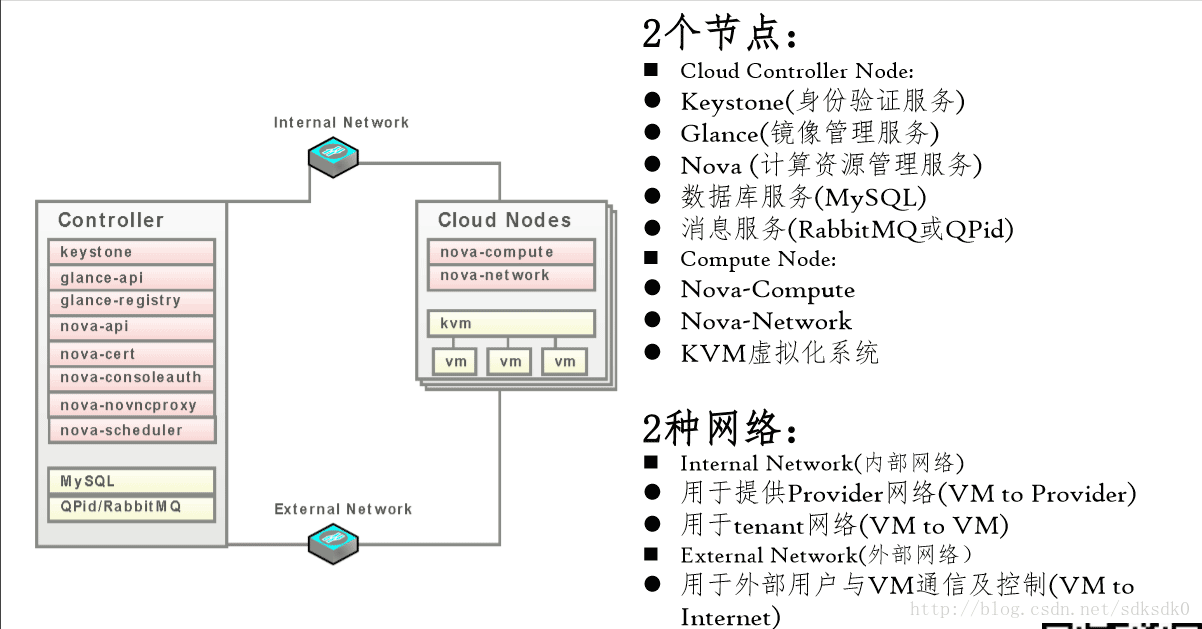
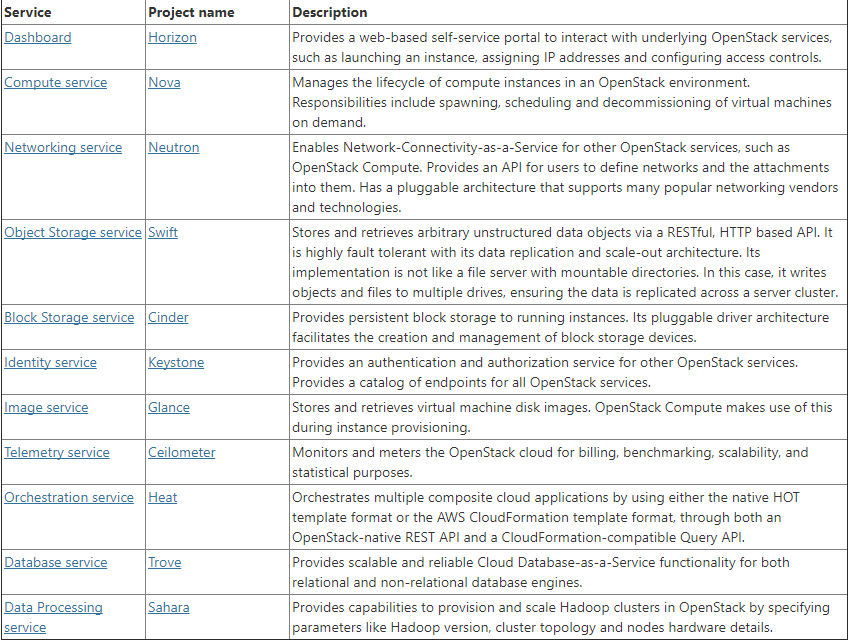
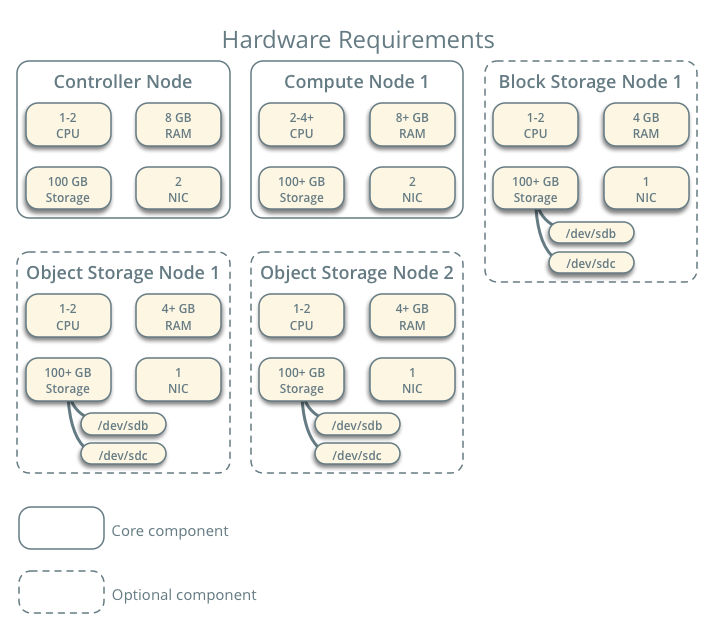
参考文档：<https://docs.openstack.org/install-guide/environment-packages.html>

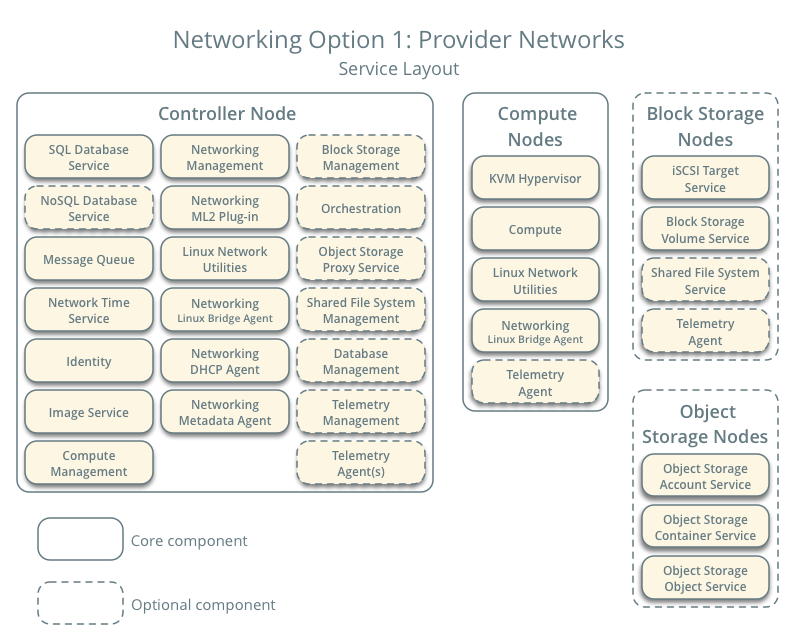
**Openstack安装文档**

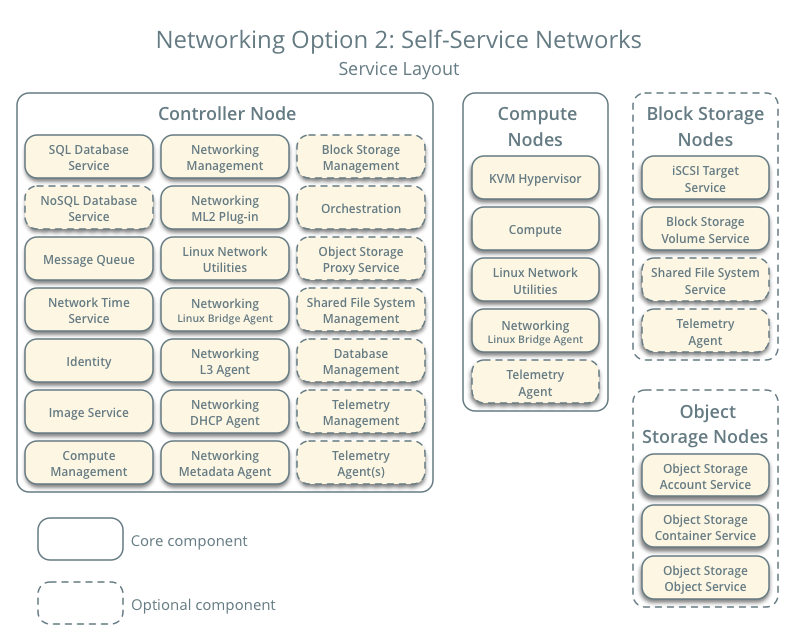
结构图：











### 主机信息

Openstack-1:

controller节点

172.16.49.180

Centos7.2

Openstack-2:

Compute节点

172.16.49.181

Centos7.2

### 环境配置

$ openssl rand -hex 10

405dffd034a5dd89798c

NTP保证服务器之间时间同步

yum install chrony

# chronyc sources

安装openstack基础包

# yum install centos-release-openstack-pike

# yum install https://rdoproject.org/repos/rdo-release.rpm

# yum upgrade

如果upgrade更新了内核，则需要重启服务器

# yum install python-openstackclient

# yum install openstack-selinux

### 服务组件配置

Openstack-1(controller node):

安装mysql数据库

# yum install mariadb mariadb-server python2-PyMySQL

# vim /etc/my.cnf.d/openstack.cnf

**[mysqld]**

bind-address = 172.16.49.180

default-storage-engine = innodb

innodb\_file\_per\_table = on

max\_connections = 4096

collation-server = utf8\_general\_ci

character-set-server = utf8

# systemctl enable mariadb.service

# systemctl start mariadb.service

初始化mysql root密码：

# mysql\_secure\_installation

安装rabbitmq消息队列

Yum安装失败，尝试源码安装

安装文档参考<http://blog.csdn.net/allsharps/article/details/52062416>

# rabbitmqctl add\_user openstack jjjr2015

# rabbitmqctl set\_permissions openstack ".\*" ".\*" ".\*"

安装memcached

# yum install memcached python-memcached

# vim /etc/sysconfig/memcached

PORT="11211"

USER="memcached"

MAXCONN="1024"

CACHESIZE="64"

OPTIONS="-l 172.16.49.180,::1"

安装mysql数据库

# yum install mariadb mariadb-server python2-PyMySQL

# vim /etc/my.cnf.d/openstack.cnf

**[mysqld]**

bind-address = 172.16.49.180

default-storage-engine = innodb

innodb\_file\_per\_table = on

max\_connections = 4096

collation-server = utf8\_general\_ci

character-set-server = utf8

# systemctl enable mariadb.service

# systemctl start mariadb.service

初始化mysql root密码：

# mysql\_secure\_installation

安装rabbitmq消息队列

Yum安装失败，尝试源码安装

安装文档参考<http://blog.csdn.net/allsharps/article/details/52062416>

# rabbitmqctl add\_user openstack jjjr2015

# rabbitmqctl set\_permissions openstack ".\*" ".\*" ".\*"

安装memcached

# yum install memcached python-memcached

# vim /etc/sysconfig/memcached

PORT="11211"

USER="memcached"

MAXCONN="1024"

CACHESIZE="64"

OPTIONS="-l 172.16.49.180,::1"

认证服务：

Keystone:

初始化数据库

$ mysql -u root –p

MariaDB [(none)]> CREATE DATABASE keystone;

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

IDENTIFIED BY 'jjjr2015';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON keystone.\* TO 'keystone'@'%' \

IDENTIFIED BY 'jjjr2015';

Apache HTTP server with mod\_wsgi to serve Identity service requests on ports 5000 and 35357

# yum install openstack-keystone httpd mod\_wsgi

#vim /etc/keystone/keystone.conf

**[database]**

*# ...*

connection = mysql+pymysql://keystone:jjjr2015@172.16.49.180/keystone

**[token]**

*# ...*

provider = fernet

# /bin/sh -c "keystone-manage db\_sync" keystone

# keystone-manage fernet\_setup --keystone-user keystone --keystone-group keystone

# keystone-manage credential\_setup --keystone-user keystone --keystone-group keystone

# keystone-manage bootstrap --bootstrap-password jjjr2015 \

--bootstrap-admin-url http://172.16.49.180:35357/v3/ \

--bootstrap-internal-url http://172.16.49.180:5000/v3/ \

--bootstrap-public-url http://172.16.49.180:5000/v3/ \

--bootstrap-region-id RegionOne

# vim /etc/httpd/conf/httpd.conf

ServerName controller

# ln -s /usr/share/keystone/wsgi-keystone.conf /etc/httpd/conf.d/

# systemctl enable httpd.service

# systemctl start httpd.service

$ export OS\_USERNAME=admin

$ export OS\_PASSWORD=jjjr2015

$ export OS\_PROJECT\_NAME=admin

$ export OS\_USER\_DOMAIN\_NAME=Default

$ export OS\_PROJECT\_DOMAIN\_NAME=Default

$ export OS\_AUTH\_URL=http://172.16.49.180:35357/v3

$ export OS\_IDENTITY\_API\_VERSION=3

glance镜像服务

# openstack user create --domain default --password-prompt glance

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

# openstack service create --name glance \

--description "OpenStack Image" image

# openstack endpoint create --region RegionOne \

image public <http://172.16.49.180:9292>

# openstack endpoint create --region RegionOne \

image internal <http://172.16.49.180:9292>

# openstack endpoint create --region RegionOne \

image admin <http://172.16.49.180:9292>

# yum install openstack-glance

# vim /etc/glance/glance-api.conf

**[database]**

*# ...*

connection = mysql+pymysql://glance:jjjr2015@172.16.49.180/glance

**[keystone\_authtoken]**

*# ...*

auth\_uri = http://172.16.49.180:5000

auth\_url = http:// 172.16.49.180:35357

memcached\_servers = 172.16.49.180:11211

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

project\_name = service

username = glance

password = jjjr2015

**[paste\_deploy]**

*# ...*

flavor = keystone

Nova计算机资源管理服务（controller node）:

创建相关库：

$ mysql -u root -p

MariaDB [(none)]> CREATE DATABASE nova\_api;

MariaDB [(none)]> CREATE DATABASE nova;

MariaDB [(none)]> CREATE DATABASE nova\_cell0;

创建用户并授权：

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

IDENTIFIED BY 'jjjr2015';

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

IDENTIFIED BY 'jjjr2015';

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

IDENTIFIED BY 'jjjr2015';

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

IDENTIFIED BY 'jjjr2015';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova\_cell0.\* TO 'nova'@'localhost' \

IDENTIFIED BY 'jjjr2015';

MariaDB [(none)]> GRANT ALL PRIVILEGES ON nova\_cell0.\* TO 'nova'@'%' \

IDENTIFIED BY 'jjjr2015';

创建 nova 用户

# openstack user create --domain default --password-prompt nova

给 nova 用户添加 admin 角色

# openstack role add --project service --user nova admin

创建 nova 服务实体：

# openstack service create --name nova \

--description "OpenStack Compute" compute

创建 Compute 服务 API 端点 ：

# openstack endpoint create --region RegionOne \

compute public http://172.16.49.180:8774/v2.1

# openstack endpoint create --region RegionOne \

compute internal <http://172.16.49.180:8774/v2.1>

# openstack endpoint create --region RegionOne \

compute admin [http://172.16.49.180:8774/v2.1](http://controller:8774/v2.1)

创建 placement 用户

# openstack user create --domain default --password-prompt placement

给 placement 用户添加 admin 角色

# openstack role add --project service --user placement admin

创建 placement服务实体：

# openstack service create --name placement --description "Placement API" placement

创建 placement 服务 API 端点 ：

# openstack endpoint create --region RegionOne placement public http:// 172.16.49.180:8778

# openstack endpoint create --region RegionOne placement internal http://172.16.49.180:8778

# openstack endpoint create --region RegionOne placement admin http://172.16.49.180:8778

安装并配置

安装软件包

# yum install openstack-nova-api openstack-nova-conductor \

openstack-nova-console openstack-nova-novncproxy \

openstack-nova-scheduler

# vim /etc/nova/nova.conf

**[DEFAULT]**

*# ...*

enabled\_apis = osapi\_compute,metadata

**[api\_database]**

*# ...*

connection = mysql+pymysql://nova:jjjr2015@172.16.49.180/nova\_api

**[database]**

*# ...*

connection = mysql+pymysql://nova:jjjr2015@172.16.49.180/nova

**[DEFAULT]**

*# ...*

transport\_url = rabbit://openstack:jjjr2015@172.16.49.180

**[api]**

*# ...*

auth\_strategy = keystone

**[keystone\_authtoken]**

*# ...*

auth\_uri = http://172.16.49.180:5000

auth\_url = http://172.16.49.180:35357

memcached\_servers = 172.16.49.180:11211

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

project\_name = service

username = nova

password = jjjr2015

**[DEFAULT]**

*# ...*

my\_ip = 10.0.0.11

**[DEFAULT]**

*# ...*

use\_neutron = True

firewall\_driver = nova.virt.firewall.NoopFirewallDriver

**[vnc]**

enabled = true

*# ...*

vncserver\_listen = $my\_ip

vncserver\_proxyclient\_address = $my\_ip

**[glance]**

*# ...*

api\_servers = http://172.16.49.180:9292

**[oslo\_concurrency]**

*# ...*

lock\_path = /var/lib/nova/tmp

**[placement]**

*# ...*

os\_region\_name = RegionOne

project\_domain\_name = Default

project\_name = service

auth\_type = password

user\_domain\_name = Default

auth\_url = http://172.16.49.180:35357/v3

username = placement

password = jjjr2015

# vim /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>

# systemctl restart httpd

# /bin/sh -c "nova-manage api\_db sync" nova

# /bin/sh -c "nova-manage cell\_v2 map\_cell0" nova

# /bin/sh -c "nova-manage cell\_v2 create\_cell --name=cell1 --verbose" nova

# /bin/sh -c "nova-manage db sync" nova

检查cell0 cell1的注册信息

# nova-manage cell\_v2 list\_cells

# 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 openstack-nova-scheduler.service \

openstack-nova-conductor.service openstack-nova-novncproxy.service

Openstack-2(Cumputer node):

安装计算节点的计算服务：

# yum install openstack-nova-compute

# vim /etc/nova/nova.conf

**[DEFAULT]**

*# ...*

enabled\_apis = osapi\_compute,metadata

**[DEFAULT]**

*# ...*

transport\_url = rabbit://openstack:jjjr2015@172.16.49.180

**[api]**

*# ...*

auth\_strategy = keystone

**[keystone\_authtoken]**

*# ...*

auth\_uri = http://172.16.49.180:5000

auth\_url = http://172.16.49.180:35357

memcached\_servers = 172.16.49.180:11211

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

project\_name = service

username = nova

password = jjjr2015

**[DEFAULT]**

*# ...*

my\_ip = MANAGEMENT\_INTERFACE\_IP\_ADDRESS

**[DEFAULT]**

*# ...*

use\_neutron = True

firewall\_driver = nova.virt.firewall.NoopFirewallDriver

**[vnc]**

*# ...*

enabled = True

vncserver\_listen = 0.0.0.0

vncserver\_proxyclient\_address = $my\_ip

novncproxy\_base\_url = http://172.16.49.180:6080/vnc\_auto.html

**[glance]**

*# ...*

api\_servers = http://172.16.49.180:9292

**[oslo\_concurrency]**

*# ...*

lock\_path = /var/lib/nova/tmp

**[placement]**

*# ...*

os\_region\_name = RegionOne

project\_domain\_name = Default

project\_name = service

auth\_type = password

user\_domain\_name = Default

auth\_url = http://172.16.49.180:35357/v3

username = placement

password = jjjr2015

确定您的计算节点是否支持虚拟机的硬件加速。

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

4

如果这个命令返回了 one or greater 的值，那么你的计算节点支持硬件加速且不需要额外的配置。

如果这个命令返回了 zero 值，那么你的计算节点不支持硬件加速。你必须配置 libvirt 来使用 QEMU 去代替 KVM

**#vim** /etc/nova/nova.conf

**[libvirt**

...

virt\_type = qemu

启动计算服务及其依赖，并将其配置为随系统自动启动：

# systemctl enable libvirtd.service openstack-nova-compute.service

# systemctl start libvirtd.service openstack-nova-compute.service

如需增加compute node 则在controller node进行以下操作：

# openstack compute service list --service nova-compute

# /bin/sh -c "nova-manage cell\_v2 discover\_hosts --verbose" nova

When you add new compute nodes, you must run nova-manage cell\_v2 discover\_hosts on the controller node to register those new compute nodes. Alternatively, you can set an appropriate interval in /etc/nova/nova.conf:

**[scheduler]**

discover\_hosts\_in\_cells\_interval = 300

### 网络配置：

Openstack-1(controller node):

# vim /etc/sysconfig/network-scripts/ifcfg-INTERFACE\_NAME

TYPE=Ethernet

BOOTPROTO=static

DEFROUTE=yes

PEERDNS=yes

PEERROUTES=yes

IPV4\_FAILURE\_FATAL=no

IPV6INIT=yes

IPV6\_AUTOCONF=yes

IPV6\_DEFROUTE=yes

IPV6\_PEERDNS=yes

IPV6\_PEERROUTES=yes

IPV6\_FAILURE\_FATAL=no

IPV6\_ADDR\_GEN\_MODE=stable-privacy

NAME=eth0

UUID=00361cb3-9100-4314-9e0a-99272ba74081

ONBOOT=yes

DEVICE=eth0

IPADDR=172.16.49.180

GATEWAY=172.16.50.254

DNS1=172.16.51.248

PREFIX=22

# vim /etc/hosts

172.16.49.180 controller

172.16.49.181 compute1

openstack user create --domain default --password-prompt 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://controller:9696

openstack endpoint create --region RegionOne network public http://172.16.49.180:9696

openstack endpoint create --region RegionOne network internal http://172.16.49.180:9696

openstack endpoint create --region RegionOne network admin http://172.16.51.49:9696

openstack endpoint create --region RegionOne network admin http://172.16.49.180:9696

配置网络选项：

您可以部署网络服务使用选项1和选项2两种架构中的一种来部署网络服务。

选项1采用尽可能简单的架构进行部署，只支持实例连接到公有网络（外部网络）。没有私有网络（个人网络），路由器以及浮动IP地址。只有``admin``或者其他特权用户才可以管理公有网络

选项2在选项1的基础上多了layer－3服务，支持实例连接到私有网络。[``](https://docs.openstack.org/mitaka/zh_CN/install-guide-rdo/neutron-controller-install.html" \l "id1)demo``或者其他没有特权的用户可以管理自己的私有网络，包含连接公网和私网的路由器。另外，浮动IP地址可以让实例使用私有网络连接到外部网络，例如互联网

典型的私有网络一般使用覆盖网络。覆盖网络，例如VXLAN包含了额外的数据头，这些数据头增加了开销，减少了有效内容和用户数据的可用空间。在不了解虚拟网络架构的情况下，实例尝试用以太网 最大传输单元 (MTU) 1500字节发送数据包。网络服务会自动给实例提供正确的MTU的值通过DHCP的方式。但是，一些云镜像并没有使用DHCP或者忽视了DHCP MTU选项，要求使用元数据或者脚本来进行配置

这里选择了选项2：

# yum install openstack-neutron openstack-neutron-ml2 \

openstack-neutron-linuxbridge ebtables

# vim /etc/neutron/neutron.conf

**[database]**

*# ...*

connection = mysql+pymysql://neutron:NEUTRON\_DBPASS@controller/neutron

**[DEFAULT]**

*# ...*

core\_plugin = ml2

service\_plugins = router

allow\_overlapping\_ips = true

**[DEFAULT]**

*# ...*

transport\_url = rabbit://openstack:RABBIT\_PASS@controller

**[DEFAULT]**

*# ...*

auth\_strategy = keystone

**[keystone\_authtoken]**

*# ...*

auth\_uri = http://controller:5000

auth\_url = http://controller:35357

memcached\_servers = controller:11211

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

project\_name = service

username = neutron

password = NEUTRON\_PASS

**[DEFAULT]**

*# ...*

notify\_nova\_on\_port\_status\_changes = true

notify\_nova\_on\_port\_data\_changes = true

**[nova]**

*# ...*

auth\_url = http://controller:35357

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

region\_name = RegionOne

project\_name = service

username = nova

password = NOVA\_PASS

**[oslo\_concurrency]**

*# ...*

lock\_path = /var/lib/neutron/tmp

配置ML2插件

**# vim** /etc/neutron/plugins/ml2/ml2\_conf.ini

**[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

配置linux bridge agent

**# vim** /etc/neutron/plugins/ml2/linuxbridge\_agent.ini

**[linux\_bridge]**

physical\_interface\_mappings = provider:eth0

**[vxlan]**

enable\_vxlan = true

local\_ip = 172.16.49.180

l2\_population = true

**[securitygroup]**

*# ...*

enable\_security\_group = true

firewall\_driver = neutron.agent.linux.iptables\_firewall.IptablesFirewallDriver

配置layer-3 agent

**# vim** /etc/neutron/l3\_agent.ini

**[DEFAULT]**

*# ...*

interface\_driver = linuxbridge

配置DHCP

**# vim** /etc/neutron/dhcp\_agent.ini

**[DEFAULT]**

*# ...*

interface\_driver = linuxbridge

dhcp\_driver = neutron.agent.linux.dhcp.Dnsmasq

enable\_isolated\_metadata = true

配置 metadata

**# vim** /etc/neutron/metadata\_agent.ini

**[DEFAULT]**

*# ...*

nova\_metadata\_ip = controller

metadata\_proxy\_shared\_secret = METADATA\_SECRET

配置计算服务使用的网络

**# vim /etc/nova/nova.conf**

**[neutron]**

*# ...*

url = http://controller:9696

auth\_url = http://controller:35357

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

region\_name = RegionOne

project\_name = service

username = neutron

password = NEUTRON\_PASS

service\_metadata\_proxy = true

metadata\_proxy\_shared\_secret = METADATA\_SECRET

安装服务

# ln -s /etc/neutron/plugins/ml2/ml2\_conf.ini /etc/neutron/plugin.ini

/bin/sh -c "neutron-db-manage --config-file /etc/neutron/neutron.conf \

--config-file /etc/neutron/plugins/ml2/ml2\_conf.ini upgrade head" neutron

# 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

# systemctl enable neutron-l3-agent.service

# systemctl start neutron-l3-agent.service

Openstack-2(Computer node):

# yum install openstack-neutron-linuxbridge ebtables ipset

# vim /etc/neutron/neutron.conf

**[DEFAULT]**

*# ...*

transport\_url = rabbit://openstack:RABBIT\_PASS@controller

**[DEFAULT]**

*# ...*

auth\_strategy = keystone

**[keystone\_authtoken]**

*# ...*

auth\_uri = http://controller:5000

auth\_url = http://controller:35357

memcached\_servers = controller:11211

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

project\_name = service

username = neutron

password = NEUTRON\_PASS

**[oslo\_concurrency]**

*# ...*

lock\_path = /var/lib/neutron/tmp

配置网络选项，这里仍然选择第二项：

**# vim** /etc/neutron/plugins/ml2/linuxbridge\_agent.ini

**[linux\_bridge]**

physical\_interface\_mappings = provider:PROVIDER\_INTERFACE\_NAME

**[vxlan]**

enable\_vxlan = true

local\_ip = OVERLAY\_INTERFACE\_IP\_ADDRESS

l2\_population = true

**[securitygroup]**

*# ...*

enable\_security\_group = true

firewall\_driver = neutron.agent.linux.iptables\_firewall.IptablesFirewallDriver

**# vim** /etc/nova/nova.conf

**[neutron]**

*# ...*

url = http://controller:9696

auth\_url = http://controller:35357

auth\_type = password

project\_domain\_name = default

user\_domain\_name = default

region\_name = RegionOne

project\_name = service

username = neutron

password = NEUTRON\_PASS

# systemctl restart openstack-nova-compute.service

# systemctl enable neutron-linuxbridge-agent.service

# systemctl start neutron-linuxbridge-agent.service

### 管理页面配置

在controller node上配置

# yum install openstack-dashboard

# vim /etc/openstack-dashboard/local\_settings

OPENSTACK\_HOST = "controller"

开发环境下用\*参数允许所有Host访问，生产环境这样会有安全问题

ALLOWED\_HOSTS = ['\*']

SESSION\_ENGINE = 'django.contrib.sessions.backends.cache'

CACHES = {

'default': {

'BACKEND': 'django.core.cache.backends.memcached.MemcachedCache',

'LOCATION': 172.16.49.180:11211',

}

}

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,

}

TIME\_ZONE = “Asia/Shanghai”

# systemctl restart httpd.service memcached.service

访问地址：<http://172.16.49.180/dashboard/>

域：default

登录名：admin

密码：jjjr2015