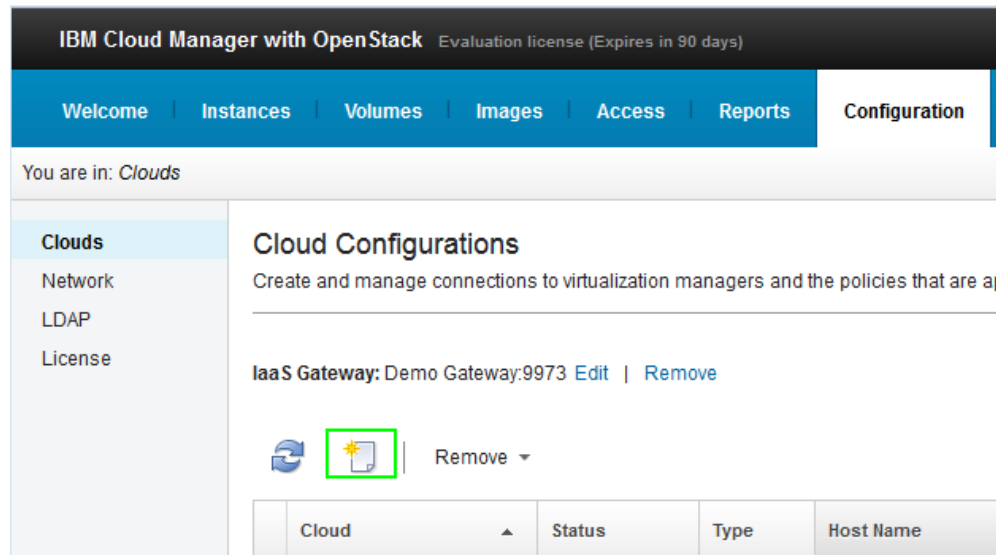
Welcome to IBM Cloud Manager with OpenStack

IBM Cloud Manager with OpenStack enables users to provision virtual machines quickly, while an administrator maintains oversight of the managed environment. Click an action to get started.

- Configure the Cloud**
Enable one or more cloud environments. Set expiration and approval policies for each cloud. Define network settings that are applied when images are deployed.
- Manage Cloud Access**
Configure projects, users, and accounts for the cloud. Set user access to images and instances through projects. Define policies at the project level for additional customization.
- Manage Images**
Deploy, import, and customize images.
- Manage Instances**
Monitor, resize and de-provision virtual machines.
- Manage Requests**
Review and approve requests for new instances and other actions.
- View Activity Reports**
Monitor instance usage and view events for cloud resources.

Create a Demo Cloud

1. To add demo cloud configurations, click on the “Configuration” tab and click on the add cloud icon shown below:



2. Complete the required information to add the demo cloud. Make sure to select the **“Create a demo cloud”** option. Supported demo cloud environments include OpenStack, PowerVC, and VMware.

Password: passw0rd

You are in: [Clouds](#) ▸ [Add Cloud](#)

Clouds

- Network
- LDAP
- License

Add Cloud Configuration

* Name:

Description:

* Type:

* Region:

Qpid Settings

* Host name:

Port:

Secure the cloud connection using SSL

* User ID:

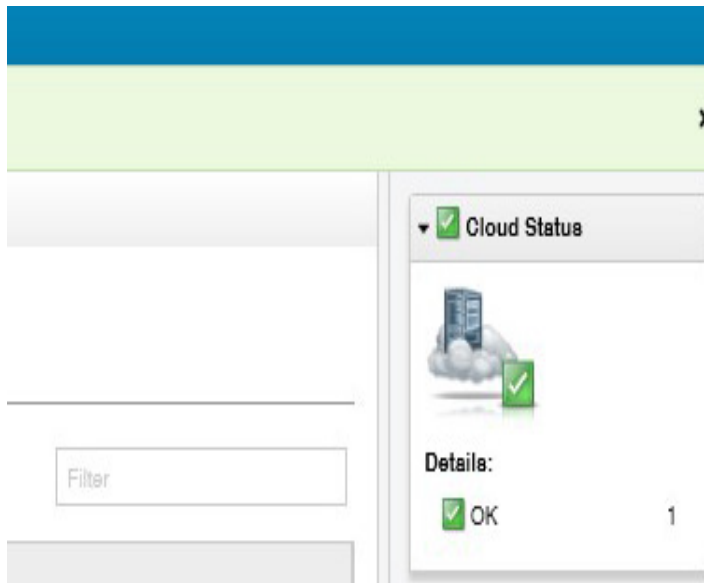
* Password:

* Confirm password:

Cloud timeout (minutes):

Create a demo cloud

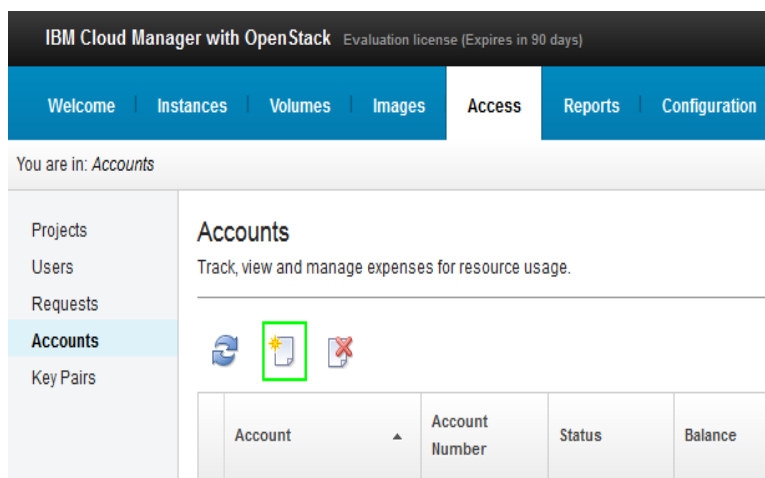
3. When you have filled in the required fields for the cloud configuration, complete the form by clicking “Add”. You should now see the change in “Cloud Status” on the right side of the Web UI.



4. Navigate to the “Instances” and “Images” tabs to see the newly added Instances and Images.

Monitoring resource allocations and billing for services

1. Before basic operations can be performed, make sure that an account is setup. Click on the “Access” tab and then navigate to “Accounts.” Click on the new account icon to set up a new account.



IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days)




Welcome | Instances | Volumes | Images | **Access** | Reports | Configuration

You are in: *Accounts*

Projects
Users
Requests
Accounts
Key Pairs

Accounts

Track, view and manage expenses for resource usage.

Account	Account Number	Status	Balance
---------	----------------	--------	---------

2. Fill out the New Account form. Make sure to add one or more users to the account. Then click “Save”.

New Account ✕

Create a new account and specify the account owner and members. A warning will be sent to the account owner when the balance falls below the account balance threshold.

* Account name:

Description:

* Account owner:

Starting balance:
 USD




Low balance threshold:
 USD

Account members:

Available users:		Account members:
<input type="text" value="SmartCloud Entry Administrator (admin)"/> <input type="text" value="user2 (user2)"/> <input type="text" value="user3 (user3)"/>	<input type="button" value="Add >"/> <input type="button" value="< Remove"/>	<input type="text" value="user1 (user1)"/>

3. The new account is now configured.

Accounts
Track, view and manage expenses for resource usage.

<input type="checkbox"/>	Account ▲	Account Number	Status	Balance	Description
<input type="checkbox"/>	Demo Account	951	<input checked="" type="checkbox"/> OK	\$50,000.00	demo account

Total: 1 Selected: 0 ◀ 1 ▶ 10 | 25 | 50 | All ↑

Provisioning and De-provisioning of Servers

After the demo clouds are added, images that are associated with the demo cloud are available to use for provisioning instances. Click on the “Images” tab, the figure below shows a comprehensive set of demo images.

IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days)
SmartCloud Entry Administration

Welcome
Instances
Volumes
Images
Access
Reports
Configuration

You are in: *Images*

Cloud: All Clouds
Project: All Projects
Architecture: All Architectures


More ▾


<input type="checkbox"/>	Image	Status	Cloud	Project	Architecture	Version	Description
<input type="checkbox"/>	Mock Image 1	✔ OK	OpenStack Mock	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/>	Powerkvm-image	✔ OK	OpenStack Mock	Public	Power		Image hypervisor type: qemu
<input type="checkbox"/>	cirros-0.3-x86_64	✔ OK	OpenStack Mock	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/>	hyperv-image	✔ OK	OpenStack Mock	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/>	kvm-image	✔ OK	OpenStack Mock	Public	x86		Image hypervisor type: qemu
<input type="checkbox"/>	powervm-image	✔ OK	OpenStack Mock	Public	Power		Image hypervisor type: powervm
<input type="checkbox"/>	precise	✔ OK	OpenStack Mock	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/>	zvm-image	✔ OK	OpenStack Mock	Public	z		Image hypervisor type: zvm


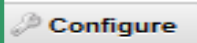
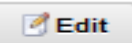
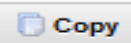
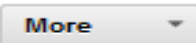
Total: 8 Selected: 0
◀ 1 ▶
10 | 25 | 50 | All ↕



1. To provision a demo VM instance, click on the desired demo image and click on





kvm-image
Status:  OK

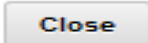
    | 

Name:	kvm-image
Description:	Image hypervisor type: qemu
UUID:	MOCK_IMAGE_5
Cloud:	OpenStack Mock
Project:	Public
Disk format: 	QCOW2
Container format: 	BARE
Minimum memory (MB):	0
Minimum storage (GB):	0
Base image:	Yes
Owner:	System
Last modified:	Today 10:03 AM
Version:	<i>No data provided</i>
Revision:	<i>No data provided</i>
Revision comments:	<i>No data provided</i>

▶ **Additional Properties:** 2


▶ **Related Images:** None

▶ **Log Entries:** None



2. By default the name field is already filled in. When you have completed the desired provisioning settings, click again





Deploy - kvm-image

Choose the settings to be applied when the image is deployed.

Deploy Save as Draft

* Name:

Description:

Project:
 [New Project](#)

* Instances (max: 5):

Hardware

System

OpenStack Flavor

* Flavor:

Flavor details:

Virtual CPUs:	1
Memory (MB):	2048
Storage (GB):	20
Swap (MB):	<i>No data provided</i>

► Extra Specifications: None

Software

System

Access and Security

Keypair to use for SSH access to the virtual machine:

Deploy Cancel

- Navigate to the “Instances” tab to see the provisioned server. After a few minutes, click the refresh icon. The status of the server should change from “Deploying” to “OK”.

IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days) SmartCloud

[Welcome](#) | **[Instances](#)** | [Volumes](#) | [Images](#) | [Access](#) | [Reports](#) | [Configuration](#)

Image *kvm-image* was sent for deployment as instance *MyApp on kvm-image 2014-05-03 10:34:48*.

You are in: *Instances*


Cloud: |
 Project: |
 Owner:

| More ▾

<input type="checkbox"/>	Instance ▲	Status	Cloud	Project	Owner	Description
<input type="checkbox"/>	MyApp on kvm-image 2014-05-03 10:34:48	Deploying	OpenStack Mock	Public	SmartCloud Entry Administrator	Demo Image


Total: 1 Selected: 0 10 | 2

De-provision a Demo Server

Navigate to the “Instances” tab and click on the server to be de-provisioned. Click the icon  to De-provision the server.



MyApp on kvm-image 2014-05-03 10:34:48

Status:  OK - Running



Name:	MyApp on kvm-image 2014-05-03 10:34:48
Description:	Demo Image
Host name:	instance-7aad4050-1e00-4299-9850-589b5bc8e869
IP address:	10.0.2.2
Cloud:	OpenStack Mock
Project:	Public
Owner:	SmartCloud Entry Administrator (admin)
Deployment date:	Today 10:35 AM
Hypervisor:	KVM
Expiration date:	None

The de-provision action can also be done by selecting the server from the main Instances list and then clicking the “Delete” icon.

[Welcome](#) | **Instances** | [Volumes](#) | [Images](#) | [Access](#) | [Reports](#) | [Configuration](#)

You are in: *Instances*

Cloud: |
 Project: |
 Owner:

<input checked="" type="checkbox"/>	Instance	Status	Cloud	Project	Owner	Description
<input checked="" type="checkbox"/>	MyApp on kvm-image 2014-05-03 10:34:48	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	SmartCloud Entry Administrator	Demo Image


Total: 1 Selected: 1 10

Capturing Instances

To capture a VM instance (server), navigate to the Instances tab and click on the VM instance to be captured.

Click on  and select Capture

You are in: [Instances](#) > [MyApp on kvm-image 2014-05-03 10:34:48](#)



MyApp on kvm-image 2014-05-03 10:34:48
 Status: ✔ OK - Running

Edit
Suspend
Stop
Delete
More

Name:	MyApp on kvm-image 2014-05-03 10:34:48
Description:	Demo Image
Host name:	instance-7aad4050-1e00-428...
IP address:	10.0.2.2
Cloud:	OpenStack Mock
Project:	Public
Owner:	SmartCloud Entry Administra...
Deployment date:	Today 10:35 AM
Hypervisor:	KVM
Expiration date:	None

More

- Display Deployment Definition
- New Based on...
- Set Capture Credentials...
- Capture
- Resize...
- Migrate to new host...
- Pin
- Unpin
- Hide
- Show

Navigate to the Images tab to see the captured instance Page

IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days) SmartCloud Entry Administration

[Welcome](#) | [Instances](#) | [Volumes](#) | **[Images](#)** | [Access](#) | [Reports](#) | [Configuration](#)

You are in: [images](#)

Cloud: |
 Project: |
 Architecture:

| [More](#)

Image	Status	Cloud	Project	Architecture	Version	Description
<input type="checkbox"/> Mock image 1	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/> MyApp on kvm-image 2014-05-03 10:34:48_snapshot_20140503104	Capturing	OpenStack Mook	Public	x86		Image created as a snapshot of instance MyApp on kvm-image 2014-05-03 10:34:48 taken on 5/3/14 10:44 AM.
<input type="checkbox"/> Powerkvm-image	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	Power		Image hypervisor type: qemu
<input type="checkbox"/> cirros-0.3-x86_64	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/> hyperv-image	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/> kvm-image	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	x86		Image hypervisor type: qemu
<input type="checkbox"/> powervm-image	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	Power		Image hypervisor type: powervm
<input type="checkbox"/> precise	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	x86		Image hypervisor type: hyperv
<input type="checkbox"/> zvm-image	<input checked="" type="checkbox"/> OK	OpenStack Mook	Public	z		Image hypervisor type: zvm

Total: 9 Selected: 0 10 | 25 | 50 | All

Starting and Stopping an Instance

To start or stop an instance, navigate to the Instances tab and click on the instance to be stopped or started. If an instance is currently stopped, click the “Start” icon to start the instance. If an instance is currently running, click the “Stop” icon to stop the instance.

Resizing existing virtual machines

To resize an existing virtual machine, navigate to the Instances tab and click on the instance to be resized.

Click  on and select Resize.


The screenshot shows the IBM Cloud Manager interface. At the top, it says "IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days)". Below that is a navigation bar with tabs: "Welcome", "Instances", "Volumes", "Images", "Access", "Reports", and "Configuration". The "Instances" tab is active. Below the navigation bar, it says "You are in: Instances > MyApp on kvm-image 2014-05-03 10:34:48".

The main content area shows the details for the instance "MyApp on kvm-image 2014-05-03 10:34:48". The status is "OK - Running". There are several action buttons: "Edit", "Suspend", "Stop", and "Delete". A "More" dropdown menu is open, showing options: "Display Deployment Definition", "New Based on...", "Set Capture Credentials...", "Capture", "Resize..." (which is highlighted), "Migrate to new host...", "Pin", "Unpin", "Hide", and "Show".

Below the buttons, there is a table of instance details:

Name:	MyApp on kvm-image 2014-05-03 10:34:48
Description:	Demo Image
Host name:	instance-7aad4050-1e00-425...
IP address:	10.0.2.2
Cloud:	OpenStack Mock
Project:	Public
Owner:	SmartCloud Entry Administr...
Deployment date:	Today 10:35 AM
Hypervisor:	KVM
Expiration date:	None

Create Project

Go to Access → Projects click on  and then enter the name of the project.




IBM Cloud Manager with OpenStack Evaluation license (Expires in 85 days) SmartCloud Entry Admin

Welcome | Instances | Volumes | Images | Access | Reports | Configuration

You are in: Projects

Projects
Users
Requests
Accounts
Key Pairs

Projects
View and manage access to projects and their associated images and instances.

<input type="checkbox"/> Project	Description
<input type="checkbox"/> admin	My admin tenant
<input type="checkbox"/> Development	
<input type="checkbox"/> Project1	
<input type="checkbox"/> Public	This is the default project for all existing Cloud resources.
<input type="checkbox"/> second-tenant	another tenant
<input type="checkbox"/> User1	

Move an instance to a Project

Navigate to the instances tab and select the instance to be moved. Click on More and Select “Move to Projects ...”

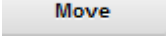
The screenshot shows the IBM Cloud Manager interface. At the top, it says "IBM Cloud Manager with OpenStack Evaluation license (Expires in 90 days)". Below this is a navigation bar with tabs: "Welcome", "Instances" (selected), "Volumes", "Images", "Access", "Reports", and "Configuration". Underneath the navigation bar, it says "You are in: Instances".

There are three filter dropdowns: "Cloud: All Clouds", "Project: All Projects", and "Owner: All Users". Below these are several icons: a refresh icon, a play icon, a list icon, a stop icon, and a delete icon. To the right of these icons is a "More" dropdown menu.

The "More" menu is open, showing the following options: "Capture", "Move to Project..." (highlighted), "Hide", "Show", "Migrate to new host...", and "Include hidden instances" (with an unchecked checkbox).

Below the menu, a table of instances is visible. The first row is "Instance" with a dropdown arrow. The second row is "MyApp on kvm-image 2014-05-03 10:34:48". The table has columns for "Instance", "Project", and "Public". The "Project" column shows "Public" and the "Public" column shows "Public". There is a pagination control showing "< 1 >".

At the bottom left of the instance list, it says "Total: 1 Selected: 1".

Select the target Project from the list. Click on  to move VM instance to that Project. The equivalent workflow can be performed to move an image to a project from the images tab.

Move To Project

Choose a project to contain the selected resources.

	Project ▲	Description
<input type="radio"/>	admin	My admin tenant
<input checked="" type="radio"/>	Devopment	This project is for development VM instances
<input type="radio"/>	Public	This is the default project for all existing Cloud resources.
<input type="radio"/>	second-tenant	another tenant

Total: 4 Selected: 1

Move
Cancel

Creating a Cloud User

Go to Access → Users and click create users

User Profiles

Create, view, and manage users.

More ▾

<input type="checkbox"/>	Name ▲	User ID	Status
<input type="checkbox"/>	CSII_Test1	Test1	<input checked="" type="checkbox"/> Enabled

Add the Name and Password details

[Welcome](#) |
 [Instances](#) |
 [Volumes](#) |
 [Images](#) |
 Access |
 [Reports](#) |
 [Configuration](#)

User user1 has been updated.

You are in: [Users](#)

Projects

Users

Requests

Accounts

Key Pairs

New User Profile

User ID:

Name:

Password:

Confirm password:

Send notifications about instances and other events

Has administrator privileges

Timezone:

Language:

Check Usage Metering and Capacity

Select Reports → Usage Metering
 Verify the Reports for usage of VM's

IBM Cloud Manager with OpenStack Evaluation license (Expires in 85 days)

Welcome | Instances | Volumes | Images | Access | **Reports** | Configuration

You are in: Usage Metering

Events

Usage Metering

Capacity

Usage Metering

Specify the resource filtering information and click the Apply Filter button to view usage information.

Resource Filter

Cloud: Architecture:

Project: Hypervisor:

User name:

Date Range

Start date: End date:

▼ Virtual Machine metering: 5

Metering information reflects the number of resources multiplied by the hours of usage.



Virtual Machine	Status	Cloud	Project	Start Time	Elapsed Time (hours)	Processors * Hours	Memory * Hours	Storage * Hours
instance-4717d00b-a3ce-4b76-95fe-9d0b50c31756	Running	Naveen	Public	Yesterday 4:42 AM	31 Minutes	0.53	1.06	10.60
instance-e5fcadb7-286e-4c3e-857d-d6dd65ff639d	Running	Project1	Public	Mon 3:38 AM	16 Minutes	0.28	0.56	5.60
instance-f5bc1de5-b710-4130-83d5-c11d26192563	Running	Naveen	Public	Yesterday 4:24 AM	18 Minutes	0.30	0.60	6.00
instance-f5bc1de5-b710-4130-83d5-c11d26192563	Stopped	Naveen	Public	Yesterday 4:42 AM	8 Minutes	0.00	0.00	2.80
instance-f5bc1de5-b710-4130-83d5-c11d26192563	Running	Naveen	Public	Yesterday 4:50 AM	29 Hours 7 Minutes	29.12	58.24	582.40

Total: 5

< 1 >

10 | 25 | 50 | 100 +

Check Capacity Statistics of Cloud

Select Reports → Capacity

Verify the Reports for usage of VM's

you are in: Capacity

Cloud: All Clouds Architecture: All Architectures

Name	Status	Cloud	Architecture	CPU	Memory (MB)	Storage (MB)
HypervisorHostName-s390x-zvm9	Active	Naveen	z	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: 0 Physical: 2098176
HypervisorHostName-ppc64-powervm6	Active	Naveen	Power	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: - Physical: -
HypervisorHostName-ppc64-powervm7	Active	Naveen	Power	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: - Physical: -
HypervisorHostName-ppc64-kvm6	Active	Naveen	Power	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: 0 Physical: 2098176
HypervisorHostName-x86_64-kvm5	Active	Naveen	x86	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: 0 Physical: 2098176
HypervisorHostName-ppc64-kvm4	Active	Naveen	Power	Used VCPU: 0 Physical: 32	Used: 0 Physical: 256000	Used: 0 Physical: 2098176
HypervisorHostName-x86_64-kvm3	Active	Naveen	x86	Used VCPU: 1 Physical: 32	Used: 2048 Physical: 256000	Used: 20480 Physical: 2098176

Demo Objective Details for Cloud User

- IBM CMO 4.1 Cloud User Capabilities glimpse to be experienced:
 - Managing Projects : Request access to a project
 - Provision Server
 - View Cloud Usage Statistics

Login as a User

Login as a user (Created in previous Step)

Check various options available as a user and contrast that of Cloud Admin Role

The screenshot shows the IBM Cloud Manager with OpenStack user interface. At the top, there is a navigation bar with 'Welcome', 'Instances', 'Images', 'Access', and 'Reports'. Below the navigation bar, there is a message: 'Click an image below to view the image details and perform image actions.' The main content area displays a welcome message: 'Welcome to IBM Cloud Manager with OpenStack' and a sub-message: 'IBM Cloud Manager with OpenStack enables users to provision virtual machines quickly. Click an action to get started.' There are six action cards arranged in a 3x2 grid:

- Browse Deployable Images**: Deploy an image to create a virtual machine instance.
- Manage Instances**: Monitor, resize and de-provision virtual machines.
- View Requests**: View the status of your requests.
- View Projects**: Manage projects you own and request membership to projects that contain images and instances you want to access.
- View Activity Reports**: Monitor instance usage and view events for cloud resources.
- Monitor your Account**: Track resource usage costs by viewing charges to your account.

On the right side, there is a sidebar with several sections:

- Cloud Status**: Shows a green checkmark and the text 'Cloud Status'.
- Instance Summary**: A summary table showing instance counts by status: OK (2), Error (0), Pending (0), In Transition (0), Stopped (0), and Unknown (0).
- Resource Usage**: A section for monitoring resource usage.
- Recent Events**: A list of recent events, including 'SmartCloud Entry Administra...', 'Image Mock Image 1 updated...', 'Image Mock Image 1 moved fr...', 'Instance kvm-image 2014-09-0...', 'Start instance kvm-image 2014...', 'Instance start request for instan...', and 'Instance kvm-image 2014-09-0...'.

Provision a Server to a Project

Go to Images and filter by Project “Development” (Created in Admin Role)

[Welcome](#) | [Instances](#) | [Images](#) | [Access](#) | [Reports](#)

Click an image below to view the image details and perform image actions.

You are in: [Images](#)

Cloud: Project: Architecture:

Image	Status	Cloud	Architecture	Version	Description
<input type="checkbox"/> Mock Image 1	<input checked="" type="checkbox"/> OK	Naveen	x86		Image hypervisor type: hyperv

Deploy the Image

[Welcome](#) | [Instances](#) | [Images](#) | [Access](#) | [Reports](#)

Click an image below to view the image details and perform image actions.

You are in: [Images](#) > [Mock Image 1](#)

Mock Image 1
 Status: OK

Name:	Mock Image 1
Description:	Image hypervisor type: hyperv
Cloud:	Naveen
Project:	Development
Last modified:	Today 3:22 PM
Version:	<i>No data provided</i>
Revision:	<i>No data provided</i>
Revision comments:	<i>No data provided</i>

View Cloud Resource Usage

Go to Reports → Usage Metering

View the Cloud resource usage statistics

Welcome
Instances
Images
Access
Reports

Click Events to view events for cloud resources. Click Usage Metering to monitor usage for deployed instances.

You are in: Usage Metering

Events

Usage Metering

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Specify the resource filtering information and click the Apply Filter button to view usage information.

Resource Filter

Cloud: Architecture:

Project: Hypervisor:

User name:

Date Range

Start date: End date:

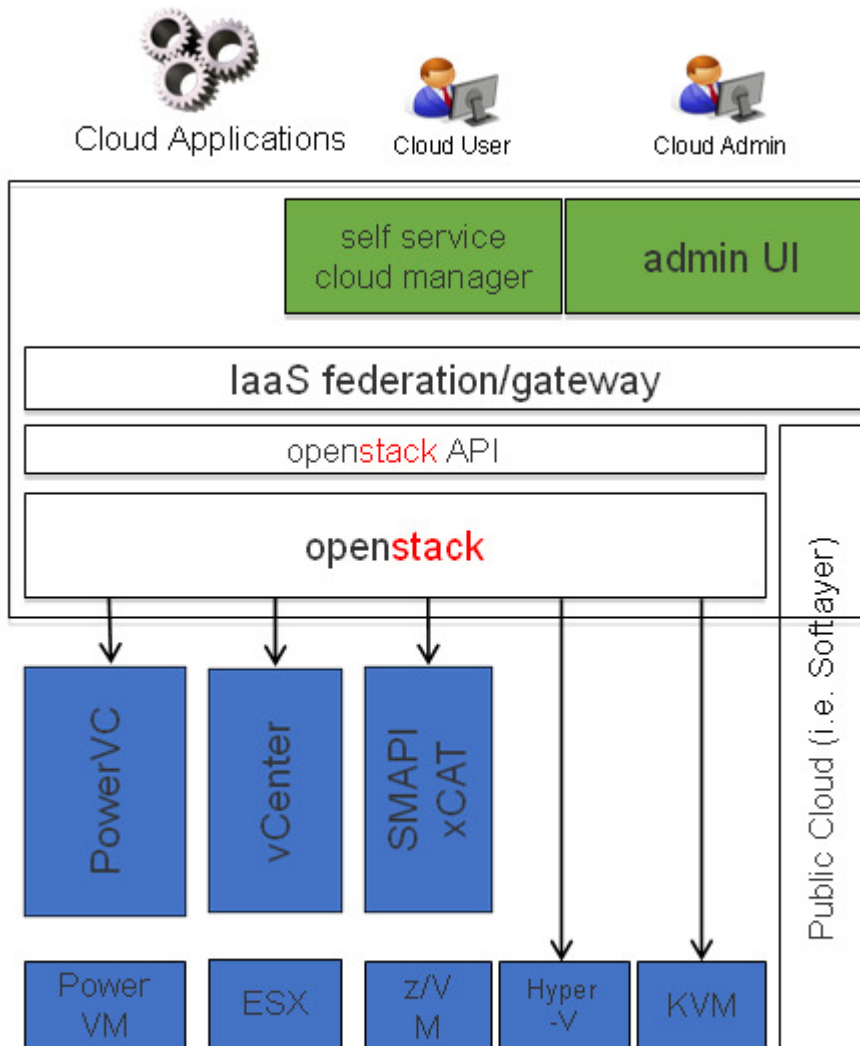
Virtual Machine metering: 1

Metering information reflects the number of resources multiplied by the hours of usage.

Virtual Machine	Status	Cloud	Start Time	Elapsed Time (hours)	Processors * Hours	Memory * Hours	Storage * Hours
instance-395dc58e-2e60-4eab-bcef-99d7fc18d895	✔ Running	Naveen	Today 3:59 PM	4 Minutes	0.07	0.14	1.40

Backup Contents

Architecture to IBM Cloud Manager with OpenStack



- OpenStack cloud solutions
- OpenStack APIs exposed for applications

Architecture to IBM Cloud Manager with OpenStack

