步子太大了 ansible的那块压根整部明白。卡在了OVS的网络那块，PVE的环境暂时不想破坏啊。头疼进行不下去啊
规划上就有问题 内网和公网那些自己都没想好。而且还有控制节点和计算存储节点装什么软件都不清楚！

麻蛋的，回归到底还是得在虚拟化上做实验后才能往真是机器上搞啊
centos7来一套就行了，debian的那个看时间，就怕搞废了。重头开始

centos7 V1.1的模板在VC的那个集群上。6台机器规划看自己的表

- **6**台Ubuntu 16.04 LTS：
  ① **Cotroller**：用于整个集群的控制，高可靠性要求。承载数据库（MySQL）、队列服务器（RabbitMQ）、和最终的web入口（Apache+Memcache）。设置一块虚拟硬盘。要求网卡eth0接External Network，eth1接Management Network子网。
  ② **Network**：网络控制节点，高网络吞吐型节点。设置一块虚拟硬盘。要求3网卡，eth0接External Network，eth1接Management Network子网, eth2接Data Network子网。
  ③ **Compute**：计算节点，高内存+CPU+IO消耗型节点。设置一块虚拟硬盘。要求网卡eth0接External Network，eth1接Management Network子网，eth2接Data Network子网。
  ④ **BlockStorage**：块存储节点，提供块存储和共享文件系统服务。设置三块虚拟硬盘，一块安装操作系统，一块用于块存储服务，一块用于共享文件系统服务。要求网卡eth0接External Network，eth1接Management Network子网。
  ⑤ **ObjectStorage**：两个对象存储节点，提供对象存储服务。设置三块虚拟硬盘，一块安装操作系统，两块用于对象存储服务。要求网卡eth0接External Network，eth1接Management Network子网。
  注：上述为了方便管理，对每个节点都添加了`eth0`网络接口，实际生产环境请根据实际情况配置。

Node	OpenStack Service
Controller	mariadb-server、mongodb-server、rabbitmq-server、memcached、keystone、apache2、glance、nova-api、nova-conductor、nova-consoleauth、nova-novncproxy、nova-scheduler、neutron-server、neutron-plugin-ml2、horizon(dashboard)、cinder-api cinder-scheduler、manila-api、manila-scheduler、python-manilaclient、swift、swift-proxy、python-swiftclient、heat-api、heat-api-cfn、heat-engine、ceilometer-api、ceilometer-collector、ceilometer-agent-central、ceilometer-agent-notification、python-ceilometerclient、python-ceilometermiddleware、aodh-api、aodh-evaluator、aodh-notifier、aodh-listener、aodh-expirer、python-trove、python-troveclient、python-glanceclient、trove-common、trove-api、trove-taskmanager、trove-conductor、sahara-api、sahara-engine、sahara-templates、sahara-wsgi-api
Network	neutron-linuxbridge-agent、neutron-l3-agent、neutron-dhcp-agent、neutron-metadata-agent
Compute	nova-compute、neutron-linuxbridge-agent、kvm、ceilometer-agent-compute
BlockStorage	lvm2、cinder-volume、manila-share、neutron-plugin-linuxbridge-agent
ObjectStorage	xfsprogs、rsync、swift、swift-account、swift-container、swift-object

搞定后修改主机名ansible管理，包括硬盘的分区挂载等。ceph晚点再试

如下是prepare.sh脚本的内容，安装必要的软件。NTP使用内网的Ubuntu14.04那台机器

```
yum install -y bridge-utils debootstrap ifenslave ifenslave-2.6 lrzsz git lsof lvm2 chrony openssh-server sudo tcpdump vlan python
echo 'bonding' >> /etc/modules-load.d/openstack-ansible.conf
echo '8021q' >> /etc/modules-load.d/openstack-ansible.conf
echo "1 quanjing" >/etc/chrony.keys
sed -i "s/server/#server/g" /etc/chrony.conf
echo "server 192.168.62.13 iburst" >>/etc/chrony.conf
systemctl enable chronyd.service
systemctl restart chronyd.service
```

执行timedatectl 确认主机的时间ok，接下来是大头网络。linux的网络需要单独配置网卡文件蛋疼

https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/networking_guide/sec-configure_802_1q_vlan_tagging_using_the_command_line

https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/6/html/deployment_guide/s2-networkscripts-interfaces_network-bridge

传统网卡的配置文件

```
[root@ops_control__230 network-scripts]# cat ifcfg-ens192
DEVICE="ens192"
IPV6INIT="no"
BOOTPROTO="none"
UUID="3e1dc006-2a10-423f-95aa-bf887cfa2c96"
ONBOOT="yes"
IPADDR="192.168.61.230"
PREFIX="24"
GATEWAY="192.168.61.254"
 DNS1="114.114.114.114"
```

Bond网卡自动负载均衡的配置文件

```
[root@storage_62_16 network-scripts]# cat ifcfg-eth0
# Generated by parse-kickstart
DEVICE="eth0"
IPV6INIT="no"
BOOTPROTO="none"
UUID="82bd0cd3-502d-4476-aaff-7d0ef0414b36"
ONBOOT="yes"
```

```
TYPE=Ethernet
MASTER=bond0
 SLAVE=yes
 NM_CONTROLLED=no
 [root@storage_62_16 network-scripts]# cat ifcfg-eth1
 # Generated by parse-kickstart
 DEVICE=eth1
 IPV6INIT=no
 BOOTPROTO=none
 UUID=f3d39e51-ddf8-43de-b240-6b3ca7bc5cc5
 ONBOOT=yes
 TYPE=Ethernet
 MASTER=bond0
 SLAVE=yes
 NM_CONTROLLED=no
 [root@storage_62_16 network-scripts]# cat ifcfg-bond0
 DEVICE="bond0"
 IPV6INIT="no"
 TYPE=Bond
 BOOTPROTO="none"
 BONDING_OPTS="mode=6 miimon=200"
 BONDING_MASTER=yes
 ONBOOT=yes
 IPADDR=192.168.62.16
 NETMASK=255.255.255.0
 GATEWAY=192.168.62.254
 DNS1=114.114.114.114
 NM_CONTROLLED=no
```

bridge网卡的配置文件,好像有个问题外部PING会有一个网卡IP不通，原因未知但是内部往外的链路是OK的，应该是路由的问题.默认网关只能有一个另外的只能配置中不设置网关通过配置路由来解决使用问题 https://www.linuxidc.com/Linux/2018-05/152427.htm

```
modprobe --first-time 8021q
echo "modprobe 8021q" >> /etc/rc.d/rc.local
[root@ops_control__230 network-scripts]# cat ifcfg-ens161
DEVICE="ens161"
IPV6INIT="no"
BOOTPROTO="none"
UUID="f97e85df-0f95-480a-a9e8-a451032a8d52"
ONBOOT="yes"
```

```
NM_CONTROLLED=no
[root@ops_control__230 network-scripts]# cat ifcfg-ens161.16
DEVICE="ens161.16"
IPV6INIT="no"
BOOTPROTO="none"
ONBOOT="yes"
IPADDR="192.168.60.230"
PREFIX="24"
DNS1="114.114.114.114"
NM_CONTROLLED=no
VLAN=yes
[root@ops_control__230 network-scripts]# cat ifcfg-ens161.17
DEVICE="ens161.17"
IPV6INIT="no"
BOOTPROTO="none"
ONBOOT="yes"
IPADDR="192.168.59.230"
PREFIX="24"
DNS1="114.114.114.114"
NM_CONTROLLED=no
VLAN=yes
重启网络后执行如下的内容，前三个只需要执行一次，后面的得放到network的脚本中每次自动执行，这样外部机器就能同时ping通。
echo "252 1" >> /etc/iproute2/rt_tables
echo "251 2" >> /etc/iproute2/rt_tables
echo "250 3" >> /etc/iproute2/rt_tables
ip route flush table 1
ip route add default via 192.168.61.254 dev ens192 src 192.168.61.230 table 1
ip rule add from 192.168.61.230 table 1
ip route flush table 2
ip route add default via 192.168.60.254 dev ens161.16 src 192.168.60.230 table 2
ip rule add from 192.168.60.230 table 2
ip route flush table 3
ip route add default via 192.168.59.254 dev ens161.17 src 192.168.59.230 table 3
ip rule add from 192.168.59.230 table 3
```

原机的ens192是access的接到vlan15 61.230，其余2个vlan网卡是从ens161的trunk中剥离出来的

```
[Lastons-MBP:~ yaoyuan$ ping 192.168.60.230
PING 192.168.60.230 (192.168.60.230): 56 data bytes
64 bytes from 192.168.60.230: icmp_seq=0 ttl=61 time=10.023 ms
64 bytes from 192.168.60.230: icmp_seq=1 ttl=61 time=6.194 ms
^C
--- 192.168.60.230 ping statistics ---
2 packets transmitted, 2 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 6.194/8.108/10.023/1.915 ms
[Lastons-MBP:~ yaoyuan$ ping 192.168.59.230
PING 192.168.59.230 (192.168.59.230): 56 data bytes
64 bytes from 192.168.59.230: icmp_seq=0 ttl=61 time=150.695 ms
^C
--- 192.168.59.230 ping statistics ---
1 packets transmitted, 1 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 150.695/150.695/150.695/0.000 ms
[Lastons-MBP:~ yaoyuan$ ping 192.168.61.230
PING 192.168.61.230 (192.168.61.230): 56 data bytes
64 bytes from 192.168.61.230: icmp_seq=0 ttl=61 time=5.711 ms
^C
--- 192.168.61.230 ping statistics ---
```

传统网卡 trunk bridge vlan https://www.beginswithdata.com/2016/12/30/centos7-kvm-coreos/ 教程不错，没有验证啊

```
[root@server02 network-scripts]# cat ifcfg-enp14s0
DEVICE=enp14s0
TYPE=Ethernet
BOOTPROTO=none
ONBOOT=yes
NM_CONTROLLED=no
[root@server02 network-scripts]# cat ifcfg-enp14s0.35
DEVICE=enp14s0.35
TYPE=Ethernet
 BOOTPROTO=none
 ONBOOT=yes
 VLAN=yes
 BRIDGE=br35
 NM_CONTROLLED=no
 [root@server02 network-scripts]# cat ifcfg-br35
 DEVICE=br35
 TYPE=Bridge
 BOOTPROTO=none
 ONBOOT=yes
 IPADDR=10.64.35.92
 PREFIX=24
 GATEWAY=10.64.35.1
```

```
DNS1=10.64.28.200
DNS2=10.64.28.201
DOMAIN=acme.com
NM_CONTROLLED=no
```

Bond lacp bridge vlan的配置文件

```
modprobe --first-time 8021q
echo "modprobe 8021q" >> /etc/rc.d/rc.local
modprobe bonding
echo "modprobe bonding" >> /etc/rc.d/rc.local
##bond的LACP模式配置如下，物理接口是eth1和eth3
[root@storage_62_18 network-scripts]# cat ifcfg-bond1
DEVICE="bond1"
TYPE=Bond
BOOTPROTO="none"
BONDING_OPTS="mode=4 miimon=200"
BONDING_MASTER=yes
ONBOOT=yes
NM_CONTROLLED=no
[root@storage_62_18 network-scripts]# cat ifcfg-eth1
# Generated by parse-kickstart
DEVICE=eth1
IPV6INIT=no
BOOTPROTO=none
UUID=d9e4ae40-8c1b-48f3-a501-2e7669c05b50
ONBOOT=yes
TYPE=Ethernet
MASTER=bond1
SLAVE=yes
NM_CONTROLLED=no
[root@storage_62_18 network-scripts]# cat ifcfg-eth3
# Generated by parse-kickstart
DEVICE=eth3
IPV6INIT=no
BOOTPROTO=none
UUID=787c8182-7eef-452b-a533-229af2ab5489
ONBOOT=yes
TYPE=Ethernet
MASTER=bond1
SLAVE=yes
NM_CONTROLLED=no
```

```
##注意安装桥接软件不然会出错的yum install -y bridge-utils
[root@storage_62_18 network-scripts]# cat ifcfg-bond1.15
DEVICE=bond1.15
IPV6INIT="no"
BOOTPROTO=none
ONPARENT=yes
BRIDGE=vmbr115
VLAN=yes
NM_CONTROLLED=no
[root@storage_62_18 network-scripts]# cat ifcfg-bond1.16
DEVICE=bond1.16
IPV6INIT="no"
BOOTPROTO=none
ONPARENT=yes
BRIDGE=vmbr116
VLAN=yes
NM_CONTROLLED=no
[root@storage_62_18 network-scripts]# cat ifcfg-vmbr115
DEVICE=vmbr115
TYPE=Bridge
IPV6INIT="no"
BOOTPROTO=none
ONBOOT=yes
IPADDR="192.168.61.118"
PREFIX="24"
DNS1="114.114.114.114"
NM_CONTROLLED=no
[root@storage_62_18 network-scripts]# cat ifcfg-vmbr116
DEVICE=vmbr116
TYPE=Bridge
IPV6INIT="no"
BOOTPROTO=none
ONBOOT=yes
IPADDR="192.168.60.118"
PREFIX="24"
DNS1="114.114.114.114"
NM_CONTROLLED=no
##同样得通过路由的方式才能解决IP共存的问题，不再重写了。不知道2个隔离的二层网络配置网关是否正常，以后再玩困了
```

可以参考这个，在中部的答案是对的。https://www.centos.org/forums/viewtopic.php?t=63449 正常的桥内容如下

```
[[root@storage_62_18 network-scripts]# brctl show
bridge name     bridge id               STP enabled     interfaces
vmbr115         8000.246e9616febd       no              bond1.15
vmbr116         8000.246e9616febd       no              bond1.16
```

网络部分的预研到现在为止，实际上实验从单间的逻辑实现即可，生产部署的时候再往复杂的转。

在所有的节点上执行脚本，内容如下：主要是安装openstack的客户端软件，后续换成playbook

```
rpm -ivh http://192.168.61.210/dl/rpm/rdo-release.rpm
yum install -y centos-release-openstack-rocky
#Install the OpenStack client, selinux is not use
yum install -y python-openstackclient openstack-selinux
```

在控制节点上执行如下操作。建议至少2个控制节点通过haproxy做主备。这里使用231、232机器，230作为手动执行的机器，其余2个通过脚本进行部署验证。

etcd和zookeeper，选哪个

http://baijiahao.baidu.com/s?id=1599455829515318791&wfr=spider&for=pc

1.control环境初始化脚本，**快照信息如下:**

用61.232的机器拍了快照openstack-V1.0，使用openstack-serverenv.sh安装配置了mysql、rabbitmq、memcached、etcd

主要参考官方和一个博客。链接分别如下

https://docs.openstack.org/install-guide

https://www.cnblogs.com/tssc/p/9857526.html#_labelTop 这家伙的博客不全，从7开始引用其他人的

```
[root@ansible ansible]# cat openstack-serverenv.sh
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)

#1.mysql的安装和初始化
wget http://repo.mysql.com/mysql57-community-release-el7-8.noarch.rpm
rpm -ivh mysql57-community-release-el7-8.noarch.rpm
yum -y install mysql-server python2-PyMySQL
cat <<EOF >/etc/my.cnf
 [mysqld]
 bind-address = 0.0.0.0
```

```
default-storage-engine = innodb
innodb_file_per_table = on
max_connections = 4096
datadir=/var/lib/mysql
socket=/var/lib/mysql/mysql.sock
tmp_table_size = 512M
max_heap_table_size = 512M
expire_logs_days=7
binlog-format=ROW
log-slave-updates=true
gtid-mode=on
enforce-gtid-consistency=true
sync-master-info=1
slave-parallel-workers=2
server-id=10
log-bin=mysql-bin.log

# Disabling symbolic-links is recommended to prevent assorted security r
isks
symbolic-links=0
character_set_server=utf8
collation-server = utf8_general_ci
init_connect='SET NAMES utf8'

log-error=/var/log/mysqld.log
pid-file=/var/run/mysqld/mysqld.pid
EOF
sed -i s/0.0.0.0/${ip}/g /etc/my.cnf
mkdir -p /var/lib/mysql
chown mysql:mysql -R /var/lib/mysql
systemctl enable mysqld
systemctl start mysqld
systemctl status mysqld
#cat /var/log/mysqld.log | grep password >/root/mypass
old=`cat /var/log/mysqld.log | grep password |head -1| awk '{print $1
1}'`
mysql -uroot -p$old --connect-expired-password <<EOF
ALTER USER USER() IDENTIFIED BY 'Quanjing_db2019';
use mysql;
select host,user,authentication_string from user;
grant all privileges on *.* to root@'%' identified by "Quanjing_db2019";
```

```
flush privileges;
select host,user,authentication_string from user;
EOF
mysql -uroot -pQuanjing_db2019 -e "select version();"
echo -e "Mysql install done,listen on ${ip} and port 3306,pass is Quanjing_db2019"

#2.rabbitmq消息队列的安装和初始化
yum install -y rabbitmq-server
systemctl enable rabbitmq-server.service
systemctl start rabbitmq-server.service
#添加用户赋予读写的权限，启用web的管理插件端口http://192.168.61.230:15672
rabbitmqctl add_user openstack quanjing
rabbitmqctl set_permissions openstack ".*" ".*" ".*"
rabbitmqctl set_permissions -p "/" openstack ".*" ".*" ".*"
rabbitmq-plugins enable rabbitmq_management
#rabbitmq-plugins list
systemctl restart rabbitmq-server.service
#将openstack用户提升为管理员，干掉默认的guest账户，默认密码是guest拥有管理员权限
rabbitmqctl set_user_tags openstack administrator
rabbitmqctl delete_user guest
echo -e "rabbitmq install done,you can visit webmag http://${ip}:15672 with user openstack pass quanjing"

#3.memcached缓存安装和初始化,跟redis一样存在安全的问题，还要监听地址要合理修改,controller需要在hosts文件中有对应的IP不然加上后启动会找不到监听地址自动退出的
yum install -y memcached python-memcached
#/usr/bin/memcached -p 11211 -u memcached -m 1024 -c 1024 -l 127.0.0.1,controller -vv 调式启动
sed -i "s/^CACHESIZE.*/CACHESIZE=\"1024\"/g" /etc/sysconfig/memcached
sed -i "s/^OPTIONS.*/OPTIONS=\"-l ${ip}\"/g" /etc/sysconfig/memcached
systemctl enable memcached.service
systemctl start memcached.service
echo -e "memcached install done,you can telnet ${ip} 11211 to test"

#4.etcd分布式KV存储集群安装和初始化,跟zk有点类似但是使用场景不一样
yum install -y etcd
cat <<EOF >/etc/etcd/etcd.conf
#[Member]
ETCD_DATA_DIR="/var/lib/etcd/default.etcd"
ETCD_LISTEN_PEER_URLS="http://127.0.0.1:2380"
```

```
ETCD_LISTEN_CLIENT_URLS="http://127.0.0.1:2379"
ETCD_NAME="controller"
#[Clustering]
ETCD_INITIAL_ADVERTISE_PEER_URLS="http://127.0.0.1:2380"
ETCD_ADVERTISE_CLIENT_URLS="http://127.0.0.1:2379"
ETCD_INITIAL_CLUSTER="controller=http://127.0.0.1:2380"
ETCD_INITIAL_CLUSTER_TOKEN="etcd-cluster-quanjing"
ETCD_INITIAL_CLUSTER_STATE="new"
EOF
sed -i "s/127.0.0.1/${ip}/g" /etc/etcd/etcd.conf
systemctl enable etcd
systemctl start etcd
 echo -e "etcd install done,you can lean more to finsh this print!"
```

2.Keystone身份验证服务，在大的openstack集群中这个会成为制约性能的关键组建，因为各部分都用到了验证接口的调用。https://www.cnblogs.com/tssc/p/9858655.html 很好的教程

##注意事项：

在部署多节点 keystone 集群时，这时候需要将 key_repository /etc/keystone/fernet-keys/ 里的目录和文件复制到每个其他的keystone节点相对应的目录上。这样可以确保fernet token可以在不同的节点上使用相同的密钥进行解密，正常安装然后覆盖秘钥文件为同一份的内容

scp -r /etc/keystone/fernet-keys/* 192.168.61.232:/etc/keystone/fernet-keys/

```
[root@ansible ansible]# cat openstack-serverkeystone.sh
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE keystone;
GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'localhost' IDENTIFIED BY 'QJ_keys2019';
GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'%' IDENTIFIED BY 'QJ_keys2019';
flush privileges;
EOF
#这里使用Openstack-utils工具来完成快速配置
yum install -y openstack-keystone httpd mod_wsgi python-keystoneclient openstack-utils
openstack-config --set /etc/keystone/keystone.conf database connection mysql+pymysql://keystone:QJ_keys2019@${ip}/keystone
openstack-config --set /etc/keystone/keystone.conf token provider fernet
```

```
grep "^[a-z]" /etc/keystone/keystone.conf
su -s /bin/sh -c "keystone-manage db_sync" keystone
mysql -u root -pQuanjing_db2019 -e "use keystone;show tables;"
#注意在多节点的keystone环境中在一台机器上执行初始化密钥然后复制/etc/keystone/fernet-keys/ 到其他节点确保加解密的基础密钥一样
keystone-manage fernet_setup --keystone-user keystone --keystone-group keystone
keystone-manage credential_setup --keystone-user keystone --keystone-group keystone
sed -i "s/#ServerName www.example.com:80/ServerName ${ip}/" /etc/httpd/conf/httpd.conf
cp /usr/share/keystone/wsgi-keystone.conf /etc/httpd/conf.d/
systemctl enable httpd.service
systemctl start httpd.service
netstat -anptl|grep httpd
#在公共、内部和管理区域创建身份验证服务，密码quanjing
keystone-manage bootstrap --bootstrap-password quanjing \
  --bootstrap-admin-url http://${ip}:5000/v3/ \
  --bootstrap-internal-url http://${ip}:5000/v3/ \
  --bootstrap-public-url http://${ip}:5000/v3/ \
  --bootstrap-region-id RegionOne
#定义环境变量，OS_PASSWORD为上述设置的密码
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
#查看设置的环境变量是否正确
env |grep OS_
```

2.1默认创建为管理员用户，再创建一个低权限的用户，完整示例如下:

openstack domain create --description "quanjing employee" qjtech 创建一个qjtech的域给全景员工

```
[root@ops_control__230 ~]# openstack domain create --description "quanjing employee" qjtech
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | quanjing employee                |
| enabled     | True                             |
| id          | e53da81f2ac94664b2634dbf3484e320 |
| name        | qjtech                           |
| tags        | []                               |
+-------------+----------------------------------+
```

openstack project create --domain default --description "Service Project" service

openstack user create --domain default --password=quanjing qjops

创建一个用户常规任务的项目和建立用户账户

```
[root@ops_control__230 ~]# openstack project create --domain default --description "Service Project" service
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | Service Project                  |
| domain_id   | default                          |
| enabled     | True                             |
| id          | cb9d9eeb396a4eb4b8832535fe3b721d |
| is_domain   | False                            |
| name        | service                          |
| parent_id   | default                          |
| tags        | []                               |
+-------------+----------------------------------+
```

使用--password-prompt选项为交互式输入密码,如下为直接创建用户qjops密码也是quanjing

```
[root@ops_control__230 ~]# openstack user create --domain default  --password=quanjing qjops
+---------------------+----------------------------------+
| Field               | Value                            |
+---------------------+----------------------------------+
| domain_id           | default                          |
| enabled             | True                             |
| id                  | 62a63d2ab7e040379f91d6421c346050 |
| name                | qjops                            |
| options             | {}                               |
| password_expires_at | None                             |
+---------------------+----------------------------------+
```

创建角色比如普通的运维或者运营人员 openstack role create ops

```
[root@ops_control__230 ~]# openstack role create ops
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | None                             |
| domain_id   | None                             |
| id          | bd062b5a79044edaa1616aec26e73d8a |
| name        | ops                              |
+-------------+----------------------------------+
```

将qjops的用户加入到角色组ops中位于service的项目下面，命令没有返回的

openstack role add --project service --user qjops ops

查看此时的keystone的实例信息

openstack endpoint list

openstack project list

openstack user list

```
[root@ops_control__230 ~]# openstack user list
+----------------------------------+-------+
| ID                               | Name  |
+----------------------------------+-------+
| 62a63d2ab7e040379f91d6421c346050 | qjops |
| aa86fcd5412846c286798dc0b404432c | admin |
+----------------------------------+-------+
[root@ops_control__230 ~]# openstack project list
+----------------------------------+---------+
| ID                               | Name    |
+----------------------------------+---------+
| 447c24c8dd5147838505818b975084a0 | admin   |
| cb9d9eeb396a4eb4b8832535fe3b721d | service |
+----------------------------------+---------+
```

2.2准备验证keystone服务是否配置正确，用管理员去请求认证的令牌

```
unset OS_AUTH_URL OS_PASSWORD
openstack --os-auth-url http://192.168.61.230:5000/v3 \--os-project-domain-name Default --os-user-domain-name Default \--os-project-name admin --os-username admin token issue
```

需要输入admin的密码quanjing然后得到如下的回显

```
[root@ops_control__230 ~]#  openstack --os-auth-url http://192.168.61.230:5000/v3 \--os-project-domain-name Default --os-user-domain-name Default \--os-project-name admin --os-username admin token iss
Password:
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
| Field      | Value                                                                                                                                                     |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
| expires    | 2019-09-10T08:18:31+0000                                                                                                                                  |
| id         | gAAAAABdd05HwEXe3RvrJyVbhbJPhbZGDcizLjnrLN3OAFesaH0iLqiUNqx0RT0rkXZ_eAd3FGlfmliD6l8uEGJ0z5k9bWJaNc1qd0TxyHkrH0af6tnMgOUwV-vtiD_3IGu1laaD7AA08_qwvPFnBguEFIMfqeJz9bd16OQUqVrRD6S6Y9Ij-0c |
| project_id | 447c24c8dd5147838505818b975084a0                                                                                                                          |
| user_id    | aa86fcd5412846c286798dc0b404432c                                                                                                                          |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
```

用普通用户去请求认证的令牌

openstack --os-auth-url http://192.168.61.230:5000/v3 \--os-project-domain-name Default --os-user-domain-name Default \--os-project-name service --os-username qjops token issue

```
[root@ops_control__230 ~]#  openstack --os-auth-url http://192.168.61.230:5000/v3 \--os-project-domain-name Default --os-user-domain-name Default \--os-project-name service --os-username qjops token issue
Password:
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
| Field      | Value                                                                                                                                                     |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
| expires    | 2019-09-10T08:21:19+0000                                                                                                                                  |
| id         | gAAAAABdd07v2h89-cMHbSWUIVV4aM7JLhCCQXHCYiGKaRwo4fgSJj09TuPotpWSO1M2vSw7MSD6mQUihTmlxFOJ-p4jqX4p5Gh73NbMFjSdZRYqVgWUfszg59tijDrEHrexuAdeF4UoG8WuAJzUCdW0ZWz3I2YOzmoKy_kkFW9sfpIpcS6B7Vs |
| project_id | cb9d9eeb396a4eb4b8832535fe3b721d                                                                                                                          |
| user_id    | 62a63d2ab7e040379f91d6421c346050                                                                                                                          |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------+
```

2.3可以支持openrc脚本的方式设置环境变量来提升认证的效率。使用方法如下

```
[root@ops_control__230 ~]# cat keystone_admin.sh
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
[root@ops_control__230 ~]# cat keystone_qjops.sh
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
export OS_USERNAME=qjops
```

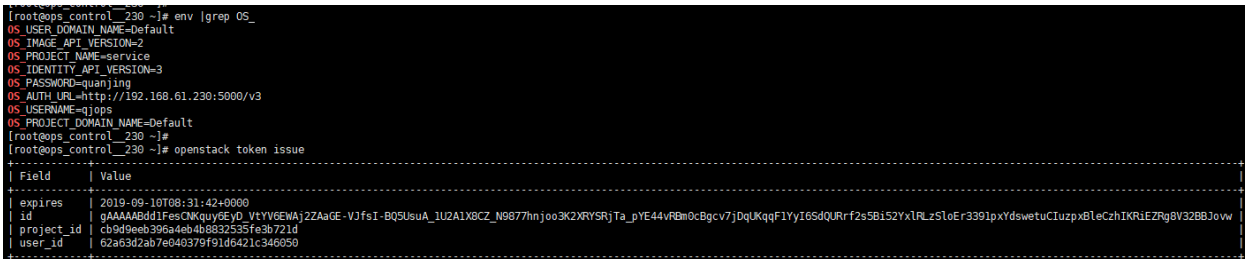
```
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=service
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
```

调用openrc的脚本验证环境变量，接着执行身份令牌的请求和上述使用密码的输入方式对比

source keystone_qjops.sh

env |grep OS_

openstack token issue



更深的东西租户和用户还有分级的角色等以后再验证吧，跟vmware的vra有类似的地方。

快照信息如下:

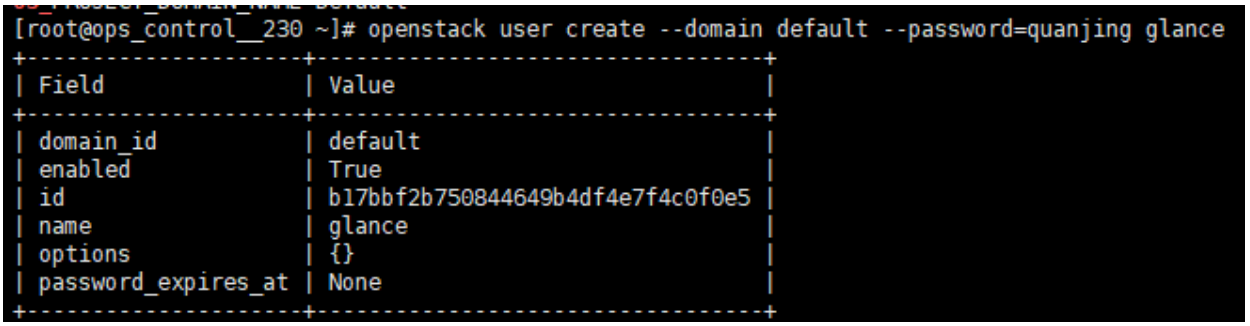
依旧使用61.230进行验证，在61.231上测试了脚本在61.232的机器同步230的用户操作后进行快照保存openstack-V1.1。安装了keystone服务，初始化了管理员和普通用户，root目录下有openrc的变量设置脚本，默认调用本机的mysql数据库和本机的API服务

3.Glance镜像服务，跟vmware的模板等概念类似。

创建用户glance属于默认域管理员角色组下的service项目 密码为quanjing

openstack user create --domain default --password=quanjing glance

openstack role add --project service --user glance admin



接着创建服务名称glance类型为image

openstack service create --name glance --description "OpenStack Image" image

```
[root@ops_control__230 ~]# openstack service create --name glance --description "OpenStack Image" image
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | OpenStack Image                  |
| enabled     | True                             |
| id          | 75d649e316744c53a246bc5ffddc26ff |
| name        | glance                           |
| type        | image                            |
+-------------+----------------------------------+
```

openstack service list 查看当前的服务列表

```
[root@ops_control__230 ~]# openstack service list
+----------------------------------+----------+----------+
| ID                               | Name     | Type     |
+----------------------------------+----------+----------+
| 75d649e316744c53a246bc5ffddc26ff | glance   | image    |
| d6cf74b6220641abb8fae1718dd5a1f5 | keystone | identity |
+----------------------------------+----------+----------+
```

然后创建镜像服务API的入口，分属于不同的区域

openstack endpoint create --region RegionOne image public http://${ip}:9292

openstack endpoint create --region RegionOne image internal http://${ip}:9292

openstack endpoint create --region RegionOne image admin http://${ip}:9292

```
[root@ops_control__230 ~]# openstack endpoint create --region RegionOne image public http://${ip}:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | f7e80aa614554f81b7cb72d5a2f8d78b |
| interface    | public                           |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 75d649e316744c53a246bc5ffddc26ff |
| service_name | glance                           |
| service_type | image                            |
| url          | http://192.168.61.230:9292       |
+--------------+----------------------------------+
[root@ops_control__230 ~]# openstack endpoint create --region RegionOne image internal http://${ip}:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 24f90fd700014fdb817e9c9b7977eab8 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 75d649e316744c53a246bc5ffddc26ff |
| service_name | glance                           |
| service_type | image                            |
| url          | http://192.168.61.230:9292       |
+--------------+----------------------------------+
[root@ops_control__230 ~]# openstack endpoint create --region RegionOne image admin http://${ip}:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 64ba1d57380042328419c7038bcc71a4 |
| interface    | admin                            |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 75d649e316744c53a246bc5ffddc26ff |
| service_name | glance                           |
| service_type | image                            |
| url          | http://192.168.61.230:9292       |
+--------------+----------------------------------+
```

openstack endpoint list查看当前的API服务入口信息

```
[root@ops_control__230 ~]# openstack endpoint list
+----------------------------------+-----------+--------------+--------------+---------+-----------+-------------------------------+
| ID                               | Region    | Service Name | Service Type | Enabled | Interface | URL                           |
+----------------------------------+-----------+--------------+--------------+---------+-----------+-------------------------------+
| 24f90fd700014fdb817e9c9b7977eab8 | RegionOne | glance       | image        | True    | internal  | http://192.168.61.230:9292    |
| 55880b81bedd4f41be7c929a252e1c5a | RegionOne | keystone     | identity     | True    | public    | http://192.168.61.230:5000/v3/ |
| 64ba1d57380042328419c7038bcc71a4 | RegionOne | glance       | image        | True    | admin     | http://192.168.61.230:9292    |
| 8766ab7993314b4e9ecd2b24a11232cf | RegionOne | keystone     | identity     | True    | internal  | http://192.168.61.230:5000/v3/ |
| b236f8df1d7e49309d277aeec96a5c65 | RegionOne | keystone     | identity     | True    | admin     | http://192.168.61.230:5000/v3/ |
| f7e80aa614554f81b7cb72d5a2f8d78b | RegionOne | glance       | image        | True    | public    | http://192.168.61.230:9292    |
```

上传OS镜像到镜像服务并设置公共可见，使用qcow2磁盘格式， bare容器格式

openstack image create "cirros" --file cirros-0.4.0-x86_64-disk.img --disk-format qcow2 --container-format bare --public

```
[root@ops_control__230 ~]# openstack image create "cirros" --file cirros-0.4.0-x86_64-disk.img --disk-format qcow2 --container-format bare --public
+------------------+------------------------------------------------------+
| Field            | Value                                                |
+------------------+------------------------------------------------------+
| checksum         | 443b7623e27ecf03dc9e01ee93f67afe                     |
| container_format | bare                                                 |
| created_at       | 2019-09-10T09:13:48Z                                 |
| disk_format      | qcow2                                                |
| file             | /v2/images/dff4c1ee-2f81-4561-8882-f9bc66ce8c02/file |
| id               | dff4c1ee-2f81-4561-8882-f9bc66ce8c02                 |
| min_disk         | 0                                                    |
| min_ram          | 0                                                    |
| name             | cirros                                               |
| owner            | 447c24c8dd5147838505818b975084a0                     |
| properties       | os_hash_algo='sha512', os_hash_value='6513f21e44aa3da349f248188a44bc304a3653a04122d8fb4535423c8e1d14cd6a153f735bb0982e2161b5b5186106570c17a9e58b64dd39390617cd5a350f78', os_hidden='False' |
| protected        | False                                                |
| schema           | /v2/schemas/image                                    |
| size             | 12716032                                             |
| status           | active                                               |
| tags             |                                                      |
| updated_at       | 2019-09-10T09:13:48Z                                 |
| virtual_size     | None                                                 |
| visibility       | public                                               |
+------------------+------------------------------------------------------+
```

openstack image list 查看当前镜像列表。

```
[root@ops_control__230 ~]# openstack image list
+--------------------------------------+--------+--------+
| ID                                   | Name   | Status |
+--------------------------------------+--------+--------+
| dff4c1ee-2f81-4561-8882-f9bc66ce8c02 | cirros | active |
+--------------------------------------+--------+--------+
```

这只是个很简单的应用例子，实际生产中得考虑怎么存储镜像怎么快速部署，选择什么样的格式等!

这是部署glance服务的脚本，**快照信息如下:**

依旧使用61.230进行验证，在61.231上测试了脚本在61.232的机器同步230的用户操作后进行快照保存openstack-V1.2。安装了glance服务，初始化了仓库和api。导入了一个cirros的OS镜像

```
[root@ops_control__231 ~]# cat openstack-serverglance.sh
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE glance;
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'localhost' IDENTIFIED BY 'QJ_glance2019';
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'%' IDENTIFIED BY 'QJ_glance2019';
flush privileges;
EOF
 #加一个判断如果输出是admin也就是当前的变量是管理员才能执行如下的内容
 export OS_USERNAME=admin
 export OS_PASSWORD=quanjing
```

```
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
openstack user create --domain default --password=quanjing glance
openstack role add --project service --user glance admin
openstack service create --name glance --description "OpenStack Image" i
mage
openstack endpoint create --region RegionOne image public http://${ip}:9
292
openstack endpoint create --region RegionOne image internal
http://${ip}:9292
openstack endpoint create --region RegionOne image admin http://${ip}:92
92
#开始安装glance的服务，并借助工具快速配置服务
yum install -y openstack-glance python-glance python-glanceclient openst
ack-utils
openstack-config --set /etc/glance/glance-api.conf database connection m
ysql+pymysql://glance:QJ_glance2019@${ip}/glance
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken ww
w_authenticate_uri http://${ip}:5000
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken au
th_url http://${ip}:5000
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken me
mcached_servers ${ip}:11211
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken au
th_type password
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken pr
oject_domain_name Default
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken us
er_domain_name Default
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken pr
oject_name service
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken us
ername glance
openstack-config --set /etc/glance/glance-api.conf keystone_authtoken pa
ssword quanjing
openstack-config --set /etc/glance/glance-api.conf paste_deploy flavor k
eystone
openstack-config --set /etc/glance/glance-api.conf glance_store stores f
ile,http
openstack-config --set /etc/glance/glance-api.conf glance_store default_
store file
```

```
openstack-config --set /etc/glance/glance-api.conf glance_store filesystem_store_datadir /var/lib/glance/images/
openstack-config --set /etc/glance/glance-registry.conf database connection mysql+pymysql://glance:QJ_glance2019@${ip}/glance
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken www_authenticate_uri http://${ip}:5000
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken auth_url http://${ip}:5000
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken memcached_servers ${ip}:11211
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken auth_type password
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken project_domain_name Default
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken user_domain_name Default
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken project_name service
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken username glance
openstack-config --set /etc/glance/glance-registry.conf keystone_authtoken password quanjing
openstack-config --set /etc/glance/glance-registry.conf paste_deploy flavor keystone
#检查配置是否正确
grep '^[a-z]' /etc/glance/glance-api.conf
grep '^[a-z]' /etc/glance/glance-registry.conf
su -s /bin/sh -c "glance-manage db_sync" glance
mysql -u root -pQuanjing_db2019 -e "use glance;show tables;"
#数据库表信息OK后启动服务
systemctl enable openstack-glance-api.service openstack-glance-registry.service
systemctl start openstack-glance-api.service openstack-glance-registry.service
#上传镜像进行验证
#cd /root
#wget http://download.cirros-cloud.net/0.4.0/cirros-0.4.0-x86_64-disk.img
#openstack image create "cirros" --file cirros-0.4.0-x86_64-disk.img --disk-format qcow2 --container-format bare --public
```

4.Nova计算控制服务

```
66eb0f69-35d3-4496-88ce-b1543a74dd4c
/usr/lib/python2.7/site-packages/pymysql/cursors.py:170: Warning: (1831, u"Duplicate index 'block_device_mapping_instance_uuid_virtual_name_device_na
_idx' defined on the table 'nova_cell0.block_device_mapping'. This is deprecated and will be disallowed in a future release.")
  result = self._query(query)
/usr/lib/python2.7/site-packages/pymysql/cursors.py:170: Warning: (1831, u"Duplicate index 'uniq_instances0uuid' defined on the table 'nova_cell0.ins
nces'. This is deprecated and will be disallowed in a future release.")
  result = self._query(query)
```

su -s /bin/sh -c "nova-manage cell_v2 list_cells" nova

```
[root@ops_control__230 ~]# su -s /bin/sh -c "nova-manage cell_v2 list_cells" nova
+-------+--------------------------------------+------------------------------------+-------------------------------------------------+----------+
|  Name |                 UUID                 |            Transport URL           |                Database Connection               | Disabled |
+-------+--------------------------------------+------------------------------------+-------------------------------------------------+----------+
| cell0 | 00000000-0000-0000-0000-000000000000 |               none:/               | mysql+pymysql://nova:****@192.168.61.230/nova_cell0 |  False   |
| cell1 | 308ea4df-57bd-45c1-8df9-993b8890a4b9 | rabbit://openstack:****@192.168.61.230 |    mysql+pymysql://nova:****@192.168.61.230/nova    |  False   |
+-------+--------------------------------------+------------------------------------+-------------------------------------------------+----------+
```

检查keystone上的用户和服务以及api等信息

```
[root@ops_control__232 ~]# openstack service list
+----------------------------------+-----------+-----------+
| ID                               | Name      | Type      |
+----------------------------------+-----------+-----------+
| 2c926fd95590446ebcd54e1669a348f5 | nova      | compute   |
| 68aa65611bb143479007e93e512e3b63 | keystone  | identity  |
| 6df0048c1c63449fa67ab24d1abc2681 | glance    | image     |
| cb1e91953108409c828be04b1df93bd4 | placement | placement |
+----------------------------------+-----------+-----------+
[root@ops_control__232 ~]# openstack user list
+----------------------------------+-----------+
| ID                               | Name      |
+----------------------------------+-----------+
| 05f65d3f0743433d8cb129ce1e0e7b39 | admin     |
| 1980768a996a480aaaebb3de2564bd42 | qjops     |
| 52ea36539c8342219180088dbdf819d5 | nova      |
| a0d0f7812100430fab06488103c8976a | placement |
| fc82c54a96754a1799a486fca5f5c365 | glance    |
+----------------------------------+-----------+
[root@ops_control__232 ~]# openstack endpoint list
+----------------------------------+-----------+--------------+--------------+---------+-----------+-----------------------------+
| ID                               | Region    | Service Name | Service Type | Enabled | Interface | URL                         |
+----------------------------------+-----------+--------------+--------------+---------+-----------+-----------------------------+
| 117d24613e8e4e2f846c714cd2b89bfc | RegionOne | keystone     | identity     | True    | public    | http://192.168.61.232:5000/v3/ |
| 354e8ae839824126bee728403913bb27 | RegionOne | glance       | image        | True    | public    | http://192.168.61.232:9292  |
| 368946782ed44b00a8c6fc6a10bb94e0 | RegionOne | keystone     | identity     | True    | admin     | http://192.168.61.232:5000/v3/ |
| 59583fe312df4b149def28f85e7a41b9 | RegionOne | placement    | placement    | True    | internal  | http://192.168.61.232:8778  |
| 651cf5d13e53404da85f1aa95e97cc8b | RegionOne | glance       | image        | True    | admin     | http://192.168.61.232:9292  |
| 7a00bd86052940e4b5845cf88508539e | RegionOne | keystone     | identity     | True    | internal  | http://192.168.61.232:5000/v3/ |
| ae1e171a12984053955e918d4463736b | RegionOne | nova         | compute      | True    | public    | http://192.168.61.232:8774/v2.1 |
| b573f2184fac49c9902a1d4367820638 | RegionOne | placement    | placement    | True    | public    | http://192.168.61.232:8778  |
| b5aff802150d4711b90fc7a813687c96 | RegionOne | nova         | compute      | True    | internal  | http://192.168.61.232:8774/v2.1 |
| d4842958ef4749e3a0873916db97345d | RegionOne | placement    | placement    | True    | admin     | http://192.168.61.232:8778  |
| dceac9d5960e4c88a2849b36a5e8d8cf | RegionOne | glance       | image        | True    | internal  | http://192.168.61.232:9292  |
| ee0cf20edd174b1698f318f75baca19c | RegionOne | nova         | compute      | True    | admin     | http://192.168.61.232:8774/v2.1 |
+----------------------------------+-----------+--------------+--------------+---------+-----------+-----------------------------+
```

这是部署compute服务端的脚本，注意mysql的授权那部分不能偷懒。**快照信息如下:**

依旧使用61.230进行验证，在61.231上测试了脚本在61.232的机器同步230的用户操作后进行快照保存openstack-V1.3。安装了compute服务，客户端的compute使用235制作快照

```
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE nova_api;
CREATE DATABASE nova;
CREATE DATABASE nova_cell0;
CREATE DATABASE placement;
GRANT ALL PRIVILEGES ON nova_api.* TO 'nova'@'localhost' IDENTIFIED BY 'QJ_nova2019';
GRANT ALL PRIVILEGES ON nova_api.* TO 'nova'@'%' IDENTIFIED BY 'QJ_nova2019';
GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'localhost' IDENTIFIED BY 'QJ_nova2019';
GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'%' IDENTIFIED BY 'QJ_nova2019';
GRANT ALL PRIVILEGES ON nova_cell0.* TO 'nova'@'localhost' IDENTIFIED BY 'QJ_nova2019';
```

```
GRANT ALL PRIVILEGES ON nova_cell0.* TO 'nova'@'%' IDENTIFIED BY 'QJ_nova2019';
GRANT ALL PRIVILEGES ON placement.* TO 'placement'@'localhost' IDENTIFIED BY 'QJ_placement2019';
GRANT ALL PRIVILEGES ON placement.* TO 'placement'@'%' IDENTIFIED BY 'QJ_placement2019';
flush privileges;
EOF
#创建对应的用户注册nova和placement的服务
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
openstack user create --domain default --password=quanjing nova
openstack role add --project service --user nova admin
openstack service create --name nova --description "OpenStack Compute" compute
openstack endpoint create --region RegionOne compute public http://${ip}:8774/v2.1
openstack endpoint create --region RegionOne compute internal http://${ip}:8774/v2.1
openstack endpoint create --region RegionOne compute admin http://${ip}:8774/v2.1
openstack user create --domain default --password=quanjing placement
openstack role add --project service --user placement admin
openstack service create --name placement --description "Placement API" placement
openstack endpoint create --region RegionOne placement public http://${ip}:8778
openstack endpoint create --region RegionOne placement internal http://${ip}:8778
openstack endpoint create --region RegionOne placement admin http://${ip}:8778
#开始安装glance的服务，并借助工具快速配置服务
yum install -y openstack-nova-api openstack-nova-conductor openstack-nova-console openstack-nova-novncproxy \
 openstack-nova-scheduler openstack-nova-placement-api openstack-utils
openstack-config --set /etc/nova/nova.conf DEFAULT enabled_apis osapi_compute,metadata
```

```
openstack-config --set /etc/nova/nova.conf DEFAULT my_ip ${ip}
openstack-config --set /etc/nova/nova.conf DEFAULT use_neutron true
openstack-config --set /etc/nova/nova.conf DEFAULT firewall_driver nova.virt.firewall.NoopFirewallDriver
openstack-config --set /etc/nova/nova.conf DEFAULT transport_url rabbit://openstack:quanjing@${ip}
openstack-config --set /etc/nova/nova.conf api_database connection mysql+pymysql://nova:QJ_nova2019@${ip}/nova_api
openstack-config --set /etc/nova/nova.conf database connection mysql+pymysql://nova:QJ_nova2019@${ip}/nova
openstack-config --set /etc/nova/nova.conf placement_database connection mysql+pymysql://placement:QJ_placement2019@${ip}/placement
openstack-config --set /etc/nova/nova.conf api auth_strategy keystone
openstack-config --set /etc/nova/nova.conf keystone_authtoken auth_url http://${ip}:5000/v3
openstack-config --set /etc/nova/nova.conf keystone_authtoken memcached_servers ${ip}:11211
openstack-config --set /etc/nova/nova.conf keystone_authtoken auth_type password
openstack-config --set /etc/nova/nova.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/nova/nova.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/nova/nova.conf keystone_authtoken project_name service
openstack-config --set /etc/nova/nova.conf keystone_authtoken username nova
openstack-config --set /etc/nova/nova.conf keystone_authtoken password quanjing
openstack-config --set /etc/nova/nova.conf vnc enabled true
openstack-config --set /etc/nova/nova.conf vnc server_listen '$my_ip'
openstack-config --set /etc/nova/nova.conf vnc server_proxyclient_address '$my_ip'
openstack-config --set /etc/nova/nova.conf glance api_servers http://${ip}:9292
openstack-config --set /etc/nova/nova.conf oslo_concurrency lock_path /var/lib/nova/tmp
openstack-config --set /etc/nova/nova.conf placement region_name RegionOne
openstack-config --set /etc/nova/nova.conf placement project_domain_name Default
openstack-config --set /etc/nova/nova.conf placement project_name service
openstack-config --set /etc/nova/nova.conf placement auth_type password
```

```
openstack-config --set /etc/nova/nova.conf placement user_domain_name Default
openstack-config --set /etc/nova/nova.conf placement auth_url http://${ip}:5000/v3
openstack-config --set /etc/nova/nova.conf placement username placement
openstack-config --set /etc/nova/nova.conf placement password quanjing
openstack-config --set /etc/nova/nova.conf scheduler discover_hosts_in_cells_interval 120
#最后一项配置是服务端的计算节点多久去检查一次新加入的host主机信息，可以自动将安装好的计算节点主机加入集群，修改为120s
grep "^[a-z]" /etc/nova/nova.conf
cat <<EOF >>/etc/httpd/conf.d/00-nova-placement-api.conf

<Directory /usr/bin>
 <IfVersion >= 2.4>
 Require all granted
 </IfVersion>
 <IfVersion < 2.4>
 Order allow,deny
 Allow from all
 </IfVersion>
</Directory>
EOF
systemctl restart httpd
su -s /bin/sh -c "nova-manage api_db sync" nova
mysql -u root -pQuanjing_db2019 -e "use nova_api;show tables;"
mysql -u root -pQuanjing_db2019 -e "use placement;show tables;"
su -s /bin/sh -c "nova-manage cell_v2 map_cell0" nova
su -s /bin/sh -c "nova-manage cell_v2 create_cell --name=cell1 --verbose" nova
su -s /bin/sh -c "nova-manage db sync" nova
#执行会有2个警告无视即可
su -s /bin/sh -c "nova-manage cell_v2 list_cells" nova
mysql -u root -pQuanjing_db2019 -e "use nova_cell0;show tables;"
mysql -u root -pQuanjing_db2019 -e "use nova;show tables;"
#这两个数据库表信息应该是一样的
systemctl enable openstack-nova-api.service openstack-nova-consoleauth.service \
 openstack-nova-scheduler.service openstack-nova-conductor.service openstack-nova-novncproxy.service
 systemctl start openstack-nova-api.service openstack-nova-consoleauth.service \
```

```
102 openstack-nova-scheduler.service openstack-nova-conductor.service openst
ack-nova-novncproxy.service
103 systemctl enable openstack-nova-api.service openstack-nova-consoleauth.s
ervice \
104 openstack-nova-scheduler.service openstack-nova-conductor.service openst
ack-nova-novncproxy.service
105 systemctl status openstack-nova-api.service openstack-nova-consoleauth.s
ervice \
106 openstack-nova-scheduler.service openstack-nova-conductor.service openst
ack-nova-novncproxy.service
```

5.Nova计算节点服务，注意事项如下

egrep -c '(vmx|svm)' /proc/cpuinfo 查看系统是否支持硬件加速，值为0时不支持需要调用qemu的方式，值非0的时候为支持直接使用kvm的方式。 如下是在控制端执行的一些状态检查命令

openstack compute service list --service nova-compute 查看系统计算节点列表

```
[root@ops_control__230 ~]# openstack compute service list --service nova-compute
+----+--------------+------------------+------+---------+-------+----------------------------+
| ID | Binary       | Host             | Zone | Status  | State | Updated At                 |
+----+--------------+------------------+------+---------+-------+----------------------------+
| 14 | nova-compute | ops_compute__233 | nova | enabled | up    | 2019-09-11T01:57:02.000000 |
| 15 | nova-compute | ops_compute__234 | nova | enabled | up    | 2019-09-11T01:56:54.000000 |
+----+--------------+------------------+------+---------+-------+----------------------------+
```

openstack compute service list 查看计算节点服务列表

```
[root@ops_control__230 ~]# openstack compute service list
+----+------------------+------------------+----------+---------+-------+----------------------------+
| ID | Binary           | Host             | Zone     | Status  | State | Updated At                 |
+----+------------------+------------------+----------+---------+-------+----------------------------+
|  1 | nova-consoleauth | ops_control__230 | internal | enabled | up    | 2019-09-11T02:17:10.000000 |
|  2 | nova-conductor   | ops_control__230 | internal | enabled | up    | 2019-09-11T02:17:15.000000 |
|  5 | nova-scheduler   | ops_control__230 | internal | enabled | up    | 2019-09-11T02:17:15.000000 |
| 14 | nova-compute     | ops_compute__233 | nova     | enabled | up    | 2019-09-11T02:17:13.000000 |
| 15 | nova-compute     | ops_compute__234 | nova     | enabled | up    | 2019-09-11T02:17:15.000000 |
+----+------------------+------------------+----------+---------+-------+----------------------------+
```

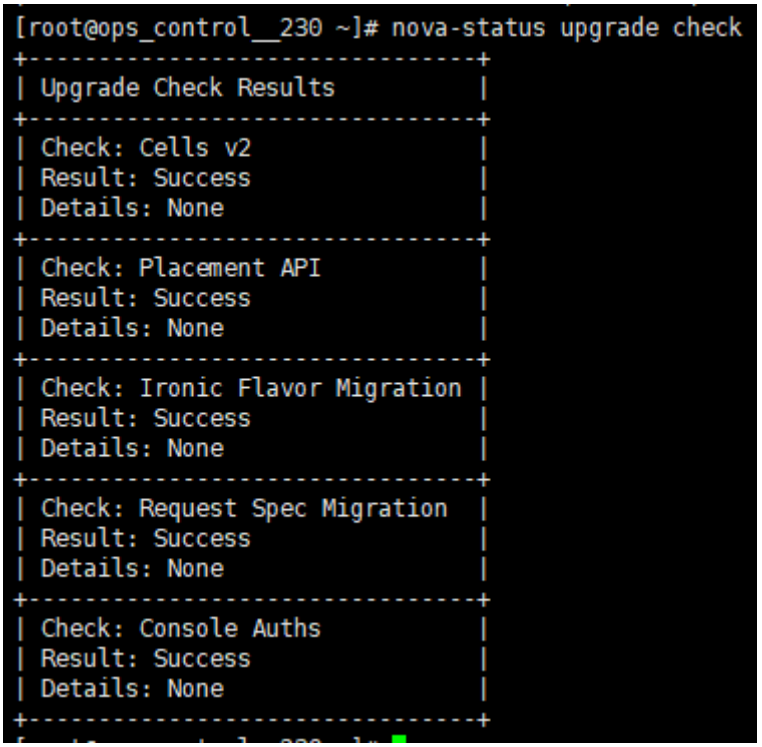
openstack catalog list 查看API服务信息

```
[root@ops_control__230 ~]# openstack catalog list
+-----------+-----------+-----------------------------------------+
| Name      | Type      | Endpoints                               |
+-----------+-----------+-----------------------------------------+
| nova      | compute   | RegionOne                               |
|           |           |   admin: http://192.168.61.230:8774/v2.1    |
|           |           | RegionOne                               |
|           |           |   public: http://192.168.61.230:8774/v2.1   |
|           |           | RegionOne                               |
|           |           |   internal: http://192.168.61.230:8774/v2.1 |
|           |           |                                         |
| glance    | image     | RegionOne                               |
|           |           |   internal: http://192.168.61.230:9292      |
|           |           | RegionOne                               |
|           |           |   admin: http://192.168.61.230:9292         |
|           |           | RegionOne                               |
|           |           |   public: http://192.168.61.230:9292        |
|           |           |                                         |
| keystone  | identity  | RegionOne                               |
|           |           |   public: http://192.168.61.230:5000/v3/    |
|           |           | RegionOne                               |
|           |           |   internal: http://192.168.61.230:5000/v3/  |
|           |           | RegionOne                               |
|           |           |   admin: http://192.168.61.230:5000/v3/     |
|           |           |                                         |
| placement | placement | RegionOne                               |
|           |           |   admin: http://192.168.61.230:8778         |
|           |           | RegionOne                               |
|           |           |   internal: http://192.168.61.230:8778      |
|           |           | RegionOne                               |
|           |           |   public: http://192.168.61.230:8778        |
|           |           |                                         |
+-----------+-----------+-----------------------------------------+
```

openstack image list 查看系统镜像列表

```
[root@ops_control__230 ~]# openstack image list
+--------------------------------------+--------+--------+
| ID                                   | Name   | Status |
+--------------------------------------+--------+--------+
| dff4c1ee-2f81-4561-8882-f9bc66ce8c02 | cirros | active |
+--------------------------------------+--------+--------+
```

nova-status upgrade check查看placement API和cell服务状态



这是部署compute客户端（计算节点）的脚本，注意控制服务器地址。**快照信息如下:**

使用61.233进行验证，在61.234上测试了脚本在61.235的机器同步230的用户操作注册到61.232后进行快照保存openstack-V2.0。安装了compute节点服务，默认注册到61.232的控制节点上

```
[root@ansible ansible]# cat openstack-clientcompute.sh
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
 export OS_IDENTITY_API_VERSION=3
 export OS_IMAGE_API_VERSION=2
 yum install -y openstack-nova-compute python-openstackclient openstack-utils
 openstack-config --set /etc/nova/nova.conf DEFAULT my_ip ${ip}
 openstack-config --set /etc/nova/nova.conf DEFAULT use_neutron True
 openstack-config --set /etc/nova/nova.conf DEFAULT firewall_driver nova.virt.firewall.NoopFirewallDriver
 openstack-config --set /etc/nova/nova.conf DEFAULT enabled_apis osapi_compute,metadata
 openstack-config --set /etc/nova/nova.conf DEFAULT transport_url rabbit://openstack:quanjing@192.168.61.230
```

```
openstack-config --set /etc/nova/nova.conf api auth_strategy keystone
openstack-config --set /etc/nova/nova.conf keystone_authtoken auth_url http://192.168.61.230:5000/v3
openstack-config --set /etc/nova/nova.conf keystone_authtoken memcached_servers 192.168.61.230:11211
openstack-config --set /etc/nova/nova.conf keystone_authtoken auth_type password
openstack-config --set /etc/nova/nova.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/nova/nova.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/nova/nova.conf keystone_authtoken project_name service
openstack-config --set /etc/nova/nova.conf keystone_authtoken username nova
openstack-config --set /etc/nova/nova.conf keystone_authtoken password quanjing
openstack-config --set /etc/nova/nova.conf vnc enabled True
openstack-config --set /etc/nova/nova.conf vnc server_listen 0.0.0.0
openstack-config --set /etc/nova/nova.conf vnc server_proxyclient_address '$my_ip'
openstack-config --set /etc/nova/nova.conf vnc novncproxy_base_url http://192.168.61.230:6080/vnc_auto.html
openstack-config --set /etc/nova/nova.conf glance api_servers http://192.168.61.230:9292
openstack-config --set /etc/nova/nova.conf oslo_concurrency lock_path /var/lib/nova/tmp
openstack-config --set /etc/nova/nova.conf placement region_name RegionOne
openstack-config --set /etc/nova/nova.conf placement project_domain_name Default
openstack-config --set /etc/nova/nova.conf placement project_name service
openstack-config --set /etc/nova/nova.conf placement auth_type password
openstack-config --set /etc/nova/nova.conf placement user_domain_name Default
openstack-config --set /etc/nova/nova.conf placement auth_url http://192.168.61.230:5000/v3
openstack-config --set /etc/nova/nova.conf placement username placement
openstack-config --set /etc/nova/nova.conf placement password quanjing
#检查配置是否正确,查看机器是否支持虚拟机硬件加速来设置不同的管理虚拟机方式
grep '^[a-z]' /etc/nova/nova.conf
type=`egrep -c '(vmx|svm)' /proc/cpuinfo`
if [ $type == 0 ];then
```

```
openstack-config --set /etc/nova/nova.conf libvirt virt_type qemu
else
openstack-config --set /etc/nova/nova.conf libvirt virt_type kvm
fi
#启动服务
systemctl enable libvirtd.service openstack-nova-compute.service
systemctl start libvirtd.service openstack-nova-compute.service
#将计算节点手动加入cell数据库，默认的自动发现间隔时间在配置文件中设置的300s
#su -s /bin/sh -c "nova-manage cell_v2 discover_hosts --verbose" nova
```

6.Neutron网络服务（2种类型，跟vmware类似VDS一个层面，VXLAN的另外一个层面）以下的验证先从简单的开始，从TRUNK、vlan、bridge出发。使用快照方式进行回滚然后进行vxlan的验证，后续使用debian的BOND、LACP、TRUNK、vlan、bridge进行进阶网络验证，最后使用ansible部署生产服务运行VXLAN的自助网络服务，参考vmware实现的功能。

这部分还是有点蒙蔽的，openstack的网络部分概念挺多的，先跟着教程用简单的实现再说

这块实际很简单，底层的网络自己配好。然后internal和public的网卡可以是物理网卡也可以是vlan的虚拟网卡，底层网卡是bond还是单卡都无所谓。注意一点管理的网卡admin最好是acces的单口

快照信息如下:flat的简单网络

61.232进行快照保存openstack-V1.4，安装了Neutron的网络控制服务

61.235进行快照保存openstack-V2.1。在compute节点上安装了Neutron的网络服务，默认注册到61.232的控制节点上（睡觉起来有点蒙蔽错误注册到了61.230上然后更改了）

6.1控制节点的网络服务安装

```
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE neutron;
GRANT ALL PRIVILEGES ON neutron.* TO 'neutron'@'localhost' IDENTIFIED BY 'QJ_neutron2019';
GRANT ALL PRIVILEGES ON neutron.* TO 'neutron'@'%' IDENTIFIED BY 'QJ_neutron2019';
flush privileges;
EOF
#创建对应的用户注册nova和placement的服务
```

```
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
openstack user create --domain default --password=quanjing neutron
openstack role add --project service --user neutron admin
openstack service create --name neutron --description "OpenStack Networking" network
openstack endpoint create --region RegionOne network public http://${ip}:9696
openstack endpoint create --region RegionOne network internal http://${ip}:9696
openstack endpoint create --region RegionOne network admin http://${ip}:9696
#安装Provider网络的软件包和初始化相关组件
yum install -y openstack-neutron openstack-neutron-ml2 openstack-neutron-linuxbridge ebtables
openstack-config --set /etc/neutron/neutron.conf database connection mysql+pymysql://neutron:QJ_neutron2019@${ip}/neutron
openstack-config --set /etc/neutron/neutron.conf DEFAULT core_plugin ml2
openstack-config --set /etc/neutron/neutron.conf DEFAULT service_plugins
openstack-config --set /etc/neutron/neutron.conf DEFAULT transport_url rabbit://openstack:quanjing@${ip}
openstack-config --set /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken www_authenticate_uri http://${ip}:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_url http://${ip}:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken memcached_servers ${ip}:11211
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_type password
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_name service
```

```
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken username neutron
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken password quanjing
openstack-config --set /etc/neutron/neutron.conf DEFAULT notify_nova_on_port_status_changes True
openstack-config --set /etc/neutron/neutron.conf DEFAULT notify_nova_on_port_data_changes True
openstack-config --set /etc/neutron/neutron.conf nova auth_url http://${ip}:5000
openstack-config --set /etc/neutron/neutron.conf nova auth_type password
openstack-config --set /etc/neutron/neutron.conf nova project_domain_name default
openstack-config --set /etc/neutron/neutron.conf nova user_domain_name default
openstack-config --set /etc/neutron/neutron.conf nova region_name RegionOne
openstack-config --set /etc/neutron/neutron.conf nova project_name service
openstack-config --set /etc/neutron/neutron.conf nova username nova
openstack-config --set /etc/neutron/neutron.conf nova password quanjing
openstack-config --set /etc/neutron/neutron.conf oslo_concurrency lock_path /var/lib/neutron/tmp
grep "^[a-z]" /etc/neutron/neutron.conf

openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini ml2 type_drivers flat,vlan
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini ml2 tenant_network_types
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini ml2 mechanism_drivers linuxbridge
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini ml2 extension_drivers port_security
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini ml2_type_flat flat_networks provider
openstack-config --set /etc/neutron/plugins/ml2/ml2_conf.ini securitygroup enable_ipset True
grep "^[a-z]" /etc/neutron/plugins/ml2/ml2_conf.ini

openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini linux_bridge physical_interface_mappings provider:ens224
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini vxlan enable_vxlan False
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini securitygroup enable_security_group True
```

```
64 openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini se
curitygroup firewall_driver neutron.agent.linux.iptables_firewall.IptablesF
irewallDriver
65 grep "^[a-z]" /etc/neutron/plugins/ml2/linuxbridge_agent.ini
66
67 openstack-config --set /etc/neutron/dhcp_agent.ini DEFAULT interface_dri
ver linuxbridge
68 openstack-config --set /etc/neutron/dhcp_agent.ini DEFAULT dhcp_driver n
eutron.agent.linux.dhcp.Dnsmasq
69 openstack-config --set /etc/neutron/dhcp_agent.ini DEFAULT enable_isolat
ed_metadata True
70 grep "^[a-z]" /etc/neutron/dhcp_agent.ini
71
72 openstack-config --set /etc/neutron/metadata_agent.ini DEFAULT nova_meta
data_host ${ip}
73 openstack-config --set /etc/neutron/metadata_agent.ini DEFAULT metadata_
proxy_shared_secret quanjing
74 grep "^[a-z]" /etc/neutron/metadata_agent.ini
75
76 openstack-config --set /etc/nova/nova.conf neutron url http://${ip}:9696
77 openstack-config --set /etc/nova/nova.conf neutron auth_url
http://${ip}:5000
78 openstack-config --set /etc/nova/nova.conf neutron auth_type password
79 openstack-config --set /etc/nova/nova.conf neutron project_domain_name d
efault
80 openstack-config --set /etc/nova/nova.conf neutron user_domain_name defa
ult
81 openstack-config --set /etc/nova/nova.conf neutron region_name RegionOne
82 openstack-config --set /etc/nova/nova.conf neutron project_name service
83 openstack-config --set /etc/nova/nova.conf neutron username neutron
84 openstack-config --set /etc/nova/nova.conf neutron password quanjing
85 openstack-config --set /etc/nova/nova.conf neutron service_metadata_prox
y true
86 openstack-config --set /etc/nova/nova.conf neutron metadata_proxy_shared
_secret quanjing
87 grep "^[a-z]" /etc/nova/nova.conf
88
89 ln -s /etc/neutron/plugins/ml2/ml2_conf.ini /etc/neutron/plugin.ini
90 #同步数据库
91 su -s /bin/sh -c "neutron-db-manage --config-file /etc/neutron/neutron.c
onf --config-file /etc/neutron/plugins/ml2/ml2_conf.ini upgrade head" neutr
on
92 #启动服务
93 systemctl restart openstack-nova-api.service
```

```
systemctl enable neutron-server.service neutron-linuxbridge-agent.service neutron-dhcp-agent.service neutron-metadata-agent.service
systemctl start neutron-server.service neutron-linuxbridge-agent.service neutron-dhcp-agent.service neutron-metadata-agent.service
```

6.2计算节点的网络服务安装

```
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
#安装Provider网络的软件包和初始化相关组件
yum install -y openstack-neutron-linuxbridge ebtables ipset
openstack-config --set /etc/neutron/neutron.conf DEFAULT transport_url rabbit://openstack:quanjing@192.168.61.230
openstack-config --set /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken www_authenticate_uri http://192.168.61.230:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_url http://192.168.61.230:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken memcached_servers 192.168.61.230:11211
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_type password
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_name service
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken username neutron
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken password quanjing
openstack-config --set /etc/neutron/neutron.conf oslo_concurrency lock_path /var/lib/neutron/tmp
grep "^[a-z]" /etc/neutron/neutron.conf

openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini linux_bridge physical_interface_mappings provider:ens224
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini vxlan enable_vxlan False
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini securitygroup enable_security_group True
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini securitygroup firewall_driver neutron.agent.linux.iptables_firewall.IptablesF
```

```
irewallDriver
grep "^[a-z]" /etc/neutron/plugins/ml2/linuxbridge_agent.ini

openstack-config --set /etc/nova/nova.conf neutron url http://192.168.61.230:9696
openstack-config --set /etc/nova/nova.conf neutron auth_url http://192.168.61.230:5000
openstack-config --set /etc/nova/nova.conf neutron auth_type password
openstack-config --set /etc/nova/nova.conf neutron project_domain_name default
openstack-config --set /etc/nova/nova.conf neutron user_domain_name default
openstack-config --set /etc/nova/nova.conf neutron region_name RegionOne
openstack-config --set /etc/nova/nova.conf neutron project_name service
openstack-config --set /etc/nova/nova.conf neutron username neutron
openstack-config --set /etc/nova/nova.conf neutron password quanjing
grep "^[a-z]" /etc/nova/nova.conf

#启动服务
systemctl restart openstack-nova-compute.service
systemctl enable neutron-linuxbridge-agent.service
systemctl start neutron-linuxbridge-agent.service#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
#安装Provider网络的软件包和初始化相关组件
yum install -y openstack-neutron-linuxbridge ebtables ipset
openstack-config --set /etc/neutron/neutron.conf DEFAULT transport_url rabbit://openstack:quanjing@192.168.61.230
openstack-config --set /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken www_authenticate_uri http://192.168.61.230:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_url http://192.168.61.230:5000
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken memcached_servers 192.168.61.230:11211
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken auth_type password
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken project_name service
```

```
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken username neutron
openstack-config --set /etc/neutron/neutron.conf keystone_authtoken password quanjing
openstack-config --set /etc/neutron/neutron.conf oslo_concurrency lock_path /var/lib/neutron/tmp
grep "^[a-z]" /etc/neutron/neutron.conf

openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini linux_bridge physical_interface_mappings provider:ens224
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini vxlan enable_vxlan False
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini securitygroup enable_security_group True
openstack-config --set /etc/neutron/plugins/ml2/linuxbridge_agent.ini securitygroup firewall_driver neutron.agent.linux.iptables_firewall.IptablesFirewallDriver
grep "^[a-z]" /etc/neutron/plugins/ml2/linuxbridge_agent.ini

openstack-config --set /etc/nova/nova.conf neutron url http://192.168.61.230:9696
openstack-config --set /etc/nova/nova.conf neutron auth_url http://192.168.61.230:5000
openstack-config --set /etc/nova/nova.conf neutron auth_type password
openstack-config --set /etc/nova/nova.conf neutron project_domain_name default
openstack-config --set /etc/nova/nova.conf neutron user_domain_name default
openstack-config --set /etc/nova/nova.conf neutron region_name RegionOne
openstack-config --set /etc/nova/nova.conf neutron project_name service
openstack-config --set /etc/nova/nova.conf neutron username neutron
openstack-config --set /etc/nova/nova.conf neutron password quanjing
grep "^[a-z]" /etc/nova/nova.conf

#启动服务
systemctl restart openstack-nova-compute.service
systemctl enable neutron-linuxbridge-agent.service
systemctl start neutron-linuxbridge-agent.service
```

查看网络的扩展插件列表，用第二种看着简洁点

openstack extension list --network或者neutron ext-list

```
[root@opscontrol230 ~]# neutron ext-list
neutron CLI is deprecated and will be removed in the future. Use openstack CLI instead.
+-------------------------------+---------------------------------------------------------------------------------------------------------------------------------------------------------+
| alias                         | name                                                                                                                                                    |
+-------------------------------+---------------------------------------------------------------------------------------------------------------------------------------------------------+
| default-subnetpools           | Default Subnetpools
| network-ip-availability       | Network IP Availability
| network_availability_zone     | Network Availability Zone
| subnet_onboard                | Subnet Onboard
| net-mtu-writable              | Network MTU (writable)
| binding                       | Port Binding
| agent                         | agent
| subnet_allocation             | Subnet Allocation
| dhcp_agent_scheduler          | DHCP Agent Scheduler
| external-net                  | Neutron external network
| empty-string-filtering        | Empty String Filtering Extension
| flavors                       | Neutron Service Flavors
| net-mtu                       | Network MTU
| availability_zone             | Availability Zone
| quotas                        | Quota management support
| standard-attr-tag             | Tag support for resources with standard attribute: subnet, trunk, network_segment_range, router, network, policy, subnetpool, port, security_group, floatingip
| availability_zone_filter      | Availability Zone Filter Extension
| revision-if-match             | If-Match constraints based on revision_number
| filter-validation             | Filter parameters validation
| multi-provider                | Multi Provider Network
| quota_details                 | Quota details management support
| address-scope                 | Address scope
| agent-resources-synced        | Agent's Resource View Synced to Placement
| subnet-service-types          | Subnet service types
| port-mac-address-regenerate   | Neutron Port MAC address regenerate
| rbac-security-groups          | Add security_group type to network RBAC
| provider                      | Provider Network
| service-type                  | Neutron Service Type Management
| extra_dhcp_opt                | Neutron Extra DHCP options
| port-security-groups-filtering | Port filtering on security groups
| standard-attr-timestamp       | Resource timestamps
| standard-attr-revisions       | Resource revision numbers
| pagination                    | Pagination support
| sorting                       | Sorting support
| security-group                | security-group
| rbac-policies                 | RBAC Policies
| standard-attr-description     | standard-attr-description
| ip-substring-filtering        | IP address substring filtering
| port-security                 | Port Security
| allowed-address-pairs         | Allowed Address Pairs
| project-id                    | project_id field enabled
| binding-extended              | Port Bindings Extended
```

openstack network agent list 查看网络代理列表

```
[root@opscontrol230 ~]# openstack network agent list
+--------------------------------------+--------------------+----------------+-------------------+-------+-------+---------------------------+
| ID                                   | Agent Type         | Host           | Availability Zone | Alive | State | Binary                    |
+--------------------------------------+--------------------+----------------+-------------------+-------+-------+---------------------------+
| 23037bd9-09e7-4f86-868a-3a12dfc3c334 | Metadata agent     | opscontrol230  | None              | :-)   | UP    | neutron-metadata-agent    |
| b7c9d77f-7faa-446b-87e2-7191a7b075f2 | Linux bridge agent | opscontrol230  | None              | :-)   | UP    | neutron-linuxbridge-agent |
| c440d770-ba1e-44ce-bca2-0444e0222c55 | Linux bridge agent | opscompute233  | None              | :-)   | UP    | neutron-linuxbridge-agent |
| f93de998-f3e7-402e-99e3-9958e98257a0 | DHCP agent         | opscontrol230  | nova              | :-)   | UP    | neutron-dhcp-agent        |
+--------------------------------------+--------------------+----------------+-------------------+-------+-------+---------------------------+
```

要明白网络部分的类型和原理才能正常的往下走，比如目前的这个实验就是很简单啊flat网络。相当于所有虚拟机位于一个bridge然后桥接到ACCESS物理网卡的VLAN中，这里使用ens224，链接到交换机的VLAN16中。

openstack network create --share --external --provider-physical-network provider --provider-network-type flat flat-vlan16

##创建命令也可以使用如下的neutron net-create --shared --provider:physical_network [自定义的物理网卡的名称] --provider:network_type flat（单一扁平网络） [创建的虚拟网络名称]

#创建一个flat类型的网络物理网络由provider提供，由外部提供路由，网络名称叫做flat-vlan16

```
[root@opscontrol230 ~]# openstack network create --share --external --provider-physical-network provider  --provider-network-type flat flat-vlan16
+---------------------------+-----------------------------------------------------------------------------------------------------------------------------------------------------+
| Field                     | Value                                                                                                                                               |
+---------------------------+-----------------------------------------------------------------------------------------------------------------------------------------------------+
| admin_state_up            | UP                                                                                                                                                  |
| availability_zone_hints   |                                                                                                                                                     |
| availability_zones        |                                                                                                                                                     |
| created_at                | 2019-09-11T07:09:59Z                                                                                                                                |
| description               |                                                                                                                                                     |
| dns_domain                | None                                                                                                                                                |
| id                        | 8b4eb0cd-6428-462c-990d-57c67d727a8a                                                                                                                |
| ipv4_address_scope        | None                                                                                                                                                |
| ipv6_address_scope        | None                                                                                                                                                |
| is_default                | None                                                                                                                                                |
| is_vlan_transparent       | None                                                                                                                                                |
| location                  | Munch({'project': Munch({'domain_name': 'Default', 'domain_id': None, 'name': 'admin', 'id': u'447c24c8dd5147838505818b975084a0'}), 'cloud': '', 'region_name': '', 'zone': None}) |
| mtu                       | 1500                                                                                                                                                |
| name                      | flat-vlan16                                                                                                                                         |
| port_security_enabled     | True                                                                                                                                                |
| project_id                | 447c24c8dd5147838505818b975084a0                                                                                                                    |
| provider:network_type     | flat                                                                                                                                                |
| provider:physical_network | provider                                                                                                                                            |
| provider:segmentation_id  | None                                                                                                                                                |
| qos_policy_id             | None                                                                                                                                                |
| revision_number           | 1                                                                                                                                                   |
| router:external           | External                                                                                                                                            |
| segments                  | None                                                                                                                                                |
| shared                    | True                                                                                                                                                |
| status                    | ACTIVE                                                                                                                                              |
| subnets                   |                                                                                                                                                     |
| tags                      |                                                                                                                                                     |
| updated_at                | 2019-09-11T07:09:59Z                                                                                                                                |
+---------------------------+-----------------------------------------------------------------------------------------------------------------------------------------------------+
```

openstack subnet create --network flat-vlan16 --no-dhcp --allocation-pool start=192.168.60.230,end=192.168.60.240 --dns-nameserver 114.114.114.114 --

gateway 192.168.60.254 --subnet-range 192.168.60.0/24 flat-vlan16-ippool

#为flat-vlan16创建一个不用dhcp分配的IP地址池，使用dhcp的话命令如下

#openstack subnet create --network flat-vlan16 --dhcp --subnet-range 192.168.60.0/24 flat-vlan16-ipdhcp

```
[root@opscontrol230 ~]# openstack subnet create --network flat-vlan16 --no-dhcp --allocation-pool start=192.168.60.230,end=192.168.60.240 --dns-nameserver 114.114.114.114 --gateway 192.168.60.254 --subnet-range 192.168.60.0/24 flat-vlan16-ippool
+-------------------+---------------------------------------------------------------------------------------------------------------------------------------------------------+
| Field             | Value                                                                                                                                                   |
+-------------------+---------------------------------------------------------------------------------------------------------------------------------------------------------+
| allocation_pools  | 192.168.60.230-192.168.60.240                                                                                                                           |
| cidr              | 192.168.60.0/24                                                                                                                                         |
| created_at        | 2019-09-11T07:18:24Z                                                                                                                                    |
| description       |                                                                                                                                                         |
| dns_nameservers   | 114.114.114.114                                                                                                                                         |
| enable_dhcp       | False                                                                                                                                                   |
| gateway_ip        | 192.168.60.254                                                                                                                                          |
| host_routes       |                                                                                                                                                         |
| id                | daf11ac0-62bb-4a06-bcd9-88bc6c5706c2                                                                                                                    |
| ip_version        | 4                                                                                                                                                       |
| ipv6_address_mode | None                                                                                                                                                    |
| ipv6_ra_mode      | None                                                                                                                                                    |
| location          | Munch({'project': Munch({'domain_name': 'Default', 'domain_id': None, 'name': 'admin', 'id': u'447c24c8dd5147838505818b975084a0'}), 'cloud': '', 'region_name': '', 'zone': None}) |
| name              | flat-vlan16-ippool                                                                                                                                      |
| network_id        | 8b4eb0cd-6428-462c-990d-57c67d727a8a                                                                                                                    |
| prefix_length     | None                                                                                                                                                    |
| project_id        | 447c24c8dd5147838505818b975084a0                                                                                                                        |
| revision_number   | 0                                                                                                                                                       |
| segment_id        | None                                                                                                                                                    |
| service_types     |                                                                                                                                                         |
| subnetpool_id     | None                                                                                                                                                    |
| tags              |                                                                                                                                                         |
| updated_at        | 2019-09-11T07:18:24Z                                                                                                                                    |
+-------------------+---------------------------------------------------------------------------------------------------------------------------------------------------------+
```

openstack network list

openstack subnet list

查看网络和子网信息

```
[root@opscontrol230 ~]# openstack network list
+--------------------------------------+-------------+--------------------------------------+
| ID                                   | Name        | Subnets                              |
+--------------------------------------+-------------+--------------------------------------+
| 8b4eb0cd-6428-462c-990d-57c67d727a8a | flat-vlan16 | daf11ac0-62bb-4a06-bcd9-88bc6c5706c2 |
+--------------------------------------+-------------+--------------------------------------+
[root@opscontrol230 ~]# openstack subnet list
+--------------------------------------+--------------------+--------------------------------------+-----------------+
| ID                                   | Name               | Network                              | Subnet          |
+--------------------------------------+--------------------+--------------------------------------+-----------------+
| daf11ac0-62bb-4a06-bcd9-88bc6c5706c2 | flat-vlan16-ippool | 8b4eb0cd-6428-462c-990d-57c67d727a8a | 192.168.60.0/24 |
+--------------------------------------+--------------------+--------------------------------------+-----------------+
```

准备部署虚拟机开始测试是否正常了

openstack flavor create --id 0 --vcpus 1 --ram 256 --disk 1 m1.nano

创建一个虚拟机的配置标签叫做m1.nano，资源分配CPU1核+256M内存

```
[root@opscontrol230 ~]# openstack flavor create --id 0 --vcpus 1 --ram 256 --disk 1 m1.nano
+----------------------------+---------+
| Field                      | Value   |
+----------------------------+---------+
| OS-FLV-DISABLED:disabled   | False   |
| OS-FLV-EXT-DATA:ephemeral  | 0       |
| disk                       | 1       |
| id                         | 0       |
| name                       | m1.nano |
| os-flavor-access:is_public | True    |
| properties                 |         |
| ram                        | 256     |
| rxtx_factor                | 1.0     |
| swap                       |         |
| vcpus                      | 1       |
+----------------------------+---------+
```

使用nova flavor-list或者openstack flavor list查看虚拟机的配置模板

然后生成SSH的公钥ssh-keygen -q -N "",执行ssh-copy-id到计算的节点上

创建密钥对名称openstack keypair create --public-key ~/.ssh/id_rsa.pub ct230

```
[root@opscontrol230 ~]# openstack keypair create --public-key ~/.ssh/id_rsa.pub ct230
+-------------+-------------------------------------------------+
| Field       | Value                                           |
+-------------+-------------------------------------------------+
| fingerprint | f0:cf:7d:4f:5c:6c:01:f4:27:d4:f8:1d:32:6a:aa:02 |
| name        | ct230                                           |
| user_id     | aa86fcd5412846c286798dc0b404432c                |
```

创建安全组的规则开放ping和22端口的访问

openstack security group rule create --proto icmp default

```
[root@opscontrol230 ~]# openstack security group rule create --proto icmp default
| Field             | Value
| created_at        | 2019-09-11T09:31:40Z
| description       |
| direction         | ingress
| ether_type        | IPv4
| id                | be7ec2c4-826f-42c4-9120-4d1c37c29d46
| location          | Munch({'project': Munch({'domain_name': 'Default', 'domain_id': None, 'name': 'admin', 'id': u'447c24c8dd5147838505818b975084a0'}), 'cloud': '', 'region_name': '', 'zone': None}) |
| name              | None
| port_range_max    | None
| port_range_min    | None
| project_id        | 447c24c8dd5147838505818b975084a0
| protocol          | icmp
| remote_group_id   | None
| remote_ip_prefix  | 0.0.0.0/0
| revision_number   | 0
| security_group_id | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5
| tags              | []
| updated_at        | 2019-09-11T09:31:40Z
```

openstack security group rule create --proto tcp --dst-port 22 default

```
[root@opscontrol230 ~]# openstack security group rule create --proto tcp --dst-port 22 default
| Field             | Value
| created_at        | 2019-09-11T09:32:34Z
| description       |
| direction         | ingress
| ether_type        | IPv4
| id                | 02006c54-f681-484d-8ff7-e730ca25a92c
| location          | Munch({'project': Munch({'domain_name': 'Default', 'domain_id': None, 'name': 'admin', 'id': u'447c24c8dd5147838505818b975084a0'}), 'cloud': '', 'region_name': '', 'zone': None}) |
| name              | None
| port_range_max    | 22
| port_range_min    | 22
| project_id        | 447c24c8dd5147838505818b975084a0
| protocol          | tcp
| remote_group_id   | None
| remote_ip_prefix  | 0.0.0.0/0
| revision_number   | 0
| security_group_id | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5
| tags              | []
| updated_at        | 2019-09-11T09:32:34Z
```

查看默认安全组的规则列表openstack security group rule list

```
[root@opscontrol230 ~]# openstack security group rule list
| ID                                   | IP Protocol | IP Range  | Port Range | Remote Security Group                | Security Group                       |
| 02006c54-f681-484d-8ff7-e730ca25a92c | tcp         | 0.0.0.0/0 | 22:22      | None                                 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
| 0f43933f-6d93-4e0a-8a93-e3752456eece | None        | None      |            | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
| 915720d2-67df-46c1-8929-8fe9f8d624f3 | None        | None      |            | None                                 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
| 98039b28-9e37-4ef8-865e-d23437c12d91 | None        | None      |            | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
| be7ec2c4-826f-42c4-9120-4d1c37c29d46 | icmp        | 0.0.0.0/0 |            | None                                 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
| f45c39c4-bf99-4c27-a7cb-286818a96089 | None        | None      |            | None                                 | 8c32d174-897c-4a35-9ae5-f1a781a7fdd5 |
```

创建虚拟机

openstack server create --flavor m1.nano --image cirros --nic net-id=8b4eb0cd-6428-462c-990d-57c67d727a8a --security-group default --key-name ct230 openstackvm

或者使用如下的命令

nova boot --flavor test --image cirros --nic net-name=flat-vlan16 --security-group default --key-name ct230 vm01

```
[root@opscontrol230 ~]# openstack server create --flavor m1.nano --image cirros  --nic net-id=8b4eb0cd-6428-462c-990d-57c67d727a8a --security-group default --key-name ct230 openstackvm
| Field                               | Value                                                |
| OS-DCF:diskConfig                   | MANUAL                                               |
| OS-EXT-AZ:availability_zone         |                                                      |
| OS-EXT-SRV-ATTR:host                | None                                                 |
| OS-EXT-SRV-ATTR:hypervisor_hostname | None                                                 |
| OS-EXT-SRV-ATTR:instance_name       |                                                      |
| OS-EXT-STS:power_state              | NOSTATE                                              |
| OS-EXT-STS:task_state               | scheduling                                           |
| OS-EXT-STS:vm_state                 | building                                             |
| OS-SRV-USG:launched_at              | None                                                 |
| OS-SRV-USG:terminated_at            | None                                                 |
| accessIPv4                          |                                                      |
| accessIPv6                          |                                                      |
| addresses                           |                                                      |
| adminPass                           | iXY8H3jrjURb                                         |
| config_drive                        |                                                      |
| created                             | 2019-09-11T09:41:31Z                                 |
| flavor                              | m1.nano (0)                                          |
| hostId                              |                                                      |
| id                                  | 98795780-a008-46bc-a4a9-9cf23f893eb1                 |
| image                               | cirros (dff4c1ee-2f81-4561-8882-f9bc66ce8c02)        |
| key_name                            | ct230                                                |
| name                                | openstackvm                                          |
| progress                            | 0                                                    |
| project_id                          | 447c24c8dd5147838505818b975084a0                     |
| properties                          |                                                      |
| security_groups                     | name='8c32d174-897c-4a35-9ae5-f1a781a7fdd5'          |
| status                              | BUILD                                                |
| updated                             | 2019-09-11T09:41:30Z                                 |
| user_id                             | aa86fcd5412846c286798dc0b404432c                     |
| volumes_attached                    |                                                      |
```

查看虚拟机列表和VNC的信息

openstack server list

```
[root@opscontrol230 ~]# openstack server list
+--------------------------------------+-------------+--------+----------------------------+--------+---------+
| ID                                   | Name        | Status | Networks                   | Image  | Flavor  |
+--------------------------------------+-------------+--------+----------------------------+--------+---------+
| 98795780-a008-46bc-a4a9-9cf23f893eb1 | openstackvm | ACTIVE | flat-vlan16=192.168.60.236 | cirros | m1.nano |
+--------------------------------------+-------------+--------+----------------------------+--------+---------+
```

openstack console url show openstackvm

```
[root@opscontrol230 ~]# openstack console url show openstackvm
+-------+-----------------------------------------------------------------------------------------------+
| Field | Value                                                                                         |
+-------+-----------------------------------------------------------------------------------------------+
| type  | novnc                                                                                         |
| url   | http://192.168.61.230:6080/vnc_auto.html?path=%3Ftoken%3D52d30b17-db92-496e-afbd-582d26ad5067 |
+-------+-----------------------------------------------------------------------------------------------+
```

如上访问对应的链接，等完全启动后会显示默认的账号密码。

http://192.168.61.230:6080/vnc_auto.html?path=%3Ftoken%3D52d30b17-db92-496e-afbd-582d26ad5067

```
login as 'cirros' user. default password: 'gocubsgo'. use 'sudo' for root.
cirros login: cirros
Password: [  178.466091] random: nonblocking pool is initialized

$
```

网络配置的问题，不通。哈哈是自己设置的IP问题，出了POOL不能自动给VM分配虚拟机其他正常

7.部署Horizon dashboard管理界面

依赖于keystone，其他都是可选项，这个部署的时候有一部分内容需要手动编辑，注意一下。

快照信息如下:

61.232进行快照保存openstack-V1.5，安装了Horizon的dashboard服务，调用的都是本机的服务组件，基本全新的环境没污染

```
[root@ansible ansible]# cat openstack-serverdashboard.sh
#!/bin/bash
yum install -y openstack-dashboard
egrep -v "^#|^$" /etc/openstack-dashboard/local_settings > /etc/openstack-dashboard/local_settings.new
mv /etc/openstack-dashboard/local_settings /etc/openstack-dashboard/local_settings.bak
mv /etc/openstack-dashboard/local_settings.new /etc/openstack-dashboard/local_settings
cd /etc/openstack-dashboard/
sed -i 's/^OPENSTACK_HOST.*/OPENSTACK_HOST = "192.168.61.230"/g' local_settings
sed -i "s/^ALLOWED_HOSTS.*/ALLOWED_HOSTS = [\'*\', ]/g" local_settings
sed -i 's/^OPENSTACK_KEYSTONE_DEFAULT_ROLE.*/OPENSTACK_KEYSTONE_DEFAULT_ROLE = "user"/g' local_settings
sed -i 's/^TIME_ZONE.*/TIME_ZONE = "Asia\/Shanghai"/g' local_settings

```

```
13
14 cat <<EOF >>/etc/openstack-dashboard/local_settings
15 SESSION_ENGINE = 'django.contrib.sessions.backends.cache'
16 CACHES = {
17  'default': {
18  'BACKEND': 'django.core.cache.backends.memcached.MemcachedCache',
19  'LOCATION': '192.168.61.230:11211',
20  }
21 }
22 OPENSTACK_API_VERSIONS = {
23  "identity": 3,
24  "image": 2,
25  "volume": 2,
26 }
27 OPENSTACK_KEYSTONE_MULTIDOMAIN_SUPPORT = True
28 OPENSTACK_KEYSTONE_DEFAULT_DOMAIN = "default"
29 EOF
30 echo "WSGIApplicationGroup %{GLOBAL}" >> /etc/httpd/conf.d/openstack-das
hboard.conf
31 echo -e "Still need to change /etc/openstack-dashboard/local_settings wi
th manual,look at /root/tishi\n"
32 cat <<EOF >/root/tishi
33 #定位到文件 /etc/openstack-dashboard/local_settings 这块手动修改，因网路不
同而做不同改动
34 #OPENSTACK_NEUTRON_NETWORK = {
35  'enable_router': False,
36  'enable_quotas': False,
37  'enable_ipv6': False,
38  'enable_distributed_router': False,
39  'enable_ha_router': False,
40  'enable_fip_topology_check': False,
41  'enable_lb': False,
42  'enable_firewall': False,
43  'enable_vpn': False,
44 #}
45 #systemctl restart httpd.service memcached.service
46 echo -e "Visit http://192.168.61.230/dashboard with default domain admin
quanjing/n"
47 EOF
```

8.Cinder块存储服务部署，提供类似于阿里云云盘的服务

快照信息如下:

61.232进行快照保存openstack-V1.6，安装了Cinder的块存储控制服务，调用的都是本机的服务组件，没有实际的存储节点基，本全新的环境没污染

8.1安装cinder存储的控制服务

```
[root@ansible ansible]# cat openstack-servercinder.sh
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE cinder;
GRANT ALL PRIVILEGES ON cinder.* TO 'cinder'@'localhost' IDENTIFIED BY 'QJ_cinder2019';
GRANT ALL PRIVILEGES ON cinder.* TO 'cinder'@'%' IDENTIFIED BY 'QJ_cinder2019';
flush privileges;
EOF
 #创建对应的用户注册cinder的服务
 export OS_USERNAME=admin
 export OS_PASSWORD=quanjing
 export OS_PROJECT_NAME=admin
 export OS_USER_DOMAIN_NAME=Default
 export OS_PROJECT_DOMAIN_NAME=Default
 export OS_AUTH_URL=http://${ip}:5000/v3
 export OS_IDENTITY_API_VERSION=3
 export OS_IMAGE_API_VERSION=2
 openstack user create --domain default --password=quanjing cinder
 openstack role add --project service --user cinder admin
 openstack service create --name cinderv2 --description "OpenStack Block Storage" volumev2
 openstack service create --name cinderv3 --description "OpenStack Block Storage" volumev3
 openstack endpoint create --region RegionOne volumev2 public http://${ip}:8776/v2/%\(project_id\)s
 openstack endpoint create --region RegionOne volumev2 internal http://${ip}:8776/v2/%\(project_id\)s
 openstack endpoint create --region RegionOne volumev2 admin http://${ip}:8776/v2/%\(project_id\)s
 openstack endpoint create --region RegionOne volumev3 public http://${ip}:8776/v3/%\(project_id\)s
 openstack endpoint create --region RegionOne volumev3 internal http://${ip}:8776/v3/%\(project_id\)s
 openstack endpoint create --region RegionOne volumev3 admin http://${ip}:8776/v3/%\(project_id\)s
```

```
#开始安装cinder的服务，并借助工具快速配置服务
yum install -y openstack-cinder
openstack-config --set /etc/cinder/cinder.conf database connection mysql+pymysql://cinder:QJ_cinder2019@${ip}/cinder
openstack-config --set /etc/cinder/cinder.conf DEFAULT transport_url rabbit://openstack:quanjing@${ip}
openstack-config --set /etc/cinder/cinder.conf DEFAULT auth_strategy keystone
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken www_authenticate_uri http://${ip}:5000
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken auth_url http://${ip}:5000
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken memcached_servers ${ip}:11211
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken auth_type password
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken project_name service
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken username cinder
openstack-config --set /etc/cinder/cinder.conf keystone_authtoken password quanjing
openstack-config --set /etc/cinder/cinder.conf DEFAULT my_ip ${ip}
openstack-config --set /etc/cinder/cinder.conf oslo_concurrency lock_path /var/lib/nova/tmp
egrep -v "^#|^$" /etc/cinder/cinder.conf
su -s /bin/sh -c "cinder-manage db sync" cinder
mysql -u root -pQuanjing_db2019 -e "use cinder;show tables;"
openstack-config --set /etc/nova/nova.conf cinder os_region_name RegionOne
systemctl restart openstack-nova-api.service
systemctl enable openstack-cinder-api.service openstack-cinder-scheduler.service
systemctl start openstack-cinder-api.service openstack-cinder-scheduler.service
```

8.2在存储节点上安装cinder存储服务（计算、网络、存储为一体的超融合，LVM在61.231上验证）

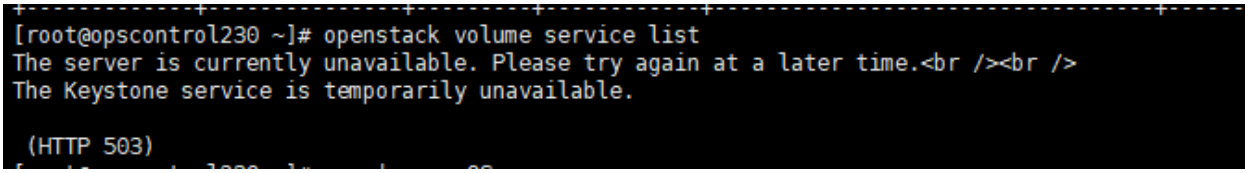
```
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
```

```
yum install -y lvm2 device-mapper-persistent-data
systemctl enable lvm2-lvmetad.service
systemctl start lvm2-lvmetad.service
dd if=/dev/zero of=/dev/sdb bs=512k count=2
pvcreate /dev/sdb
vgcreate cinder-volumes /dev/sdb
142行前面插入filter避免被lvm扫描
 a=`echo 'filter = [ "a|/dev/sdb|", "r|.*/|" ]'` | sed -i "142i ${a}" /etc/lvm/lvm.conf
 yum install -y openstack-cinder targetcli python-keystone
 openstack-config --set /etc/cinder/cinder.conf database connection mysql+pymysql://cinder:QJ_cinder2019@192.168.61.230/cinder
 openstack-config --set /etc/cinder/cinder.conf DEFAULT transport_url rabbit://openstack:quanjing@192.168.61.230
 openstack-config --set /etc/cinder/cinder.conf DEFAULT auth_strategy keystone
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken www_authenticate_uri http://192.168.61.230:5000
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken auth_url http://192.168.61.230:5000
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken memcached_servers 192.168.61.230:11211
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken auth_type password
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken project_domain_name default
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken user_domain_name default
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken project_name service
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken username cinder
 openstack-config --set /etc/cinder/cinder.conf keystone_authtoken password quanjing
 openstack-config --set /etc/cinder/cinder.conf DEFAULT my_ip ${ip}
 openstack-config --set /etc/cinder/cinder.conf lvm volume_driver cinder.volume.drivers.lvm.LVMVolumeDriver
 openstack-config --set /etc/cinder/cinder.conf lvm volume_group cinder-volumes
 openstack-config --set /etc/cinder/cinder.conf lvm iscsi_protocol iscsi
 openstack-config --set /etc/cinder/cinder.conf lvm iscsi_helper lioadm
 openstack-config --set /etc/cinder/cinder.conf DEFAULT enabled_backends lvm
```

```
openstack-config --set /etc/cinder/cinder.conf DEFAULT glance_api_servers http://192.168.61.230:9292
openstack-config --set /etc/cinder/cinder.conf oslo_concurrency lock_path /var/lib/cinder/tmp
egrep -v "^#|^$" /etc/cinder/cinder.conf
systemctl enable openstack-cinder-volume.service target.service
systemctl start openstack-cinder-volume.service target.service
```

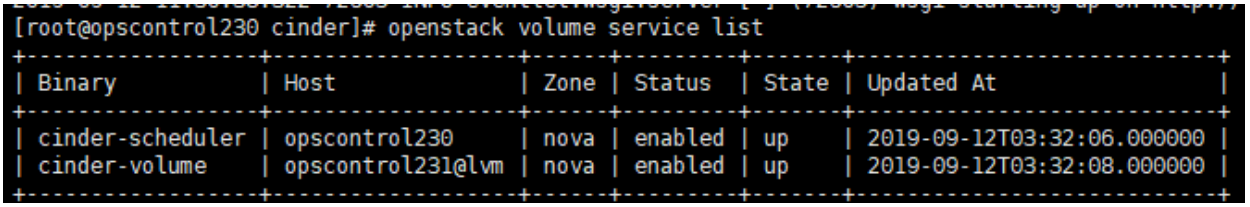
接着在控制节点验证cinder服务

openstack volume service list



出错了进到日志目录查看详细问题cd /var/log/cinder/; cat api.log发现

查看部署cinder控制节点的脚本发现少了一个权限分配的命令，加上后重启cinder服务。正常如下



目前没明白的存储空间是怎么计算的，怎么调用挂载也没做实验。

9.heat编排服务的部署，没明白具体干什么的。没有同步到快照

https://docs.openstack.org/heat/rocky/install/install-rdo.html

```
#!/bin/bash
ip=$(ip -4 -f inet addr show ${eth} | grep 'inet' | sed 's/.*inet \([0-9\.]\+\).*/\1/' | grep 168.61)
mysql -u root -pQuanjing_db2019 <<EOF
CREATE DATABASE heat;
GRANT ALL PRIVILEGES ON heat.* TO 'heat'@'localhost' IDENTIFIED BY 'QJ_heat2019';
GRANT ALL PRIVILEGES ON heat.* TO 'heat'@'%' IDENTIFIED BY 'QJ_heat2019';
flush privileges;
EOF
#创建对应的用户注册heat的服务
export OS_USERNAME=admin
export OS_PASSWORD=quanjing
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
```

```
export OS_AUTH_URL=http://${ip}:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
openstack user create --domain default --password=quanjing heat
openstack role add --project service --user heat admin
openstack service create --name heat --description "Orchestration" orche
stration
openstack service create --name heat-cfn --description "Orchestration" c
loudformation
openstack endpoint create --region RegionOne orchestration public
http://${ip}:8004/v1/%\(tenant_id\)s
openstack endpoint create --region RegionOne orchestration internal
http://${ip}:8004/v1/%\(tenant_id\)s
openstack endpoint create --region RegionOne orchestration admin
http://${ip}:8004/v1/%\(tenant_id\)s
openstack endpoint create --region RegionOne cloudformation public
http://${ip}:8000/v1
openstack endpoint create --region RegionOne cloudformation internal htt
p://${ip}:8000/v1
openstack endpoint create --region RegionOne cloudformation admin
http://${ip}:8000/v1

openstack domain create --description "Stack projects and users" heat
openstack user create --domain heat --password=quanjing heatadmin
openstack role add --domain heat --user-domain heat --user heatadmin adm
in
openstack role create heat_stack_owner
openstack role add --project service --user qjops heat_stack_owner
openstack role create heat_stack_user
#开始安装服务
yum install -y openstack-heat-api openstack-heat-api-cfn openstack-heat-
engine
openstack-config --set /etc/heat/heat.conf database connection mysql+pym
ysql://heat:QJ_heat2019@${ip}/heat
openstack-config --set /etc/heat/heat.conf DEFAULT transport_url
rabbit://openstack:quanjing@${ip}
openstack-config --set /etc/heat/heat.conf keystone_authtoken auth_uri h
ttp://${ip}:5000
openstack-config --set /etc/heat/heat.conf keystone_authtoken auth_url h
ttp://${ip}:35357
openstack-config --set /etc/heat/heat.conf keystone_authtoken memcached_
servers ${ip}:11211
openstack-config --set /etc/heat/heat.conf keystone_authtoken auth_type
password
```

```
openstack-config --set /etc/heat/heat.conf keystone_authtoken project_domain_name default
openstack-config --set /etc/heat/heat.conf keystone_authtoken user_domain_name default
openstack-config --set /etc/heat/heat.conf keystone_authtoken project_name service
openstack-config --set /etc/heat/heat.conf keystone_authtoken username heat
openstack-config --set /etc/heat/heat.conf keystone_authtoken password quanjing
openstack-config --set /etc/heat/heat.conf trustee auth_type password
openstack-config --set /etc/heat/heat.conf trustee auth_url http://${ip}:35357
openstack-config --set /etc/heat/heat.conf trustee username heat
openstack-config --set /etc/heat/heat.conf trustee password quanjing
openstack-config --set /etc/heat/heat.conf trustee user_domain_name default
openstack-config --set /etc/heat/heat.conf clients_keystone auth_uri http://${ip}:5000
openstack-config --set /etc/heat/heat.conf DEFAULT heat_metadata_server_url http://${ip}:8000
openstack-config --set /etc/heat/heat.conf DEFAULT heat_waitcondition_server_url http://${ip}:8000/v1/waitcondition
openstack-config --set /etc/heat/heat.conf DEFAULT stack_domain_admin heatadmin
openstack-config --set /etc/heat/heat.conf DEFAULT stack_domain_admin_password quanjing
openstack-config --set /etc/heat/heat.conf DEFAULT stack_user_domain_name heat
egrep -v "^#|^$" /etc/heat/heat.conf

su -s /bin/sh -c "heat-manage db_sync" heat
mysql -u root -pQuanjing_db2019 -e "use heat;show tables;"
systemctl enable openstack-heat-api.service openstack-heat-api-cfn.service openstack-heat-engine.service
systemctl start openstack-heat-api.service openstack-heat-api-cfn.service openstack-heat-engine.service
```

https://www.cnblogs.com/chenli90/category/1389223.html 从这块开始引用这个博客的继续