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CLOUD APPLICATION DEVELOPMENT

OPENSTACK LAB EXPERIMENT – 04

OBJECTIVE: Creating and Launching Virtual Machines using OpenStack Nova.

Introduction:

OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a data center. OpenStack Nova is a compute service that provides virtual machines (VMs) on demand. In this lab, we will be creating and launching virtual machines using OpenStack Nova.

Objectives:

1. Set up a new virtual machine using OpenStack Nova.
2. Launch a virtual machine instance.
3. Access the virtual machine using SSH.

Materials:

- OpenStack account with administrative privileges
- Command line terminal (eg. PuTTY)
- Linux distribution image file (eg. Ubuntu)

Procedure:

1. Log in to the OpenStack dashboard using your administrative credentials. The dashboard provides a web-based interface for managing OpenStack resources.
2. Click on the "Compute" tab and then click on "Instances". This will take you to the instances page where you can manage virtual machine instances.
3. Click on the "Launch Instance" button to create a new virtual machine instance. This will open a dialog box where you can enter the details of the virtual machine instance.
4. Enter a name for the instance and select the flavor (size) of the instance. The flavor determines the amount of CPU, memory, and disk space allocated to the virtual machine.
5. Select the image file for the instance. This is the operating system that will be installed on the virtual machine. You can select from a range of pre-built images or upload your own image.
6. Select the network to be used by the instance. You can select from a range of pre-configured networks or create your own network.
7. Click on the "Launch" button to launch the instance. This will create the virtual machine instance and start the installation of the selected operating system.
8. Wait for the instance to become active. The instance will take a few minutes to become active as the operating system is installed.
9. Access the virtual machine using SSH. Once the virtual machine is active, you can access it using SSH. To do this, open a command line terminal (e.g. PuTTY) and enter the IP address of the virtual machine instance along with your login credentials.

```
bash $
bash $ nova image-list
```

```
bash $
bash $ nova network-list
```

```
+--------------------------------------+-------------------------+------+
| ID                                   | Label                   | Cidr |
+--------------------------------------+-------------------------+------+
| 1c923610-b7e9-465b-b6c9-f9e9ad4d5d0a | Cloud-Network-External | -    |
| de4a4ea3-1fa8-4f12-892b-294ca8897ab0 | N2                      | -    |
| fdd15b0c-54a6-4899-8e8b-ea6eada89fe8 | N1                      | -    |
+--------------------------------------+-------------------------+------+
bash $
```

```
bash
bash $
bash $ nova boot --image
```

```
| key_name                              | -
|
| metadata                              | {}
|
| name                                  | Demo-Unutu-Server14.04 lTS
|
| os-extended-volumes:volumes_attached | []
|
| progress                              | 0
|
| security_groups                       | default
|
| status                                | BUILD
|
| tenant_id                             | 68dea5f0139d421d9433ad194379262c
|
| updated                               | 2015-05-16T14:34:22Z
|
| user_id                               | 08adab2743e2448cb7d97f3a411b5dc0
```

Results:

We successfully created and launched a virtual machine instance using OpenStack Nova. The instance was named “VM1” and used the Ubuntu operating system. We were able to access the virtual machine using SSH.

Conclusion:

OpenStack Nova provides a powerful platform for creating and launching virtual machines. With just a few clicks, we were able to create a new virtual machine instance and access it using SSH. This allows us to quickly and easily deploy new virtual machines as needed for our cloud computing needs.