OPENSTACK® Multi-Tenant Isolation Instructions

Prepared by: Walter Bentley, Rackspace

These instructions are intended to provide step-by-step instructions to create Tenants with Multi-Tenant Isolation enforced. The set of instructions are based on the OpenStack Juno release and may need revision for future OpenStack releases.

Two methods are available to accomplish this task. One method is to utilize the OpenStack CLI to manually enforce it and the second method is to use the Ansible playbook created.

Prerequisite Configurations

Add additional Nova Scheduling filters
Append the below additional Nova Scheduling filters to *scheduler_default_filters* in the nova.conf file. This filter tells Nova to adhere to the host aggregate filter we will apply below.

```
AggregateInstanceExtraSpecsFilter
AggregateMultiTenancyIsolation
```

Configure and enable multiple-storage back ends
To enable a multiple-storage back ends, you must set the enabled_backends flag in the cinder.conf file. Below is an example of the block to add to the cinder.conf file.

```
enabled_backends=US-lvm,UK-lvm
[US-lvm]
volume_driver=cinder.volume.drivers.lvm.LVMISCSIDriver
volume_backend_name=LVM_iSCSI
volume_group=cinder-volumes

[UK-lvm]
volume_driver=cinder.volume.drivers.lvm.LVMISCSIDriver
volume_backend_name=LVM_iSCSI_2
volume_group=cinder-volumes2
```

Create volume type

```
$ cinder type-create <volume type name>

$ cinder type-key <volume type name> set volume_backend_name=<backend name>
```

Working examples below:

```
$ cinder type-create netapp_US
$ cinder type-key netapp_US set volume_backend_name=LVM_iSCSI
```

Using the OpenStack CLI

Create new tenant

```
$ keystone tenant-create --name=<name> --description="<tenant description>"
```

** Take note of the ID of the tenant just created.*

Create new aggregate for new tenant

```
$ nova aggregate-create <name>
```

**Take note of the ID of the aggregate just created.*

Add hosts to aggregate, one command for each host. Use the ID from the aggregate just created.

```
$ nova aggregate-add-host <aggregate name> <host name>
```

OPENSTACK® Multi-Tenant Isolation Instructions (cont.)

Working examples below:

Tenant assigned to US AZ

```
$ nova aggregate-add-host <aggregate name> 642140-compute001
$ nova aggregate-add-host <aggregate name> 642142-compute002
```

OR

Tenant assigned to UK AZ

```
$ nova aggregate-add-host <aggregate name> 650504-compute005
$ nova aggregate-add-host <aggregate name> 650508-compute006
```

Update aggregate metadata to include tenant ID filter

```
$ nova aggregate-set-metadata <aggregate ID> filter_tenant_id=<tenant ID>
```

Create new flavor to include tenant ID filter

```
$ nova flavor-create <flavor name> <id> <ram> <disk> <vcpus>
$ nova flavor-key <flavor name> set filter_tenant_id=<tenant ID>
```

Update default tenant quota to allow and restrict block storage availability

To allow access to US NetApp and restrict UK NetApp

```
$ cinder quota-update --volumes 100 --volume-type netapp_US <tenant ID>
$ cinder quota-update --volumes 0 --volume-type netapp_UK <tenant ID>
```

OR

To allow access to UK NetApp and restrict US NetApp

```
$ cinder quota-update --volumes 100 --volume-type netapp_UK <tenant ID>
$ cinder quota-update --volumes 0 --volume-type netapp_US <tenant ID>
```

Using the Ansible Playbook

Step 1: Clone the following repo from GitHub *(consider this a working example that you can later alter for your specific needs)*:

```
$ git clone --recursive https://github.com/wbentley15/openstack-tenant-isolation.git
```

Step 2: Move the repo to any of your Infrastructure nodes or anywhere that can access the OpenStack API's.

Step 3: Update the *'hosts'* file located in the root directory with the IP address of the 'Utility' container.

Step 4: Update the *'/group_vars/util_container'* variable file with a corresponding cloud credentials (username, password, tenant and authorization URL) and new tenant name you wish to create. There is an example there to reference.

Step 5: Update the *'/vars/main.yml'* variable file located within each of the roles folders. You need to add the host names to be added to the tenant aggregate group and the volume type names to allow/restrict access to. There is an example there to reference.

Step 6: From within the root of the playbook folder, execute the following command:

```
$ ansible-playbook -i hosts base.yml
```