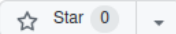
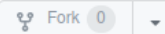
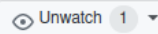


Name: Pacinos, Angela Monique A.	Date Performed: 12-03-23		
Course/Section: CPE232 - CPE31S4	Date Submitted: 12-06-23		
Instructor: Dr. Jonathan V. Taylar	Semester and SY: 1st Sem: '23 - '24		
Activity 15: OpenStack Installation (Neutron, Horizon, Cinder)			
1. Objectives			
Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).			
2. Intended Learning Outcomes			
<ol style="list-style-type: none"> 1. Analyze the advantages and disadvantages of cloud services 2. Evaluate different Cloud deployment and service models 3. Create a workflow to install and configure OpenStack base services using Ansible as documentation and execution. 			
3. Resources			
Oracle VirtualBox (Hypervisor) 1x Ubuntu VM or Centos VM			
4. Tasks			
<ol style="list-style-type: none"> 1. Create a new repository for this activity. 2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/ <ol style="list-style-type: none"> a. Neutron b. Horizon c. Cinder d. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in the Inventory file. e. Add, commit and push it to your GitHub repo. 			
5. Output (screenshots and explanations)			
<table border="1"> <tr> <td>INPUT</td> </tr> <tr> <td>Create a new repository for this activity</td> </tr> </table>		INPUT	Create a new repository for this activity
INPUT			
Create a new repository for this activity			

CPE232_HOA15 Public



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About



Branches Tags



Angela-Pacinos Initial commit

2 minutes ago 1



README.md Initial commit

2 minutes ago

README.md



CPE232_HOA15

CPE232 - CPE31S4 Hands-on Activity 15

Readme

Activity

0 stars

1 watching

0 forks

Releases

No releases published

[Create a new release](#)

```
angela@workstation: ~/CPE232_HOA15
angela@workstation:~$ git clone https://github.com/Angela-Pacinos/CPE232_HOA15.git
Cloning into 'CPE232_HOA15'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
angela@workstation:~$ cd CPE232_HOA15
angela@workstation:~/CPE232_HOA15$ sudo nano ansible.cfg
[sudo] password for angela:
angela@workstation:~/CPE232_HOA15$ sudo nano inventory
angela@workstation:~/CPE232_HOA15$ sudo nano controller.yml
angela@workstation:~/CPE232_HOA15$ ls
ansible.cfg  controller.yml  inventory  README.md
angela@workstation:~/CPE232_HOA15$
```

```
angela@workstation: ~/CPE232_HOA15
angela@workstation:~/CPE232_HOA15$ tree
.
├── ansible.cfg
├── controller.yml
├── inventory
├── README.md
├── roles
│   ├── c_server
│   │   └── tasks
│   │       └── main.yml
│   └── u_server
│       └── tasks
│           └── main.yml
└── 5 directories, 6 files
```

Create a playbook that converts the steps in the following items in <https://docs.openstack.org/install-guide/>

controller.yml

```
angela@workstation: ~/CPE232_HOA15
GNU nano 6.2 install.yml
---
- hosts: all
  become: true
  pre_tasks:
    - name: Install updates (Ubuntu)
      apt:
        upgrade: dist
        update_cache: yes
        when: ansible_distribution == "Ubuntu"
    - name: Install updates (CentOS)
      yum:
        update_only: yes
        update_cache: yes
        when: ansible_distribution == "CentOS"
- hosts: u_controller
  become: true
  roles:
    - controller
- hosts: c_compute
  become: true
  roles:
    - compute
```

for Ubuntu

```
angela@workstation: ~/CPE232_HOA15/roles/u_server/tasks
GNU nano 6.2 main.yml
# Neutron
- name: Install Neutron packages
  apt:
    name:
      - neutron-server
      - neutron-plugin-ml2
      - neutron-linuxbridge-agent
      - neutron-dhcp-agent
      - neutron-metadata-agent
    state: latest
- name: Neutron Starting / Enabling
  service:
    name: neutron-server
    state: started
    enabled: true
# Horizon
- name: Install Horizon package
  apt:
    name: openstack-dashboard
    state: latest
- name: Horizon Restarting / Enabling
  service:
    name: apache2.service
    state: restarted
    enabled: true
# Cinder
- name: Install Cinder package
  apt:
    name: cinder-volume
    state: latest
- name: Cinder Restarting / Enabling
  service:
    name:
      - tgt
      - cinder-volume
    state: restarted
    enabled: true
```

for CentOS

```
angela@workstation: ~/CPE232_HOA15/roles/c_server/tasks
GNU nano 6.2 main.yml
# Neutron
- name: Install Neutron packages
  yum:
    name:
      - openstack-neutron-linuxbridge
      - ebtables
      - ipset
    state: latest

- name: Neutron Starting / Enabling
  service:
    name: openstack-nova-compute.service
    state: started
    enabled: true

# Horizon
- name: Install Horizon packages
  yum:
    name: openstack-dashboard
    state: latest

- name: Horizon Restarting / Enabling
  service:
    name:
      - httpd.service
      - memcached.service
    state: restarted
    enabled: true

# Cinder
- name: Install Cinder packages
  yum:
    name:
      - openstack-cinder
      - targetcli
    state: latest

- name: Cinder Starting / Enabling
  service:
    name: openstack-cinder-volume.service target.service
    state: started
    enabled: true
```

Add, commit, and push it to your GitHub repo.

```
angela@workstation:~/CPE232_HOA15$ git add *
angela@workstation:~/CPE232_HOA15$ git commit -m "HOA15"
[main 8028a15] HOA15
 5 files changed, 125 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 controller.yml
 create mode 100644 inventory
 create mode 100644 roles/c_server/tasks/main.yml
 create mode 100644 roles/u_server/tasks/main.yml
angela@workstation:~/CPE232_HOA15$ git push origin main
Username for 'https://github.com': Angela-Pacinos
Password for 'https://Angela-Pacinos@github.com':
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 2 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (12/12), 1.40 KiB | 89.00 KiB/s, done.
Total 12 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/Angela-Pacinos/CPE232_HOA15.git
da5683c..8028a15 main -> main
```

PROCESS

```
angela@workstation: ~/CPE232_HOA15
angela@workstation: ~/CPE232_HOA15$ ansible-playbook --ask-become-pass install.yml
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.119]
ok: [192.168.56.117]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.56.119]
ok: [192.168.56.117]

TASK [Install updates (CentOS)] *****
skipping: [192.168.56.117]
ok: [192.168.56.119]

PLAY [u_controller] *****

TASK [Gathering Facts] *****
ok: [192.168.56.117]

TASK [controller : Install Neutron packages] *****
ok: [192.168.56.117]

TASK [controller : Neutron Starting / Enabling] *****
ok: [192.168.56.117]

TASK [controller : Install Horizon package] *****
ok: [192.168.56.117]

TASK [controller : Horizon Restarting / Enabling] *****
changed: [192.168.56.117]

TASK [controller : Install Cinder package] *****
ok: [192.168.56.117]

TASK [controller : Cinder Restarting / Enabling] *****
changed: [192.168.56.117]

PLAY [c_compute] *****

TASK [Gathering Facts] *****
ok: [192.168.56.119]

TASK [compute : Install Neutron packages] *****
ok: [192.168.56.119]

TASK [compute : Neutron Starting / Enabling] *****
ok: [192.168.56.119]

TASK [compute : Install Horizon packages] *****
ok: [192.168.56.119]

TASK [compute : Horizon Restarting / Enabling] *****
changed: [192.168.56.119]

TASK [compute : Install Cinder packages] *****
changed: [192.168.56.119]

TASK [compute : Cinder Starting / Enabling] *****
changed: [192.168.56.119]

PLAY RECAP *****
192.168.56.117      : ok=9    changed=2    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.119      : ok=9    changed=3    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

angela@workstation:~/CPE232_HOA15$
```

OUTPUT

Neutron

```
angela@server1: ~  
angela@server1:~$ systemctl status neutron-server  
● neutron-server.service - OpenStack Neutron Server  
   Loaded: loaded (/lib/systemd/system/neutron-server.service; enabled; vendor preset: e>  
   Active: active (running) since Sun 2023-12-03 17:40:31 +08; 10s ago  
     Docs: man:neutron-server(1)  
  Main PID: 41957 (neutron-server)  
    Tasks: 1 (limit: 5652)  
   Memory: 96.0M  
      CPU: 7.972s  
   CGroup: /system.slice/neutron-server.service  
           └─41957 /usr/bin/python3 /usr/bin/neutron-server --config-file=/etc/neutron/n>  
  
angela@server1:~$ neutron-server --version  
neutron-server 20.4.0  
angela@server1:~$
```

```
CentOS_Pacinos [Running] - Oracle VM VirtualBox  
File Machine View Input Devices Help  
Applications Places Terminal Tue 08:44  
angela@localhost:~  
File Edit View Search Terminal Help  
[angela@localhost ~]$ systemctl status neutron-linuxbridge-agent  
● neutron-linuxbridge-agent.service - OpenStack Neutron Linux Bridge Agent  
   Loaded: loaded (/usr/lib/systemd/system/neutron-linuxbridge-agent.service; enabled;  
 vendor preset: disabled)  
   Active: active (running) since Tue 2023-12-05 08:44:38 PST; 2s ago  
 Process: 21206 ExecStartPre=/usr/bin/neutron-enable-bridge-firewall.sh (code=exited,  
 status=0/SUCCESS)  
  Main PID: 21214 (neutron-linuxbr)  
    Tasks: 1  
   CGroup: /system.slice/neutron-linuxbridge-agent.service  
           └─21214 /usr/bin/python2 /usr/bin/neutron-linuxbridge-agent --config-file...  
  
Dec 05 08:44:38 localhost.localdomain systemd[1]: neutron-linuxbridge-agent.service....  
Dec 05 08:44:38 localhost.localdomain systemd[1]: Stopped OpenStack Neutron Linux B...  
Dec 05 08:44:38 localhost.localdomain systemd[1]: Starting OpenStack Neutron Linux ...  
Dec 05 08:44:38 localhost.localdomain neutron-enable-bridge-firewall.sh[21206]: net....  
Dec 05 08:44:38 localhost.localdomain neutron-enable-bridge-firewall.sh[21206]: net....  
Dec 05 08:44:38 localhost.localdomain systemd[1]: Started OpenStack Neutron Linux B...  
Hint: Some lines were ellipsized, use -l to show in full.  
[angela@localhost ~]$
```

```
angela@server1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2023-12-03 18:13:36 +08; 26s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 49519 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 49523 (apache2)
    Tasks: 65 (limit: 5652)
   Memory: 61.8M
      CPU: 2.061s
   CGroup: /system.slice/apache2.service
           └─49523 /usr/sbin/apache2 -k start
           └─49524 "(wsgi:horizon) " -k start
           └─49525 "(wsgi:horizon) " -k start
           └─49526 "(wsgi:horizon) " -k start
           └─49527 "(wsgi:keystone-pu" -k start
           └─49528 "(wsgi:keystone-pu" -k start
           └─49530 "(wsgi:keystone-pu" -k start
           └─49534 "(wsgi:keystone-pu" -k start
           └─49535 "(wsgi:keystone-pu" -k start
           └─49537 /usr/sbin/apache2 -k start
           └─49539 /usr/sbin/apache2 -k start
           └─49546 /usr/sbin/apache2 -k start
           └─49549 /usr/sbin/apache2 -k start
           └─49551 /usr/sbin/apache2 -k start
```

```
CentOS_Pacinos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Tue 17:28

angela@localhost:~
File Edit View Search Terminal Help

[angela@localhost ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Drop-In: /usr/lib/systemd/system/httpd.service.d
            └─openstack-dashboard.conf
   Active: active (running) since Tue 2023-12-05 17:25:09 PST; 1min 3s ago
     Docs: man:httpd(8)
           man:apachectl(8)
   Process: 2711 ExecStartPre=/usr/bin/python2 /usr/share/openstack-dashboard/manage.py compress --force -v0 (code=exited, status=0/SUCCESS)
   Process: 1212 ExecStartPre=/usr/bin/python2 /usr/share/openstack-dashboard/manage.py collectstatic --noinput --clear -v0 (code=exited, status=0/SUCCESS)
  Main PID: 4280 (httpd)
    Status: "Total requests: 0; Current requests/sec: 0; Current traffic:  0 B/sec"
    Tasks: 24
   CGroup: /system.slice/httpd.service
            └─4280 /usr/sbin/httpd -DFOREGROUND
              4290 /usr/sbin/httpd -DFOREGROUND
              4291 /usr/sbin/httpd -DFOREGROUND
              4292 /usr/sbin/httpd -DFOREGROUND
              4293 /usr/sbin/httpd -DFOREGROUND
              4294 /usr/sbin/httpd -DFOREGROUND
              4295 /usr/sbin/httpd -DFOREGROUND
```

Cinder

```
angela@server1: ~  
angela@server1:~$ systemctl status cinder-volume  
● cinder-volume.service - OpenStack Cinder Volume  
   Loaded: loaded (/lib/systemd/system/cinder-volume.service; enabled; vendor preset: en  
   Active: active (running) since Sun 2023-12-03 18:16:54 +08; 6s ago  
     Docs: man:cinder-volume(1)  
  Main PID: 50231 (cinder-volume)  
    Tasks: 1 (limit: 5652)  
   Memory: 69.8M  
      CPU: 4.761s  
   CGroup: /system.slice/cinder-volume.service  
           └─50231 /usr/bin/python3 /usr/bin/cinder-volume --config-file=/etc/cinder/cin  
angela@server1:~$ cinder --version  
8.3.0  
angela@server1:~$
```

```
CentOS_Pacinos [Running] - Oracle VM VirtualBox  
File Machine View Input Devices Help  
Applications Places Terminal Tue 08:51  
angela@localhost:~  
File Edit View Search Terminal Help  
[angela@localhost ~]$ systemctl status openstack-cinder-api  
● openstack-cinder-api.service - OpenStack Cinder API Server  
   Loaded: loaded (/usr/lib/systemd/system/openstack-cinder-api.service; enabled; vendo  
r preset: disabled)  
   Active: active (running) since Tue 2023-12-05 08:50:27 PST; 4s ago  
  Main PID: 23887 (cinder-api)  
    Tasks: 1  
   CGroup: /system.slice/openstack-cinder-api.service  
           └─23887 /usr/bin/python2 /usr/bin/cinder-api --config-file /usr/share/cin...  
Dec 05 08:50:27 localhost.localdomain systemd[1]: openstack-cinder-api.service hold...  
Dec 05 08:50:27 localhost.localdomain systemd[1]: Stopped OpenStack Cinder API Server.  
Dec 05 08:50:27 localhost.localdomain systemd[1]: Started OpenStack Cinder API Server.  
Hint: Some lines were ellipsized, use -l to show in full.  
[angela@localhost ~]$
```

Reflections:

1. Describe Neutron, Horizon and Cinder services

Neutron is a Networking service that is developed to allow users to build / set up topology to prove network connectivity. With this it enables users to set up and manage networks, can configure it and customize according to needs. It allows for utilizing different networking technologies to power the cloud and is managed by other OpenStack services like Nova.

Horizon is primarily developed to facilitate data sharing, providing public access, etc. It serves as a web-based dashboard providing the users graphical interface. IT also includes features like managing compute instances, storage, networks, etc making it an essential tool for users that prefer visual interface.

Cinder is developed to create and manage a service that provides data storage to cloud computing applications. It allows users to create, attach, and detach block storage devices to VMs. It can be used for many things like storing data or providing more storage capacity offering flexibility in choosing what is the right storage solution depending on the need.

Conclusions:

This activity is still connected to the previous activities. Since this is connected to the previous ones I already quite learned properly how to build the structure and debug the errors. I just followed the installation process on the website and turned it into a playbook structure. I encountered errors where some of the libraries of the packages are not supported by the version so I removed them and replace with the appropriate ones. This error was mostly in the centos that is why I made sure that the right libraries that are compatible with the version that I have is what is being installed. Overall, installing these packages didn't take that long since there is only a few, I just had challenges in finding the right version and right libraries to install as well as the indentation and spellings in the playbook.