SSN COLLEGE OF ENGINEERING
Department of Computer Science and Engineering
CS6712 Grid and Cloud Computing Laboratory

Assignment -6 : Private Cloud Setup using Eucalyptus

Assigned Date: 31.07.2017. **Due Date: 01. 08.2017 & 04.08.2017**

I. Install Eucalyptus (Open Source software for Private Cloud) by configuring the below components.

- Cloud Controller (CLC) on VM1 with ubuntu-UEC-10.04-server-amd64
- Cluster Controller (CC) on VM1 with ubuntu-UEC-10.04-server-amd64
- Walrus on VM1 with ubuntu-UEC-10.04-server-amd64
- Storage Controller (SC) on VM1 with ubuntu-UEC-10.04-server-amd64
- Node Controller (NC) on VM2 with ubuntu-UEC-10.04-server-amd64
- Client to access Cloud components on VM3 with ubuntu-16.04.1-desktop-amd64

Follow the Eucalyptus Documentation in the below link.

https://docs.hpcloud.com/eucalyptus/4.2.1/index.html#install-guide/eucalyptus.html

Follow below steps

1. Install Virtual Box.
2. Create two VMs as VM1 and VM2.
3. Configure network as DHCP and don't use Ethernet.
4. Use Bridged network along with DHCP. Ping and check correctness
5. Install Ubuntu 10.04 Server in both VMs
6. In VM1 install components like (Cloud controller, Cluster Controller, Walrus and Storage Controller)
7. In VM2 install Node controller.
8. In VM3 Web Interface, login as https://<cloud-ip>:8443

   Username: admin

   Password: admin

Check all the resources available.

In Client Ubuntu-Desktop, do the following.

1. https://<cloud-controller-ip-address>:8443/
2. Use username 'admin' and password 'admin' for the first time login (you will be prompted to change your password).
3. Then follow the on-screen instructions to update the admin password and email address.
4. Once the first time configuration process is completed, click the 'credentials' tab located in the top-left portion of the screen.
5. Click the 'Download Credentials' button to get your certificates
6. Save them to ~/.euca
7. Unzip the downloaded zip file into a safe location (~/.euca)

   ]$ unzip -d ~/.euca mycreds.zip

9. On Cloud controller run the following command

]$ sudo start uec-component-listener
Alternatively, if you are on the command line of the Cloud Controller, you can run:

```
]$ mkdir -p ~/.euca
]$ chmod 700 ~/.euca
]$ cd ~/.euca
]$ sudo euca_conf --get-credentials mycreds.zip
]$ unzip mycreds.zip
]$ ln -s ~/.euca/eucarc ~/.eucarc
]$ cd -
```

10. Source eucarc using the command]$ source eucarc

Or]$. ~/.euca/eucarc

11. Install euca2ools in client machine.

]$ sudo apt-get install <euca2ools package>

To Download euca2ools package

https://docs.eucalyptus.com/eucalyptus/latest/#shared/installing_euca2ools_rhel.html

To convert rpm to debian package to be executed in Ubuntu 16.04 Desktop
First install packages that will convert rpm packages to Debian
]$ sudo apt-get install alien dpkg-dev debhelper build-essential
Now convert package from RPM format to Deb format, use the following command. Change your packagename in command:
]$ sudo alien packagename.rpm
To install the deb package
]$ sudo dpkg -i packagename.deb
]$ sudo apt-get -f install

12. Execute euca commands for the following.

]$ euca-describe-images
]$ euca-describe-instances
]$ euca-describe-availability-zones
]$ euca-describe-keypairs

13. Creating Keypairs

]$ euca-add-keypair mykey | tee mykey.private

]$ chmod 0600 mykey.private

14. Using Block Storage

Creating a volume
To create a dynamic block volume, use "euca-create-volume."
For instance, to create a volume that is 1GB in size in the availability zone "myzone" you may use the following command,
]$ euca-create-volume --size 1 -z <cluster-name>

]$ euca-describe-volumes

Creating a snapshot
You may create an instantaneous snapshot of a volume. A volume could be attached and in use during a snapshot operation.
For example, to create a snapshot of the volume "vol-33534456" use the following command
]$ euca-create-snapshot vol-33534456

Deleting a volume:

]$ euca-delete-volume vol-33534456

15. Controlling eucalyptus services:

- **]$ sudo service eucalyptus** [start|stop|restart] (on the CLC/CC/SC/Walrus side)
- **]$ sudo service eucalyptus-nc** [start|stop|restart] (on the Node side)

16. Locations of some important files:

- **Log files:**
  - /var/log/eucalyptus
- **Configuration files:**
  - /etc/eucalyptus
- **Database:**
  - /var/lib/eucalyptus/db
- **Keys**
  - /var/lib/eucalyptus
  - /var/lib/eucalyptus/.ssh

Notes:

- Don't forget to source your ~/.euca/eucarc before running the client tools.