CentOS7.5安装OpenStack Rocky版本

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刚刚更新了版本，就忍不住想安装一下，因时间有限，只安装到了dashboard
搭建过程中，跟着官网走了遍流程，基本上没啥问题
建议还是跟着官网搭一遍会舒服很多 https://docs.openstack.org/install-guide/
因为是自己搭着玩，为了方便，所有关于密码的设置，都设置成000000

配置

主机	系统	网卡1:eth0	网卡2:eth1
controller	CentOS7.5	192.168.100.10	192.168.200.10
compute	CentOS7.5	192.168.100.20	192.168.200.20

关闭防火墙

```
# systemctl restart network
# systemctl stop firewalld
# systemctl disable firewalld
# setenforce 0
# sed -i 's/=enforcing/=disabled/' /etc/selinux/config
```

更新软件包

```
# yum upgrade -y
```

更新完成后重启系统

```
# reboot
```

设置主机名

```
# hostnamectl set-hostname controller
# hostnamectl set-hostname compute
```

添加主机映射

```
# cat << EOF >> /etc/hosts
192.168.100.10 controller
192.168.100.20 compute
EOF
```

配置时间同步

controller节点

安装软件包

```
[root@controller ~]# yum install -y chrony
```

编辑/etc/chrony.conf文件

```
server controller iburst
allow 192.168.0.0/16
```

启动服务

```
[root@controller ~]# systemctl start chronyd
```

compute节点

安装软件包

```
[root@compute ~]# yum install -y chrony
```

编辑/etc/chrony.conf文件

启动服务

```
[root@compute ~]# systemctl start chronyd
[root@compute ~]# systemctl enable chronyd
```

配置OpenStack-rocky的yum源文件

官网是yum安装centos-release-openstack-rocky，用的是国外的源，会比较慢，这里我自己手动配置了阿里的源

```
# cat << EOF >> /etc/yum.repos.d/openstack.repo
[openstack-rocky]
name=openstack-rocky
baseurl=https://mirrors.aliyun.com/centos/7/cloud/x86_64/openstack-rocky/
enabled=1
gpgcheck=0
[qume-kvm]
name=qemu-kvm
baseurl= https://mirrors.aliyun.com/centos/7/virt/x86_64/kvm-common/
enabled=1
gpgcheck=0
EOF
```

```
# yum install -y python-openstackclient openstack-selinux
```

安装数据库服务

在controller节点安装数据库

```
[root@controller ~]# yum install -y mariadb mariadb-server python2-PyMySQL
```

修改数据库配置文件

新建数据库配置文件/etc/my.cnf.d/openstack.cnf，添加以下内容

```
[mysqld]
bind-address = 192.168.100.10

default-storage-engine = innodb
innodb_file_per_table = on
max_connections = 4096
collation-server = utf8_general_ci
character-set-server = utf8
```

启动数据库服务

```
[root@controller ~]# systemctl enable mariadb.service
[root@controller ~]# systemctl start mariadb.service
```

设置数据库密码

运行mysql_secure_installation命令，创建数据库root密码

```
[root@controller ~]# mysql_secure_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!
In order to log into MariaDB to secure it, we'll need the current
password for the root user.  If you've just installed MariaDB, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MariaDB
root user without the proper authorisation.

Set root password? [Y/n] y
New password:                          ## 此处为root用户密码，这里设为000000
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!


By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.  This is intended only for testing, and to make the installation
go a bit smoother.  You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n] y
... Success!

Normally, root should only be allowed to connect from 'localhost'.  This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] n
... skipping.

By default, MariaDB comes with a database named 'test' that anyone can
access.  This is also intended only for testing, and should be removed

Remove test database and access to it? [Y/n] y
Dropping test database...
... Success!
Removing privileges on test database...
... Success!
```

```
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] y
... Success!

Cleaning up...

All done!  If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
```

安装消息队列服务

在controller节点安装rabbitmq-server

```
[root@controller ~]# yum install -y rabbitmq-server -y
```

启动消息队列服务

```
[root@controller ~]# systemctl start rabbitmq-server.service
[root@controller ~]# systemctl enable rabbitmq-server.service
Created symlink from /etc/systemd/system/multi-user.target.wants/rabbitmq-server.service to
/usr/lib/systemd/system/rabbitmq-server.service.
```

添加openstack用户

```
[root@controller ~]# rabbitmqctl add_user openstack 000000
Creating user "openstack" ...
```

设置openstack用户最高权限

```
[root@controller ~]# rabbitmqctl set_permissions openstack ".*" ".*" ".*"
Setting permissions for user "openstack" in vhost "/" ...
```

安装memcached 服务

在controller节点上安装memcached

```
[root@controller ~]# yum install -y memcached
```

修改memcached配置文件

编辑/etc/sysconfig/memcached，修改以下内容

```
OPTIONS="-l 127.0.0.1,::1,controller"
```

启动memcached服务

```
[root@controller ~]# systemctl start memcached.service
[root@controller ~]# systemctl enable memcached.service
```

安装etcd服务

在controller节点上安装etcd服务

```
[root@controller ~]# yum install etcd -y
```

修改etcd配置文件，使其他节点能够访问

编辑/etc/etcd/etcd.conf，在各自的位置修改以下内容

```
#[Member]
ETCD_LISTEN_PEER_URLS="http://192.168.100.10:2380"
ETCD_LISTEN_CLIENT_URLS="http://192.168.100.10:2379"
ETCD_NAME="controller"
#[Clustering]
ETCD_INITIAL_ADVERTISE_PEER_URLS="http://192.168.100.10:2380"
ETCD_ADVERTISE_CLIENT_URLS="http://192.168.100.10:2379"
ETCD_INITIAL_CLUSTER="controller=http://192.168.100.10:2380"
ETCD_INITIAL_CLUSTER_TOKEN="etcd-cluster-01"
ETCD_INITIAL_CLUSTER_STATE="new"
```

启动etcd服务

```
[root@controller ~]# systemctl start etcd
[root@controller ~]# systemctl enable etcd
```

（在我想查看集群的时候，报错了，但是因为不影响，所以我先跳过这里）

```
[root@controller ~]# etcdctl cluster-health
cluster may be unhealthy: failed to list members
Error:  client: etcd cluster is unavailable or misconfigured; error #0: dial tcp 127.0.0.1:4001: getsockopt: connection refused
; error #1: dial tcp 127.0.0.1:2379: getsockopt: connection refused
error #0: dial tcp 127.0.0.1:4001: getsockopt: connection refused
error #1: dial tcp 127.0.0.1:2379: getsockopt: connection refused
```

安装keystone服务

创建数据库

```
[root@controller ~]# mysql -uroot -p000000
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 9
Server version: 10.1.20-MariaDB MariaDB Server



Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> CREATE DATABASE keystone;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'localhost'\
IDENTIFIED BY '000000';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'%' IDENTIFIED BY '000000';
Query OK, 0 rows affected (0.00 sec)
```

安装软件包

```
[root@controller ~]# yum install openstack-keystone httpd mod_wsgi -y
```

编辑配置文件/etc/keystone/keystone.conf

```
[database]
connection = mysql+pymysql://keystone:000000@controller/keystone
[token]
provider = fernet
```

同步数据库

```
[root@controller ~]# su -s /bin/sh -c "keystone-manage db_sync" keystone
```

初始化fernet key库

```
[root@controller ~]# keystone-manage fernet_setup --keystone-user keystone --keystone-group keystone
[root@controller ~]# keystone-manage credential_setup --keystone-user keystone --keystone-group
keystone
```

引导身份认证

```
[root@controller ~]# keystone-manage bootstrap --bootstrap-password 000000 \
--bootstrap-admin-url http://controller:5000/v3/ \
--bootstrap-internal-url http://controller:5000/v3/ \
--bootstrap-public-url http://controller:5000/v3/ \
--bootstrap-region-id RegionOne
```

编辑httpd配置文件/etc/httpd/conf/httpd.conf

```
ServerName controller
```

创建文件链接

```
[root@controller ~]# ln -s /usr/share/keystone/wsgi-keystone.conf /etc/httpd/conf.d/
```

启动httpd服务

```
[root@controller ~]# systemctl start httpd
[root@controller ~]# systemctl enable httpd
```

编写环境变量脚本admin-openrc

```
export OS_USERNAME=admin
export OS_PASSWORD=000000
export OS_PROJECT_NAME=admin
export OS_USER_DOMAIN_NAME=Default
export OS_PROJECT_DOMAIN_NAME=Default
export OS_AUTH_URL=http://controller:5000/v3
export OS_IDENTITY_API_VERSION=3
export OS_IMAGE_API_VERSION=2
```

创建service项目

```
[root@controller ~]# openstack project create --domain default \
--description "Service Project" service
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | Service Project                  |
```

```
| domain_id   | default                          |
| enabled     | True                             |
| id          | 617e64ff415b45ef975b8faf3d5207dd |
| is_domain   | False                            |
| parent_id   | default                          |
| tags        | []                               |
+-------------+----------------------------------+
```

验证

```
[root@controller ~]# openstack user list
+----------------------------------+-------+
| ID                               | Name  |
+----------------------------------+-------+
| 5238d646322346be9e3f9750422bcf4d | admin |
+----------------------------------+-------+
[root@controller ~]# openstack token issue
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+
| Field      | Value                                                                                                                                                                                   |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+
| expires    | 2018-09-03T14:30:02+0000                                                                                                                                                                |
| id         | gAAAAABbjTdauHEUmA_PQ1deLrPsMXiITgOyGu325OkqBYxhwYK5pS5A217gFJcnt_T50T6vfVXDTPR1HJ-HM7_Dlmm5GbPBAe_4KuWygSebGPAU7_NQoZT5gH0gjtyW5aF0mw-dyqvVykcXQWeeZ_q15HOjUZ2ujn_O2GYfjFhUmhaagrUvYys |
| project_id | 1a74d2a87e734feea8577477955e0b06                                                                                                                                                        |
| user_id    | 5238d646322346be9e3f9750422bcf4d                                                                                                                                                        |
+------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+
```

glance安装

创建数据库

```
[root@controller ~]# mysql -uroot -p000000
Your MariaDB connection id is 17
Server version: 10.1.20-MariaDB MariaDB Server

Copyright (c) 2000, 2016, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> CREATE DATABASE glance;
```

```
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'localhost' IDENTIFIED BY '000000';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'%' IDENTIFIED BY '000000';
Query OK, 0 rows affected (0.00 sec)
```

创建用户、服务等

```
[root@controller ~]# source admin-openrc
[root@controller ~]# openstack user create --domain default --password-prompt glance
User Password:000000
Repeat User Password:
+---------------------+----------------------------------+
| Field               | Value                            |
+---------------------+----------------------------------+
| domain_id           | default                          |
| enabled             | True                             |
| id                  | 73e040b3ca46485dad6ce8c49bfbd8e2 |
| name                | glance                           |
| options             | {}                               |
| password_expires_at | None                             |
+---------------------+----------------------------------+
[root@controller ~]# openstack role add --project service --user glance admin
[root@controller ~]# openstack service create --name glance \
--description "OpenStack Image" image
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | OpenStack Image                  |
| enabled     | True                             |
| id          | e61eb0929ae842e48c2b1f029e67578b |
| name        | glance                           |
| type        | image                            |
+-------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
image public http://controller:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | ee8719ec7a5547fbaa1ca685fca1d8e0 |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | e61eb0929ae842e48c2b1f029e67578b |
| service_name | glance                           |
| service_type | image                            |
| url          | http://controller:9292           |
+--------------+----------------------------------+
```

```
[root@controller ~]# openstack endpoint create --region RegionOne \
image internal http://controller:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 27379aa551644711b2f3568a5387e003 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | e61eb0929ae842e48c2b1f029e67578b |
| service_name | glance                           |
| service_type | image                            |
| url          | http://controller:9292           |
+--------------+----------------------------------+
image admin http://controller:9292
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | b9f6c2bfee5f46bf8d654336094c4360 |
| interface    | admin                            |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | e61eb0929ae842e48c2b1f029e67578b |
| service_name | glance                           |
| service_type | image                            |
| url          | http://controller:9292           |
+--------------+----------------------------------+
```

安装软件包

```
[root@controller ~]# yum install -y openstack-glance
```

编辑配置文件/etc/glance/glance-api.conf

```
[database]
connection = mysql+pymysql://glance:000000@controller/glance

[keystone_authtoken]
auth_url = http://controller:5000
memcached_servers = controller:11211
auth_type = password
user_domain_name = Default
project_name = service
username = glance
password = 000000

[paste_deploy]
flavor = keystone

[glance_store]
stores = file,http
```

```
default_store = file
filesystem_store_datadir = /var/lib/glance/images/
```

编辑配置文件/etc/glance/glance-registry.conf

```
[database]

[keystone_authtoken]
www_authenticate_uri = http://controller:5000
auth_url = http://controller:5000
memcached_servers = controller:11211
auth_type = password
project_domain_name = Default
user_domain_name = Default
project_name = service
username = glance
password = 000000

[paste_deploy]
flavor = keystone
```

同步数据库

```
[root@controller ~]# su -s /bin/sh -c "glance-manage db_sync" glance
/usr/lib/python2.7/site-packages/oslo_db/sqlalchemy/enginefacade.py:1352: OsloDBDeprecationWarning:
EngineFacade is deprecated; please use oslo_db.sqlalchemy.enginefacade
expire_on_commit=expire_on_commit, _conf=conf)
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
INFO  [alembic.runtime.migration] Running upgrade  -> liberty, liberty initial
INFO  [alembic.runtime.migration] Running upgrade liberty -> mitaka01, add index on created_at and
updated_at columns of 'images' table
INFO  [alembic.runtime.migration] Running upgrade mitaka01 -> mitaka02, update metadef
os_nova_server
INFO  [alembic.runtime.migration] Running upgrade mitaka02 -> ocata_expand01, add visibility to images
INFO  [alembic.runtime.migration] Running upgrade ocata_expand01 -> pike_expand01, empty expand for
symmetry with pike_contract01
INFO  [alembic.runtime.migration] Running upgrade pike_expand01 -> queens_expand01
INFO  [alembic.runtime.migration] Running upgrade queens_expand01 -> rocky_expand01, add os_hidden
column to images table
INFO  [alembic.runtime.migration] Running upgrade rocky_expand01 -> rocky_expand02, add
os_hash_algo and os_hash_value columns to images table
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Upgraded database to: rocky_expand02, current revision(s): rocky_expand02
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Database migration is up to date. No migration needed.
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
```

```
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
INFO  [alembic.runtime.migration] Running upgrade mitaka02 -> ocata_contract01, remove is_public from
images
INFO  [alembic.runtime.migration] Running upgrade ocata_contract01 -> pike_contract01, drop glare
artifacts tables
INFO  [alembic.runtime.migration] Running upgrade pike_contract01 -> queens_contract01
INFO  [alembic.runtime.migration] Running upgrade queens_contract01 -> rocky_contract01
INFO  [alembic.runtime.migration] Running upgrade rocky_contract01 -> rocky_contract02
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Upgraded database to: rocky_contract02, current revision(s): rocky_contract02
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Database is synced successfully.
```

启动服务

```
[root@controller ~]# systemctl start openstack-glance-api.service openstack-glance-registry.service
[root@controller ~]# systemctl enable openstack-glance-api.service openstack-glance-registry.service
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-api.service to
/usr/lib/systemd/system/openstack-glance-api.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-registry.service to
/usr/lib/systemd/system/openstack-glance-registry.service.
```

验证

```
[root@controller ~]#. admin-openrc
[root@controller ~]# wget http://download.cirros-cloud.net/0.3.4/cirros-0.3.4-x86_64-disk.img
[root@controller ~]# openstack image create "cirros" --file cirros-0.3.4-x86_64-disk.img --disk-format
qcow2 --container-format bare --public
+------------------+------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------+
| Field            | Value
                                                                                                                  |
+------------------+------------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------+
| checksum         |
ee1eca47dc88f4879d8a229cc70a07c6
 |
| container_format | bare
                                                                                                                  |
| created_at       | 2018-09-03T13:49:12Z
                                                                                                                  |
| disk_format      | qcow2
                                                                                                                  |
| file             | /v2/images/8faa9dc9-7f29-4570-ae87-
9bab0d01aa63/file                                                                                                  |
| id               | 8faa9dc9-7f29-4570-ae87-
9bab0d01aa63
 |
| min_disk         | 0
```

```
| min_ram          | 0
                                                                                    |
| name             | cirros
                                                       |
| properties       | os_hash_algo='sha512',
os_hash_value='1b03ca1bc3fafe448b90583c12f367949f8b0e665685979d95b004e48574b953316799e23240f
 os_hidden='False' |
| protected        |
False
 |
| schema           | /v2/schemas/image
                                                                                                    |
| size             | 13287936
                                                                       |
| status           | active
                                          |
| tags             |
|
                  |
| updated_at       | 2018-09-
03T13:49:13Z
 |
| virtual_size     |
None
 |
| visibility       | public
                                                                                        |
+------------------+---------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------+
[root@controller ~]# openstack image list
+--------------------------------------+--------+--------+
| ID                                   | Name   | Status |
+--------------------------------------+--------+--------+
| 8faa9dc9-7f29-4570-ae87-9bab0d01aa63 | cirros | active |
+--------------------------------------+--------+--------+
```

安装nova服务

创建数据库

```
MariaDB [(none)]> CREATE DATABASE nova_api;
MariaDB [(none)]> CREATE DATABASE nova;
MariaDB [(none)]> CREATE DATABASE nova_cell0;
MariaDB [(none)]> CREATE DATABASE placement;
Grant proper access to the databases:

MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova_api.* TO 'nova'@'localhost' \
IDENTIFIED BY '000000';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova_api.* TO 'nova'@'%' \
IDENTIFIED BY '000000';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'localhost' \
```

```
IDENTIFIED BY '000000';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'%' \
IDENTIFIED BY '000000';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova_cell0.* TO 'nova'@'localhost' \
IDENTIFIED BY '000000';
IDENTIFIED BY '000000';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON placement.* TO 'placement'@'localhost' \
IDENTIFIED BY '000000';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON placement.* TO 'placement'@'%' \
IDENTIFIED BY '000000';
```

创建相关用户、服务

```
[root@controller ~]# openstack user create --domain default --password-prompt nova
Repeat User Password:
+---------------------+----------------------------------+
| Field               | Value                            |
| domain_id           | default                          |
| enabled             | True                             |
| id                  | ea181b4b1de3430e8646795f133ad8fe |
| name                | nova                             |
| options             | {}                               |
| password_expires_at | None                             |
+---------------------+----------------------------------+
[root@controller ~]# openstack role add --project service --user nova admin
[root@controller ~]# openstack service create --name nova \
--description "OpenStack Compute" compute
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | OpenStack Compute                |
| enabled     | True                             |
| name        | nova                             |
| type        | compute                          |
+-------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
compute public http://controller:8774/v2.1
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 4f009d7ff354428ab5dafadf0ed0095d |
| interface    | public                           |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 52a1c2cd42fb45df9ab5ac0782faae4e |
| service_name | nova                             |
| service_type | compute                          |
| url          | http://controller:8774/v2.1      |
```

```
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 5191feea83ba4a17b79a4a7d83f85651 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 52a1c2cd42fb45df9ab5ac0782faae4e |
| service_name | nova                             |
| url          | http://controller:8774/v2.1      |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
compute admin http://controller:8774/v2.1
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 2fa5622c3f134f0ba8215baab1bad899 |
| interface    | admin                            |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 52a1c2cd42fb45df9ab5ac0782faae4e |
| service_name | nova                             |
| service_type | compute                          |
| url          | http://controller:8774/v2.1      |
+--------------+----------------------------------+
[root@controller ~]# openstack user create --domain default --password-prompt placement
User Password:
Repeat User Password:
+---------------------+----------------------------------+
| Field               | Value                            |
+---------------------+----------------------------------+
| enabled             | True                             |
| id                  | ab7f16a5e08c4140b396f27f8fc75f69 |
| name                | placement                        |
| options             | {}                               |
| password_expires_at | None                             |
+---------------------+----------------------------------+
[root@controller ~]# openstack role add --project service --user placement admin
[root@controller ~]#  openstack service create --name placement \
--description "Placement API" placement
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | Placement API                    |
| enabled     | True                             |
| id          | be7f6d35fbd448c79b04d816df68e2d1 |
| name        | placement                        |
```

```
| type         | placement                        |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
placement public http://controller:8778
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 443ad9ccf38c4930be407e6c755c37fd |
| interface    | public                           |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | be7f6d35fbd448c79b04d816df68e2d1 |
| service_name | placement                        |
| service_type | placement                        |
| url          | http://controller:8778           |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
placement internal http://controller:8778
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 8827a5950f1a49fbb77267812daae462 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | be7f6d35fbd448c79b04d816df68e2d1 |
| service_name | placement                        |
| service_type | placement                        |
| url          | http://controller:8778           |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
placement admin http://controller:8778
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| interface    | admin                            |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | be7f6d35fbd448c79b04d816df68e2d1 |
| service_name | placement                        |
| service_type | placement                        |
+--------------+----------------------------------+
```

安装软件包

```
[root@controller ~]# yum install openstack-nova-api openstack-nova-conductor \
openstack-nova-console openstack-nova-novncproxy \
openstack-nova-scheduler openstack-nova-placement-api -y
```

编辑配置文件/etc/nova/nova.conf

```
enabled_apis = osapi_compute,metadata

[api_database]
connection = mysql+pymysql://nova:000000@controller/nova_api

[database]
connection = mysql+pymysql://nova:000000@controller/nova

connection = mysql+pymysql://placement:000000@controller/placement


[DEFAULT]
transport_url = rabbit://openstack:000000@controller

[api]
auth_strategy = keystone

[keystone_authtoken]
auth_url = http://controller:5000/v3
memcached_servers = controller:11211
auth_type = password
user_domain_name = default
project_name = service
username = nova
password = 000000

[DEFAULT]
my_ip = 192.168.100.10

[DEFAULT]
use_neutron = true
firewall_driver = nova.virt.firewall.NoopFirewallDriver


[vnc]
enabled = true
server_listen = $my_ip
server_proxyclient_address = $my_ip

[glance]
api_servers = http://controller:9292

[oslo_concurrency]
lock_path = /var/lib/nova/tmp

[placement]
region_name = RegionOne
project_domain_name = Default
```

```
project_name = service
auth_type = password
user_domain_name = Default
auth_url = http://controller:5000/v3
username = placement
password = 000000
```

编辑/etc/httpd/conf.d/00-nova-placement-api.conf，添加以下内容

```
<Directory /usr/bin>
Require all granted
</IfVersion>
<IfVersion < 2.4>
Order allow,deny
Allow from all
</IfVersion>
</Directory>
```

重启httpd服务

```
[root@controller ~]# systemctl restart httpd
```

同步nova_api数据库

```
[root@controller ~]# su -s /bin/sh -c "nova-manage api_db sync" nova
```

注册cell0数据库

```
[root@controller ~]# su -s /bin/sh -c "nova-manage cell_v2 map_cell0" nova
```

创建cell1单元

```
[root@controller ~]# su -s /bin/sh -c "nova-manage cell_v2 create_cell --name=cell1 --verbose" nova
54e6c270-7390-4390-8702-02b72874c5a7
```

同步nova数据库

```
[root@controller ~]# su -s /bin/sh -c "nova-manage db sync" nova
/usr/lib/python2.7/site-packages/pymysql/cursors.py:166: Warning: (1831, u'Duplicate index
`block_device_mapping_instance_uuid_virtual_name_device_name_idx`. This is deprecated and will be
disallowed in a future release.')
result = self._query(query)
/usr/lib/python2.7/site-packages/pymysql/cursors.py:166: Warning: (1831, u'Duplicate index
`uniq_instances0uuid`. This is deprecated and will be disallowed in a future release.')
result = self._query(query)
```

```
[root@controller ~]# 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:****@controller/nova_cell0 |  False   |
```

```
| cell1 | 54e6c270-7390-4390-8702-02b72874c5a7 | rabbit://openstack:****@controller |
mysql+pymysql://nova:****@controller/nova    | False   |
+-------+--------------------------------------+------------------------------------+------------------------------
------------------+----------+
```

启动服务

```
[root@controller ~]# systemctl start openstack-nova-api.service \
openstack-nova-scheduler.service openstack-nova-conductor.service \
[root@controller ~]# systemctl enable openstack-nova-api.service \
openstack-nova-scheduler.service openstack-nova-conductor.service \
openstack-nova-novncproxy.service openstack-nova-conductor
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-nova-api.service to
/usr/lib/systemd/system/openstack-nova-api.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-nova-scheduler.service to
/usr/lib/systemd/system/openstack-nova-scheduler.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-nova-conductor.service to
/usr/lib/systemd/system/openstack-nova-conductor.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-nova-novncproxy.service to
/usr/lib/systemd/system/openstack-nova-novncproxy.service.
```

官网没有启动nova-conductor服务，这个服务是交互数据库的，如果不启动这个服务，虚拟机创建不成功

compute节点

安装软件包

```
[root@compute ~]# yum install openstack-nova-compute -y
```

编辑配置文件/etc/nova/nova.conf

```
[DEFAULT]
enabled_apis = osapi_compute,metadata

[DEFAULT]
transport_url = rabbit://openstack:000000@controller



[api]
auth_strategy = keystone

[keystone_authtoken]
memcached_servers = controller:11211
auth_type = password
project_domain_name = default
user_domain_name = default
project_name = service
username = nova
password = 000000

[DEFAULT]
my_ip = 192.168.100.20

[DEFAULT]
use_neutron = true
```

```
firewall_driver = nova.virt.firewall.NoopFirewallDriver

[vnc]
enabled = true
server_listen = 0.0.0.0
server_proxyclient_address = $my_ip
novncproxy_base_url = http:// 192.168.100.10:6080/vnc_auto.html

[glance]
api_servers = http://controller:9292

[oslo_concurrency]
lock_path = /var/lib/nova/tmp

[placement]
region_name = RegionOne
project_domain_name = Default
project_name = service
auth_type = password
user_domain_name = Default
username = placement
password = 000000
```

检查是否支持虚拟化

```
# egrep -c '(vmx|svm)' /proc/cpuinfo
```

如果等于0，则要在/etc/nova/nova.conf的[libvirt]下添加以下参数

```
[libvirt]
virt_type = qemu
```

启动服务

```
[root@compute ~] # systemctl start libvirtd.service openstack-nova-compute.service
[root@compute ~] # systemctl enable libvirtd.service openstack-nova-compute.service
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-nova-compute.service to
/usr/lib/systemd/system/openstack-nova-compute.service.
```

controller节点

确认数据库中有计算节点

```
# . admin-openrc
[root@controller ~]# openstack compute service list --service nova-compute
+----+--------------+---------+------+---------+-------+----------------------------+
| ID | Binary       | Host    | Zone | Status  | State | Updated At                 |
+----+--------------+---------+------+---------+-------+----------------------------+
|  6 | nova-compute | compute | nova | enabled | up    | 2018-09-03T14:16:10.000000 |
+----+--------------+---------+------+---------+-------+----------------------------+
```

发现计算节点

```
[root@controller ~]# su -s /bin/sh -c "nova-manage cell_v2 discover_hosts --verbose" nova
Found 2 cell mappings.
Skipping cell0 since it does not contain hosts.
```

```
Getting computes from cell 'cell1': 54e6c270-7390-4390-8702-02b72874c5a7
Checking host mapping for compute host 'compute': 39d80423-6001-4036-a546-5287c1e93ec5
Creating host mapping for compute host 'compute': 39d80423-6001-4036-a546-5287c1e93ec5
Found 1 unmapped computes in cell: 54e6c270-7390-4390-8702-02b72874c5a7

[scheduler]
discover_hosts_in_cells_interval = 300
```

安装neutron服务

controller节点

创建数据库

```
[root@controller ~]# mysql -uroot -p000000

MariaDB [(none)] CREATE DATABASE neutron;

MariaDB [(none)]> GRANT ALL PRIVILEGES ON neutron.* TO 'neutron'@'localhost' \
IDENTIFIED BY '000000';
MariaDB [(none)]> GRANT ALL PRIVILEGES ON neutron.* TO 'neutron'@'%' \
IDENTIFIED BY '000000';
```

创建用户、服务

```
[root@controller ~]# openstack user create --domain default --password-prompt neutron
User Password:
Repeat User Password:
+---------------------+----------------------------------+
| Field               | Value                            |
+---------------------+----------------------------------+
| id                  | d5b2036ead024ac0b09d3cf4c1b00e7c |
| name                | neutron                          |
| options             | {}                               |
| password_expires_at | None                             |
+---------------------+----------------------------------+
[root@controller ~]# openstack role add --project service --user neutron admin
[root@controller ~]# openstack service create --name neutron \
--description "OpenStack Networking" network
+-------------+----------------------------------+
| Field       | Value                            |
+-------------+----------------------------------+
| description | OpenStack Networking             |
| id          | bfad907188c74a6f99120124b36b5113 |
| name        | neutron                          |
| type        | network                          |
+-------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
network public http://controller:9696
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
```

```
| enabled      | True                             |
| interface    | public                           |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | bfad907188c74a6f99120124b36b5113 |
| service_name | neutron                          |
| service_type | network                          |
| url          | http://controller:9696           |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
network internal http://controller:9696
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | 3ca0c46da89749cfba9b0f117e3ac201 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | bfad907188c74a6f99120124b36b5113 |
| service_name | neutron                          |
| url          | http://controller:9696           |
+--------------+----------------------------------+
[root@controller ~]# openstack endpoint create --region RegionOne \
network admin http://controller:9696
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | cf69a76a963b41e0a0dd327072c3b5e4 |
| interface    | admin                            |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | bfad907188c74a6f99120124b36b5113 |
| service_name | neutron                          |
| service_type | network                          |
| url          | http://controller:9696           |
+--------------+----------------------------------+
```

配置provider network网络

安装软件包

```
[root@controller ~]# yum install openstack-neutron openstack-neutron-ml2 \
openstack-neutron-linuxbridge ebtables -y
```

编辑/etc/neutron/neutron.conf配置文件

```
[database]
connection = mysql+pymysql://neutron:000000@controller/neutron

[DEFAULT]
core_plugin = ml2
```

```
service_plugins =

[DEFAULT]
transport_url = rabbit://openstack:000000@controller

[DEFAULT]
auth_strategy = keystone

[keystone_authtoken]
www_authenticate_uri = http://controller:5000
auth_url = http://controller:5000
memcached_servers = controller:11211
auth_type = password
project_domain_name = default
user_domain_name = default
project_name = service
username = neutron
password = 000000

[DEFAULT]
notify_nova_on_port_status_changes = true
notify_nova_on_port_data_changes = true

[nova]
auth_url = http://controller:5000
auth_type = password
project_domain_name = default
region_name = RegionOne
project_name = service
username = nova
password = 000000

[oslo_concurrency]
```

编辑配置文件/etc/neutron/plugins/ml2/ml2_conf.ini

```
[ml2]
type_drivers = flat,vlan

[ml2]
tenant_network_types =

[ml2]
mechanism_drivers = linuxbridge

[ml2]
extension_drivers = port_security

[ml2_type_flat]
flat_networks = provider
```

```
[securitygroup]
enable_ipset = true
```

编辑/etc/neutron/plugins/ml2/linuxbridge_agent.ini配置文件

```
[linux_bridge]
physical_interface_mappings = provider:eth1

[vxlan]
enable_vxlan = false

[securitygroup]
enable_security_group = true
firewall_driver = neutron.agent.linux.iptables_firewall.IptablesFirewallDriver
```

编辑配置文件/etc/neutron/dhcp_agent.ini

```
[DEFAULT]
interface_driver = linuxbridge
dhcp_driver = neutron.agent.linux.dhcp.Dnsmasq
enable_isolated_metadata = true
```

配置Self-service网络

安装软件包

```
openstack-neutron-linuxbridge ebtables -y
```

配置/etc/neutron/neutron.conf文件

```
[database]
connection = mysql+pymysql://neutron:000000@controller/neutron

[DEFAULT]
core_plugin = ml2
service_plugins = router
allow_overlapping_ips = true

[DEFAULT]
transport_url = rabbit://openstack:000000@controller

[DEFAULT]
auth_strategy = keystone

[keystone_authtoken]
www_authenticate_uri = http://controller:5000
auth_url = http://controller:5000
memcached_servers = controller:11211
auth_type = password
project_domain_name = default
user_domain_name = default
project_name = service
username = neutron
password = 000000
```

```
[DEFAULT]
notify_nova_on_port_status_changes = true
notify_nova_on_port_data_changes = true

[nova]
auth_url = http://controller:5000
auth_type = password
project_domain_name = default
user_domain_name = default
region_name = RegionOne
project_name = service
username = nova
password = 000000

[oslo_concurrency]
lock_path = /var/lib/neutron/tmp
```

编辑/etc/neutron/plugins/ml2/ml2_conf.ini文件

```
[ml2]
type_drivers = flat,vlan,vxlan

[ml2]
tenant_network_types = vxlan

[ml2]
mechanism_drivers = linuxbridge,l2population

[ml2]
extension_drivers = port_security

[ml2_type_flat]
flat_networks = provider

[ml2_type_vxlan]
vni_ranges = 1:1000

[securitygroup]
enable_ipset = true
```

编辑/etc/neutron/plugins/ml2/linuxbridge_agent.ini文件

```
[linux_bridge]
physical_interface_mappings = provider:eth1
[vxlan]
enable_vxlan = true
local_ip = 192.168.200.10
l2_population = true

enable_security_group = true
firewall_driver = neutron.agent.linux.iptables_firewall.IptablesFirewallDriver
```

编辑/etc/neutron/l3_agent.ini文件

```
[DEFAULT]
interface_driver = linuxbridge
```

编辑/etc/neutron/dhcp_agent.ini文件

```
[DEFAULT]
interface_driver = linuxbridge
dhcp_driver = neutron.agent.linux.dhcp.Dnsmasq
enable_isolated_metadata = true
```

编辑/etc/neutron/metadata_agent.ini文件

```
[DEFAULT]
nova_metadata_host = controller
metadata_proxy_shared_secret = METADATA_SECRET
```

编辑/etc/nova/nova.conf文件

```
[neutron]
url = http://controller:9696
auth_url = http://controller:5000
auth_type = password
user_domain_name = default
region_name = RegionOne
project_name = service
username = neutron
password = 000000
service_metadata_proxy = true
metadata_proxy_shared_secret = METADATA_SECRET
```

创建链接

```
[root@controller ~]# ln -s /etc/neutron/plugins/ml2/ml2_conf.ini /etc/neutron/plugin.ini
```

同步数据库

```
[root@controller ~]# su -s /bin/sh -c "neutron-db-manage --config-file /etc/neutron/neutron.conf  --
config-file /etc/neutron/plugins/ml2/ml2_conf.ini upgrade head" neutron
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Running upgrade for neutron ...
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
INFO  [alembic.runtime.migration] Running upgrade  -> kilo
INFO  [alembic.runtime.migration] Running upgrade kilo -> 354db87e3225
INFO  [alembic.runtime.migration] Running upgrade 354db87e3225 -> 599c6a226151
INFO  [alembic.runtime.migration] Running upgrade 599c6a226151 -> 52c5312f6baf
INFO  [alembic.runtime.migration] Running upgrade 52c5312f6baf -> 313373c0ffee
INFO  [alembic.runtime.migration] Running upgrade 313373c0ffee -> 8675309a5c4f
INFO  [alembic.runtime.migration] Running upgrade 8675309a5c4f -> 45f955889773
INFO  [alembic.runtime.migration] Running upgrade 45f955889773 -> 26c371498592
INFO  [alembic.runtime.migration] Running upgrade 26c371498592 -> 1c844d1677f7
INFO  [alembic.runtime.migration] Running upgrade 1c844d1677f7 -> 1b4c6e320f79
INFO  [alembic.runtime.migration] Running upgrade 1b4c6e320f79 -> 48153cb5f051
INFO  [alembic.runtime.migration] Running upgrade 48153cb5f051 -> 9859ac9c136
```

```
INFO  [alembic.runtime.migration] Running upgrade 9859ac9c136 -> 34af2b5c5a59
INFO  [alembic.runtime.migration] Running upgrade 34af2b5c5a59 -> 59cb5b6cf4d
INFO  [alembic.runtime.migration] Running upgrade 59cb5b6cf4d -> 13cfb89f881a
INFO  [alembic.runtime.migration] Running upgrade 13cfb89f881a -> 32e5974ada25
INFO  [alembic.runtime.migration] Running upgrade 32e5974ada25 -> ec7fcfbf72ee
INFO  [alembic.runtime.migration] Running upgrade ec7fcfbf72ee -> dce3ec7a25c9
INFO  [alembic.runtime.migration] Running upgrade dce3ec7a25c9 -> c3a73f615e4
INFO  [alembic.runtime.migration] Running upgrade c3a73f615e4 -> 659bf3d90664
INFO  [alembic.runtime.migration] Running upgrade 659bf3d90664 -> 1df244e556f5
INFO  [alembic.runtime.migration] Running upgrade 1df244e556f5 -> 19f26505c74f
INFO  [alembic.runtime.migration] Running upgrade 19f26505c74f -> 15be73214821
INFO  [alembic.runtime.migration] Running upgrade 15be73214821 -> b4caf27aae4
INFO  [alembic.runtime.migration] Running upgrade b4caf27aae4 -> 15e43b934f81
INFO  [alembic.runtime.migration] Running upgrade 15e43b934f81 -> 31ed664953e6
INFO  [alembic.runtime.migration] Running upgrade 31ed664953e6 -> 2f9e956e7532
INFO  [alembic.runtime.migration] Running upgrade 3894bccad37f -> 0e66c5227a8a
INFO  [alembic.runtime.migration] Running upgrade 45f8dd33480b -> 5abc0278ca73
INFO  [alembic.runtime.migration] Running upgrade 5abc0278ca73 -> d3435b514502
INFO  [alembic.runtime.migration] Running upgrade d3435b514502 -> 30107ab6a3ee
INFO  [alembic.runtime.migration] Running upgrade 30107ab6a3ee -> c415aab1c048
INFO  [alembic.runtime.migration] Running upgrade c415aab1c048 -> a963b38d82f4
INFO  [alembic.runtime.migration] Running upgrade kilo -> 30018084ec99
INFO  [alembic.runtime.migration] Running upgrade 30018084ec99 -> 4ffceebfada
INFO  [alembic.runtime.migration] Running upgrade 4ffceebfada -> 5498d17be016
INFO  [alembic.runtime.migration] Running upgrade 2a16083502f3 -> 2e5352a0ad4d
INFO  [alembic.runtime.migration] Running upgrade 2e5352a0ad4d -> 11926bcfe72d
INFO  [alembic.runtime.migration] Running upgrade 11926bcfe72d -> 4af11ca47297
INFO  [alembic.runtime.migration] Running upgrade 4af11ca47297 -> 1b294093239c
INFO  [alembic.runtime.migration] Running upgrade 1b294093239c -> 8a6d8bdae39
INFO  [alembic.runtime.migration] Running upgrade 8a6d8bdae39 -> 2b4c2465d44b
INFO  [alembic.runtime.migration] Running upgrade 2b4c2465d44b -> e3278ee65050
INFO  [alembic.runtime.migration] Running upgrade e3278ee65050 -> c6c112992c9
INFO  [alembic.runtime.migration] Running upgrade c6c112992c9 -> 5ffceebfada
INFO  [alembic.runtime.migration] Running upgrade 5ffceebfada -> 4ffceebfcdc
INFO  [alembic.runtime.migration] Running upgrade 4ffceebfcdc -> 7bbb25278f53
INFO  [alembic.runtime.migration] Running upgrade 7bbb25278f53 -> 89ab9a816d70
INFO  [alembic.runtime.migration] Running upgrade a963b38d82f4 -> 3d0e74aa7d37
INFO  [alembic.runtime.migration] Running upgrade 3d0e74aa7d37 -> 030a959ceafa
INFO  [alembic.runtime.migration] Running upgrade 030a959ceafa -> a5648cfeeadf
INFO  [alembic.runtime.migration] Running upgrade a5648cfeeadf -> 0f5bef0f87d4
INFO  [alembic.runtime.migration] Running upgrade 0f5bef0f87d4 -> 67daae611b6e
INFO  [alembic.runtime.migration] Running upgrade 89ab9a816d70 -> c879c5e1ee90
INFO  [alembic.runtime.migration] Running upgrade c879c5e1ee90 -> 8fd3918ef6f4
INFO  [alembic.runtime.migration] Running upgrade 8fd3918ef6f4 -> 4bcd4df1f426
INFO  [alembic.runtime.migration] Running upgrade 4bcd4df1f426 -> b67e765a3524
INFO  [alembic.runtime.migration] Running upgrade 67daae611b6e -> 6b461a21bcfc
INFO  [alembic.runtime.migration] Running upgrade 6b461a21bcfc -> 5cd92597d11d
INFO  [alembic.runtime.migration] Running upgrade 5cd92597d11d -> 929c968efe70
INFO  [alembic.runtime.migration] Running upgrade 929c968efe70 -> a9c43481023c
INFO  [alembic.runtime.migration] Running upgrade a9c43481023c -> 804a3c76314c
INFO  [alembic.runtime.migration] Running upgrade 804a3c76314c -> 2b42d90729da
```

```
INFO  [alembic.runtime.migration] Running upgrade 2b42d90729da -> 62c781cb6192
INFO  [alembic.runtime.migration] Running upgrade 62c781cb6192 -> c8c222d42aa9
INFO  [alembic.runtime.migration] Running upgrade c8c222d42aa9 -> 349b6fd605a6
INFO  [alembic.runtime.migration] Running upgrade 349b6fd605a6 -> 7d32f979895f
INFO  [alembic.runtime.migration] Running upgrade 7d32f979895f -> 594422d373ee
INFO  [alembic.runtime.migration] Running upgrade 594422d373ee -> 61663558142c
INFO  [alembic.runtime.migration] Running upgrade 61663558142c -> 867d39095bf4, port forwarding
INFO  [alembic.runtime.migration] Running upgrade b67e765a3524 -> a84ccf28f06a
INFO  [alembic.runtime.migration] Running upgrade a84ccf28f06a -> 7d9d8eeec6ad
INFO  [alembic.runtime.migration] Running upgrade 7d9d8eeec6ad -> a8b517cff8ab
INFO  [alembic.runtime.migration] Running upgrade a8b517cff8ab -> 3b935b28e7a0
INFO  [alembic.runtime.migration] Running upgrade 3b935b28e7a0 -> b12a3ef66e62
INFO  [alembic.runtime.migration] Running upgrade b12a3ef66e62 -> 97c25b0d2353
INFO  [alembic.runtime.migration] Running upgrade 97c25b0d2353 -> 2e0d7a8a1586
INFO  [alembic.runtime.migration] Running upgrade 2e0d7a8a1586 -> 5c85685d616d
```

启动服务

```
[root@controller ~]# systemctl restart openstack-nova-api
[root@controller ~]# systemctl start neutron-server.service neutron-linuxbridge-agent.service neutron-dhcp-agent.service neutron-metadata-agent.service
[root@controller ~]# systemctl enable neutron-server.service neutron-linuxbridge-agent.service neutron-dhcp-agent.service neutron-metadata-agent.service
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-server.service to /usr/lib/systemd/system/neutron-server.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-linuxbridge-agent.service to /usr/lib/systemd/system/neutron-linuxbridge-agent.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-dhcp-agent.service to /usr/lib/systemd/system/neutron-dhcp-agent.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-metadata-agent.service to /usr/lib/systemd/system/neutron-metadata-agent.service.
如果选择了Self-service网络，还需要启动这个服务
[root@controller ~]# systemctl start neutron-l3-agent.service
[root@controller ~]# systemctl enable neutron-l3-agent.service
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-l3-agent.service to /usr/lib/systemd/system/neutron-l3-agent.service.
```

compute节点

安装软件包

```
[root@compute ~]# yum install openstack-neutron-linuxbridge ebtables ipset -y
```

编辑配置/etc/neutron/neutron.conf文件

```
[DEFAULT]
transport_url = rabbit://openstack:000000@controller

[DEFAULT]
auth_strategy = keystone

www_authenticate_uri = http://controller:5000
auth_url = http://controller:5000
memcached_servers = controller:11211
```

```
auth_type = password
project_domain_name = default
user_domain_name = default
project_name = service
username = neutron
password = 000000

[oslo_concurrency]
```

配置provider网络
编辑配置/etc/neutron/plugins/ml2/linuxbridge_agent.ini文件

```
[linux_bridge]
physical_interface_mappings = provider:eth1

[vxlan]
enable_vxlan = false

[securitygroup]
enable_security_group = true
firewall_driver = neutron.agent.linux.iptables_firewall.IptablesFirewallDriver
```

配置Self-service网络
编辑配置/etc/neutron/plugins/ml2/linuxbridge_agent.ini文件

```
[linux_bridge]
physical_interface_mappings = provider:eth1

[vxlan]
enable_vxlan = true
local_ip = 192.168.200.20
l2_population = true

[securitygroup]
enable_security_group = true
firewall_driver = neutron.agent.linux.iptables_firewall.IptablesFirewallDriver
```

配置nova配置/etc/nova/nova.conf文件

```
[neutron]
url = http://controller:9696
auth_url = http://controller:5000
auth_type = password
project_domain_name = default
user_domain_name = default
region_name = RegionOne
project_name = service
username = neutron
password = 000000
```

```
[root@compute ~]# systemctl restart openstack-nova-compute
[root@compute ~]# systemctl start neutron-linuxbridge-agent.service
[root@compute ~]# systemctl enable neutron-linuxbridge-agent.service
```

```
Created symlink from /etc/systemd/system/multi-user.target.wants/neutron-linuxbridge-agent.service to
/usr/lib/systemd/system/neutron-linuxbridge-agent.service.
```

验证

```
[root@controller ~]# openstack network agent list
+--------------------------------------+--------------------+------------+-------------------+-------+-------+---
-----------------------+
+--------------------------------------+--------------------+------------+-------------------+-------+-------+---
-----------------------+
| 06323fbc-0b13-4c14-a05d-d414678177bf | Linux bridge agent | controller | None              | :-)   | UP    |
neutron-linuxbridge-agent |
| 4bd1d3eb-d178-4ff5-8d3f-7307a4415209 | Linux bridge agent | compute    | None              | :-)   | UP    |
neutron-linuxbridge-agent |
| 74ba6229-1449-40c7-a0de-53688fbb560a | Metadata agent     | controller | None              | :-)   | UP    |
neutron-metadata-agent    |
| d43e223f-c23d-4e60-88b6-ffe12243853f | DHCP agent         | controller | nova              | :-)   | UP    |
neutron-dhcp-agent        |
| da0e8763-8082-4a5e-8188-7161d7ad8a05 | L3 agent           | controller | nova              | :-)   | UP    |
neutron-l3-agent          |
+--------------------------------------+--------------------+------------+-------------------+-------+-------+---
-----------------------+
```

安装dashboard

controller节点

安装软件包

```
[root@controller ~]# yum install -y openstack-dashboard
```

编辑配置文件/etc/openstack-dashboard/local_settings

```
OPENSTACK_HOST = "controller"
ALLOWED_HOSTS = ['*', 'localhost']
SESSION_ENGINE = 'django.contrib.sessions.backends.cache'

CACHES = {
'default': {
'BACKEND': 'django.core.cache.backends.memcached.MemcachedCache',
'LOCATION': 'controller:11211',
}
}
OPENSTACK_KEYSTONE_URL = "http://%s:5000/v3" % OPENSTACK_HOST
OPENSTACK_KEYSTONE_MULTIDOMAIN_SUPPORT = True
OPENSTACK_API_VERSIONS = {
"identity": 3,
"image": 2,
"volume": 2,
OPENSTACK_KEYSTONE_DEFAULT_DOMAIN = "Default"
OPENSTACK_KEYSTONE_DEFAULT_ROLE = "user"
OPENSTACK_NEUTRON_NETWORK = {
...
'enable_router': False,
'enable_quotas': False,
'enable_distributed_router': False,
```

```
'enable_ha_router': False,
'enable_lb': False,
'enable_firewall': False,
'enable_vpn': False,
'enable_fip_topology_check': False,
}
```

编辑/etc/httpd/conf.d/openstack-dashboard.conf

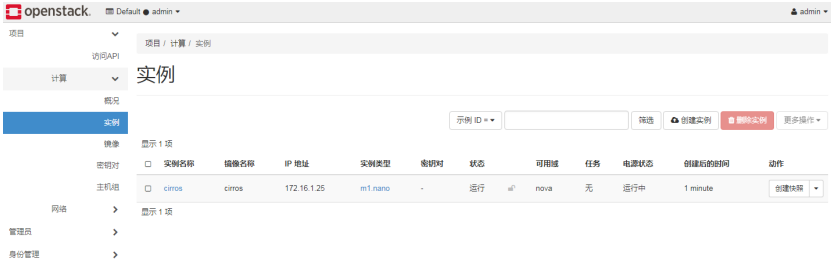
```
WSGIApplicationGroup %{GLOBAL}
```

启动服务

```
[root@controller ~]# systemctl restart httpd.service memcached.service
```

验证

浏览器打开192.168.100.10/dashboard



创建虚拟机

创建provider网络

```
[root@controller ~]# . admin-openrc

[root@controller ~]# openstack network create --share --external --provider-physical-network provider --
provider-network-type flat provider
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | UP                                   |
| availability_zone_hints   |                                      |
| availability_zones        |                                      |
| created_at                | 2018-09-03T15:02:08Z                 |
| description               |                                      |
| dns_domain                | None                                 |
| id                        | 2aa01a54-8f0b-4d13-a831-24c752fd0487 |
| ipv4_address_scope        | None                                 |
| ipv6_address_scope        | None                                 |
| is_default                | False                                |
| is_vlan_transparent       | None                                 |
| mtu                       | 1500                                 |
| name                      | provider                             |
```

```
| port_security_enabled     | True                                 |
| project_id                | 1a74d2a87e734feea8577477955e0b06     |
| provider:network_type     | flat                                 |
| provider:physical_network | provider                             |
| provider:segmentation_id  | None                                 |
| qos_policy_id             | None                                 |
| revision_number           | 0                                    |
| router:external           | External                             |
| segments                  | None                                 |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tags                      |                                      |
| updated_at                | 2018-09-03T15:02:08Z                 |
+---------------------------+--------------------------------------+#
```

创建子网

```
[root@controller ~]# openstack subnet create --network provider --allocation-pool
start=192.168.200.100,end=192.168.200.200 --dns-nameserver 114.114.114.114 --gateway 192.168.200.1 -
-subnet-range 192.168.200.0/24 provider
+-------------------+--------------------------------------+
| Field             | Value                                |
| cidr              | 192.168.200.0/24                     |
| created_at        | 2018-09-03T15:03:51Z                 |
| description       |                                      |
| dns_nameservers   | 114.114.114.114                      |
| gateway_ip        | 192.168.200.1                        |
| host_routes       |                                      |
| ipv6_address_mode | None                                 |
| ipv6_ra_mode      | None                                 |
| name              | provider                             |
| network_id        | 2aa01a54-8f0b-4d13-a831-24c752fd0487 |
| project_id        | 1a74d2a87e734feea8577477955e0b06     |
| revision_number   | 0                                    |
| segment_id        | None                                 |
| service_types     |                                      |
| subnetpool_id     | None                                 |
| tags              |                                      |
| updated_at        | 2018-09-03T15:03:51Z                 |
+-------------------+--------------------------------------+
```

创建Self-service网络

```
+---------------------------+--------------------------------------+
| Field                     | Value                                |
| admin_state_up            | UP                                   |
| availability_zone_hints   |                                      |
| created_at                | 2018-09-03T15:04:12Z                 |
| description               |                                      |
| dns_domain                | None                                 |
| id                        | 1c5078e9-8dbb-47d7-976d-5ac1d8b35181 |
| ipv4_address_scope        | None                                 |
```

```
| ipv6_address_scope        | None                                 |
| is_default                | False                                |
| is_vlan_transparent       | None                                 |
| mtu                       | 1450                                 |
| port_security_enabled     | True                                 |
| project_id                | 1a74d2a87e734feea8577477955e0b06     |
| provider:network_type     | vxlan                                |
| provider:physical_network | None                                 |
| provider:segmentation_id  | 89                                   |
| qos_policy_id             | None                                 |
| revision_number           | 1                                    |
| router:external           | Internal                             |
| segments                  | None                                 |
| shared                    | False                                |
| status                    | ACTIVE                               |
| tags                      |                                      |
| updated_at                | 2018-09-03T15:04:12Z                 |
+---------------------------+--------------------------------------+
[root@controller ~]# openstack subnet create --network selfservice  --dns-nameserver 8.8.4.4 --gateway
172.16.1.1 --subnet-range 172.16.1.0/24 selfservice
+-------------------+--------------------------------------+
| Field             | Value                                |
+-------------------+--------------------------------------+
| allocation_pools  | 172.16.1.2-172.16.1.254              |
| cidr              | 172.16.1.0/24                        |
| created_at        | 2018-09-03T15:04:19Z                 |
| description       |                                      |
| dns_nameservers   | 8.8.4.4                              |
| enable_dhcp       | True                                 |
| gateway_ip        | 172.16.1.1                           |
| host_routes       |                                      |
| id                | fd6791d8-7a53-43fe-bc35-45168dbd13f0 |
| ipv6_address_mode | None                                 |
| ipv6_ra_mode      | None                                 |
| name              | selfservice                          |
| network_id        | 1c5078e9-8dbb-47d7-976d-5ac1d8b35181 |
| project_id        | 1a74d2a87e734feea8577477955e0b06     |
| segment_id        | None                                 |
| service_types     |                                      |
| subnetpool_id     | None                                 |
| tags              |                                      |
+-------------------+--------------------------------------+
```

创建路由

```
openstack router create router
```

创建子网接口

```
openstack router add subnet router selfservice
```

创建网关

```
openstack router set router --external-gateway provider
```

创建类型

```
openstack flavor create --id 0 --vcpus 1 --ram 64 --disk 1 m1.nano
```

创建一个Self-service网络的虚拟机

这里的net-id是openstack network list查看到的id

```
[root@controller ~]# openstack server create --flavor m1.nano --image cirros --nic net-id=1c5078e9-8dbb-47d7-976d-5ac1d8b35181 cirros
+-------------------------------------+----------------------------------------------+
| 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: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                           | Y3Vh6RnFq4C7                                 |
| config_drive                        |                                              |
| created                             | 2018-09-03T15:08:50Z                         |
| flavor                              | m1.nano (0)                                  |
| hostId                              |                                              |
| id                                  | 38339165-fb68-4657-8ca6-457370a2202e         |
| key_name                            | None                                         |
| name                                | cirros                                       |
| progress                            | 0                                            |
| project_id                          | 1a74d2a87e734feea8577477955e0b06             |
| properties                          |                                              |
| security_groups                     | name='default'                               |
| status                              | BUILD                                        |
| updated                             | 2018-09-03T15:08:50Z                         |
+-------------------------------------+----------------------------------------------+
```

查看是否创建成功

```
[root@controller ~]# openstack server list
+--------------------------------------+--------+--------+------------------------+--------+---------+
| ID                                   | Name   | Status | Networks               | Image  | Flavor  |
+--------------------------------------+--------+--------+------------------------+--------+---------+
+--------------------------------------+--------+--------+------------------------+--------+---------+
```

暂时只安装到这里，有空再研究研究