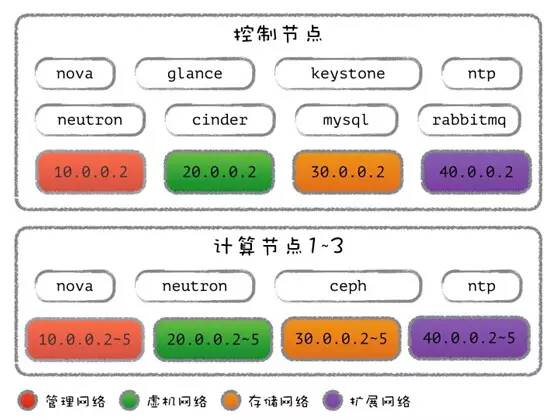
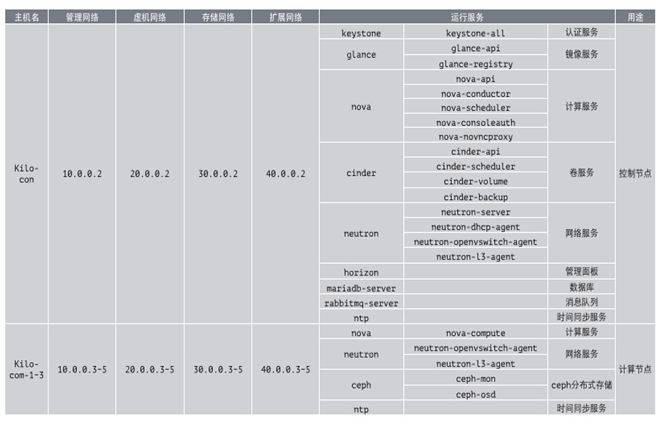
**超详细的OpenStack Kilo版加CEPH部署手册**

**目录**  
实验环境   
前言   
架构图   
架构部署   
服务器系统安装   
全局工作   
导入软件源   
Iptables服务安装   
NTP服务安装   
Ceph安装   
第一个监视器节点安装   
其余监视器节点安装   
部署OSD   
与Openstack结合   
OpenStack控制节点安装   
Ceph配置   
Mysql服务安装   
Rabbitmq服务安装   
Keystone服务安装   
Glance服务安装   
Neutron服务安装   
Nova服务安装   
Cinder服务安装   
计算节点安装   
Ceph配置   
Neutron服务安装   
Nova服务安装   
Horizon安装   
  
  
**实验环境**  
硬件:  
曙光 I610r-GV(1台)  
CPU：Intel(R) Xeon(R) CPU E5606 @ 2.13GHz \* 1  
内存：32GB  
硬盘：SAS 10K 300G \* 1  
网卡：Intel Corporation 82574L Gigabit Network Connection \* 2  
网卡：Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection(双端口) \* 1

曙光 I610r-GV(3台)  
CPU：Intel(R) Xeon(R) CPU E5606 @ 2.13GHz \* 1  
内存：32GB  
硬盘：SAS 10K 300G \* 1，SSD 160G \* 3  
网卡：Intel Corporation 82574L Gigabit Network Connection \* 2  
网卡：Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection(双端口) \* 1  
系统：  
CentOS 7.1 x64  
OpenStack版本：  
Kilo（2015.1.0）  
Ceph版本：  
Hammer（0.94.2）  
  
**前言**  
1. 文档中Ceph不使用ceph-deploy部署  
2. 后续会有telemetry，lbaas，sahara，swift，trove部署文档  
3. 如果网卡不够，可以将管理，虚机，存储合并为一个网络  
4. 文档中ceph只建立一个池子  
5. rdo中某些服务的conf文件红帽有一些修改，如果大家享用官方原版可以在launchpad下载源码包自行生成（这是说给强迫症用户的）  
6. dvr模式下每个l3节点所绑定网卡都需要有外网ip





服务器系统安装  
1. CentOS 7.1 x64使用最小化安装方式  
2. 设置主机名，关闭selinux基础工作不在文档出现  
  
  
**全局工作**

导入软件源  
  
1. 导入软件源  
rpm -ivh https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm  
rpm -ivh https://repos.fedorapeople.org/repos/openstack/openstack-kilo/rdo-release-kilo-1.noarch.rpm  
rpm --import 'https://ceph.com/git/?p=ceph.git;a=blob\_plain;f=keys/release.asc'  
  
2. 新建/etc/yum.repos.d/ceph.repo文件添加如下内容  
[ceph]  
name=Ceph packages for $basearch  
baseurl=http://ceph.com/rpm-hammer/el7/$basearch  
enabled=1  
priority=2  
gpgcheck=1  
type=rpm-md  
gpgkey=https://ceph.com/git/?p=ceph.git;a=blob\_plain;f=keys/release.asc  
  
[ceph-noarch]  
name=Ceph noarch packages  
baseurl=http://ceph.com/rpm-hammer/el7/noarch  
enabled=1  
priority=2  
gpgcheck=1  
type=rpm-md  
gpgkey=https://ceph.com/git/?p=ceph.git;a=blob\_plain;f=keys/release.asc

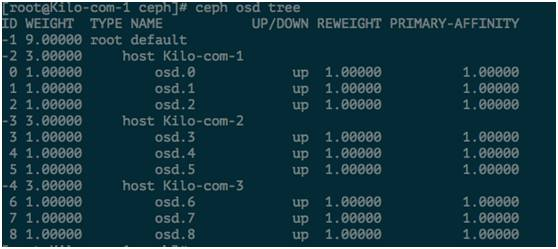
Iptables服务安装  
  
1. 安装Iptables  
yum install -y iptables-services  
  
2. 启动并设置开机自启动  
systemctl stop firewalld  
systemctl disable firewalld  
systemctl start iptables  
systemctl enable iptables  
NTP服务安装  
1. 安装NTP服务  
yum install -y ntp  
  
2. 启动并设置开机自启动  
systemctl start ntpd  
systemctl enable ntpd  
  
**Ceph安装**

第一个监视器节点安装  
1. 安装Ceph  
yum install -y ceph  
  
2. 生成集群uuid  
uuidgen  
  
3. 新建/etc/ceph/ceph.conf文件添加如下内容  
fsid = 第二步生成的值  
mon initial members = Kilo-com-1,  
mon host = 20.0.0.3,  
  
4. 建立拥有操作监视器权限的凭证  
ceph-authtool --create-keyring /etc/ceph/ceph.mon.keyring --gen-key -n mon. --cap mon 'allow \*'  
  
5. 建立一个名称为client.admin的管理员凭证  
ceph-authtool --create-keyring /etc/ceph/ceph.client.admin.keyring --gen-key -n client.admin --set-uid=0 --cap mon 'allow \*' --cap osd 'allow \*' --cap mds 'allow'  
  
6. 将管理员凭证添加到监视器权限凭证内  
ceph-authtool /etc/ceph/ceph.mon.keyring --import-keyring /etc/ceph/ceph.client.admin.keyring  
  
7. 建立监视器节点对应关系地图  
monmaptool --create --add Kilo-com-1 20.0.0.3 --fsid 第二步生成的值也是 /tmp/monmap  
  
8. 建立监视器服务数据存放目录  
mkdir /var/lib/ceph/mon/ceph-Kilo-com-1   
  
9. 初始化监视器数据目录  
ceph-mon --mkfs -i Kilo-com-1 --monmap /tmp/monmap --keyring /etc/ceph/ceph.mon.keyring  
  
10. 编辑/etc/ceph/ceph.conf文件添加如下内容  
public network = 20.0.0.0/24  
cluster network = 30.0.0.0/24  
auth cluster required = cephx  
auth service required = cephx  
auth client required = cephx  
filestore xattr use omap = true  
osd pool default pg num = 256  
osd pool default pgp num = 256  
  
11. 添加部署完毕标志文件及服务启动标志文件  
touch /var/lib/ceph/mon/ceph-Kilo-com-1/done  
touch /var/lib/ceph/mon/ceph-Kilo-com-1/sysvinit  
  
12. 启动监视器服务  
/etc/init.d/ceph start mon  
  
13. 查看状态



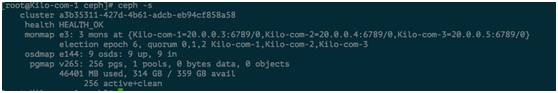
属于正常状态  
  
14. 添加防火墙规则允许其他节点连接  
iptables -I INPUT 2 -s 20.0.0.0/24 -p tcp -m tcp --dport 6789 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables  
  
**其余监视器节点安装**  
1. 安装Ceph  
yum install -y ceph  
  
2. 从第一监控器节点拷贝配置文件和凭证  
scp /etc/ceph/ceph.client.admin.keyring /etc/ceph/ceph.mon.keyring /etc/ceph/ceph.conf 10.0.0.4:/etc/ceph/  
  
3. 获取监视器节点对应关系地图  
ceph mon getmap -o /tmp/monmap  
  
4. 建立监视器服务数据存放目录  
mkdir /var/lib/ceph/mon/ceph-Kilo-com-2  
  
5. 初始化监视器数据目录  
ceph-mon --mkfs -i Kilo-com-2 --monmap /tmp/monmap --keyring /etc/ceph/ceph.mon.keyring  
  
6. 编辑/etc/ceph/ceph.conf文件添加如下内容  
mon initial members = 追加当前节点主机名,并以逗号结尾  
mon host = 追加当前节点虚机网络，并以逗号结尾  
  
7. 添加部署完毕标志文件及服务启动标志文件  
touch /var/lib/ceph/mon/ceph-Kilo-com-2/done  
touch /var/lib/ceph/mon/ceph-Kilo-com-2/sysvinit  
  
8. 启动Ceph mon节点服务  
/etc/init.d/ceph start mon  
  
9. 添加防火墙规则允许其他节点连接  
iptables -I INPUT 2 -s 20.0.0.0/24 -p tcp -m tcp --dport 6789 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables  
  
10. 添加当前监视器到监视器集群  
ceph mon add Kilo-com-2 20.0.0.4:6789  
  
11. 将/etc/ceph/ceph.conf覆盖到其他节点的ceph目录并重启服务  
  
  
**部署OSD**

1. 申请OSD号，计划当前节点有几个OSD就执行几次，输出结果后续使用，我这里每个节点三个OSD,我需要执行三次  
ceph osd tree  
  
2. 通过OSD号创建OSD数据目录  
mkdir /var/lib/ceph/osd/ceph-0  
mkdir /var/lib/ceph/osd/ceph-1  
mkdir /var/lib/ceph/osd/ceph-2  
  
3. 格式化OSD使用磁盘为xfs文件系统  
mkfs.xfs /dev/sdb  
mkfs.xfs /dev/sdc  
mkfs.xfs /dev/sdd  
  
4. 编辑/etc/fstab添加如下内容  
/dev/sdb /var/lib/ceph/osd/ceph-0 xfs defaults 0 0  
/dev/sdb /var/lib/ceph/osd/ceph-0 xfs remount,user\_xattr 0 0  
/dev/sdc /var/lib/ceph/osd/ceph-1 xfs defaults 0 0  
/dev/sdc /var/lib/ceph/osd/ceph-1 xfs remount,user\_xattr 0 0  
/dev/sdd /var/lib/ceph/osd/ceph-2 xfs defaults 0 0  
/dev/sdd /var/lib/ceph/osd/ceph-2 xfs remount,user\_xattr 0 0  
  
5. 挂载磁盘  
mount /dev/sdb  
mount /dev/sdc  
mount /dev/sdd  
  
6. 初始化OSD数据目录  
ceph-osd -i 0 --mkfs --mkjournal --mkkey  
ceph-osd -i 1 --mkfs --mkjournal --mkkey  
ceph-osd -i 2 --mkfs --mkjournal --mkkey  
  
7. 注册OSD凭证  
ceph auth add osd.0 osd 'allow \*' mon 'allow profile osd' -i /var/lib/ceph/osd/ceph-0/keyring  
ceph auth add osd.1 osd 'allow \*' mon 'allow profile osd' -i /var/lib/ceph/osd/ceph-1/keyring  
ceph auth add osd.2 osd 'allow \*' mon 'allow profile osd' -i /var/lib/ceph/osd/ceph-2/keyring  
  
8. 添加OSD到CRUSH关系图  
ceph osd crush add-bucket Kilo-com-1 host  
  
9. 将节点移动到default树下  
ceph osd crush move Kilo-com-1 root=default  
  
10. 将OSD添加到Kilo-com-1下  
ceph osd crush add osd.0 1.0 host=Kilo-com-1  
ceph osd crush add osd.1 1.0 host=Kilo-com-1  
ceph osd crush add osd.2 1.0 host=Kilo-com-1  
  
11. 添加服务启动标志文件  
touch /var/lib/ceph/osd/ceph-0/sysvinit  
touch /var/lib/ceph/osd/ceph-1/sysvinit  
touch /var/lib/ceph/osd/ceph-2/sysvinit  
  
12. 添加防火墙规则  
iptables -I INPUT 2 -s 20.0.0.0/24 -p tcp -m multiport --dports 6800:6900 -j ACCEPT  
iptables -I INPUT 2 -s 30.0.0.0/24 -p tcp -m multiport --dports 6800:6900 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables  
  
13. 启动当前节点OSD  
/etc/init.d/ceph start osd  
  
14. 查看当前OSD树状态



15. 查看ceph状态

会看到健康状态是HEALTH\_WARN，原因是PGs过少,我们来添加  
  
16. 增加PG和PGP数量  
ceph osd pool set rbd pg\_num 256  
ceph osd pool set rbd pgp\_num 256  
注：如果在执行第二条命令时报Error EBUSY: currently creating pgs, wait，说明第一条命令还没处理完  
  
17. 再次查看ceph状态



**与Openstack结合**

1. 建立存储池  
ceph osd pool create storages 256  
  
2. 建立一个名称为client.storages的凭证，对storages池有操作权限  
ceph auth get-or-create client.storages mon 'allow rx' osd 'allow class-read object\_prefix rbd\_children, allow rwx pool=storages'  
  
**OpenStack控制节点安装**

Ceph配置

1. 安装ceph-common  
yum install -y ceph-common  
  
2. 拷贝配置文件和管理员凭证到本机  
scp /etc/ceph/ceph.client.admin.keyring /etc/ceph/ceph.conf 10.0.0.2:/etc/ceph/  
  
3. 导出client.storages凭证  
ceph auth get-or-create client.storages >> /etc/ceph/ceph.client.storages.keyring  
  
4. 安装libvirt  
yum install -y libvirt  
  
5. 编辑/etc/libvirt/libvirtd.conf文件添加或修改如下行  
listen\_tls = 0  
listen\_tcp = 1  
listen\_addr = "0.0.0.0"  
auth\_tcp = "none"  
  
6. 编辑/etc/sysconfig/libvirtd文件添加或修改如下行  
LIBVIRTD\_ARGS="--listen"  
  
7. 启动并设置开机自启动  
systemctl start libvirtd  
systemctl enable libvirtd  
  
8. 添加防火墙规则  
iptables -I INPUT 2 -s 10.0.0.0/24 -p tcp -m tcp --dport 16509 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables  
  
9. 生成libvirt secret使用uuid  
uuidgen  
  
10. 新建ceph-storages-secrets.xml文件添加如下内容  
<secret ephemeral='no' private='no'>  
<uuid>第九步生成值</uuid>  
<usage type='ceph'>  
<name>client.storages secret</name>  
</usage>  
</secret>  
  
11. 设置libvirt secret值  
virsh secret-set-value --secret第九步生成值 --base64 $(ceph auth get-key client.storages)

Mysql服务安装  
1. 安装MYSQL服务  
yum install -y mariadb-server  
  
2. 编辑/etc/my.cnf文件的[mysqld]下添加如下内容  
collation-server = utf8\_general\_ci  
init-connect = 'SET NAMES utf8'  
character-set-server = utf8  
skip-name-resolve  
skip-host-cache  
  
3. 启动并设置开机自启动  
systemctl start mariadb  
systemctl enable mariadb  
  
4. 初始化mysql设置root密码为openstack  
mysql\_secure\_installation #此命令为交互命令，过程自行解决  
  
5. 添加防火墙规则  
iptables -I INPUT 2 -s 10.0.0.0/24 -p tcp -m tcp --dport 3306 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables  
  
**Rabbitmq服务安装**

1. 安装RABBITMQ服务  
yum -y install rabbitmq-server  
  
2. 启动并设置开机自启动  
systemctl start rabbitmq-server  
systemctl enable rabbitmq-server  
  
3. 更改RABBITMQ消息队列服务guest用户默认密码为openstack  
rabbitmqctl change\_password guest openstack  
  
4. 添加防火墙规则  
iptables -I INPUT 2 -s 10.0.0.0/24 -p tcp -m tcp --dport 5672 -j ACCEPT  
iptables-save > /etc/sysconfig/iptables

**Keystone服务安装**

1. 安装Keystone

yum install -y openstack-keystone

2. 生成管理员token

openssl rand -hex 10

3. 建立数据库及数据库用户

mysql -uroot -popenstack -e 'create database keystone'

mysql -uroot -popenstack -e 'grant all on keystone.\* to"keystone"@"%" identified by "keystone"'

4. 编辑/etc/keystone/keystone.conf文件添加或修改如下行

[DEFAULT]

admin\_token = 第二步生成的值

log\_dir = /var/log/keystone

use\_stderr = false

[database]

connection = mysql://keystone:keystone@10.0.0.2/keystone

use\_db\_reconnect = true

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

5. 初始化数据库

su -s /bin/sh -c 'keystone-manage db\_sync' keystone

6. 启动并设置开机自启动

systemctl start openstack-keystone

systemctl enable openstack-keystone

7. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 5000 -j ACCEPT

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 35357 -j ACCEPT

iptables-save > /etc/sysconfig/iptables

8. 建立tenant，user,role,service,endpoint

export OS\_SERVICE\_TOKEN=第二步生成的值

export OS\_SERVICE\_ENDPOINT=http://10.0.0.2:35357/v2.0

keystone tenant-create --name admin --description "AdminTenant"

keystone user-create --name admin --pass admin --email admin@example.com

keystone role-create --name admin

keystone user-role-add --tenant admin --user admin --role admin

keystone role-create --name \_member\_

keystone user-role-add --tenant admin --user admin --role \_member\_

keystone tenant-create --name service --description "ServiceTenant"

keystone service-create --name keystone --type identity --description"OpenStack Identity Service"

keystone endpoint-create --service-id $(keystone service-list | awk '/identity / {print $2}') --publicurl http://10.0.0.2:5000/v2.0 --internalurlhttp://10.0.0.2:5000/v2.0 --adminurlhttp://10.0.0.2:35357/v2.0 --region regionOne

9. 新建/root/admin-openrc文件添加如下行，作为以后新建公用镜像，网络使用的认证凭证

export OS\_TENANT\_NAME=admin

export OS\_USERNAME=admin

export OS\_PASSWORD=admin

export OS\_AUTH\_URL=http://10.0.0.2:35357/v2.0

**Glance服务安装**

1. 安装Glance

yum install -y openstack-glance

2. 建立user,role,service,endpoint

export OS\_SERVICE\_TOKEN=安装Keystone时第二步生成的值

exportOS\_SERVICE\_ENDPOINT=http://10.0.0.2:35357/v2.0

keystone user-create --name glance--pass glance

keystone user-role-add --user glance--tenant service --role admin

keystone service-create --name glance--type image --description "OpenStack Image Service"

keystone endpoint-create --service-id$(keystone service-list | awk '/ image / {print $2}') --publicurlhttp://10.0.0.2:9292 --internalurl http://10.0.0.2:9292 --adminurlhttp://10.0.0.2:9292 --region regionOne

3. 建立数据库及数据库用户

mysql -uroot -popenstack -e 'createdatabase glance'

mysql -uroot -popenstack -e 'grant allon glance.\* to "glance"@"%" identified by"glance"'

4. 编辑/etc/glance/glance-api.conf文件添加或修改如下行

[DEFAULT]

use\_stderr = false

show\_image\_direct\_url = true

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

[database]

connection = mysql://glance:glance@10.0.0.2/glance

use\_db\_reconnect = true

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000

identity\_uri = http://10.0.0.2:35357

admin\_tenant\_name = service

admin\_user = glance

admin\_password = glance

[paste\_deploy]

flavor = keystone

[glance\_store]

stores = glance.store.rbd.Store,

default\_store = rbd

rbd\_store\_user = storages

rbd\_store\_pool = storages

5. 编辑/etc/glance/glance-registry.conf文件添加或修改如下行

[DEFAULT]

use\_stderr = false

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

[database]

connection = mysql://glance:glance@10.0.0.2/glance

use\_db\_reconnect = true

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000

identity\_uri = http://10.0.0.2:35357

admin\_tenant\_name = service

admin\_user = glance

admin\_password = glance

[paste\_deploy]

flavor = keystone

6. 初始化数据库

su -s /bin/sh -c 'glance-manage db\_sync' glance

7. 启动并设置开机自启动

systemctl start openstack-glance-api

systemctl startopenstack-glance-registry

systemctl enable openstack-glance-api

systemctl enableopenstack-glance-registry

8. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 9191 -j ACCEPT

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 9292 -j ACCEPT

iptables-save > /etc/sysconfig/iptables

**Neutron服务安装**

1. 安装Neutron

yum install -y openstack-neutron openstack-neutron-ml2openstack-neutron-openvswitch

2. 建立user,role,service,endpoint

keystone user-create --name neutron--pass neutron

keystone user-role-add --user neutron--tenant service --role admin

keystone service-create --name neutron--type network --description "OpenStack Network Service"

keystone endpoint-create --service-id$(keystone service-list | awk '/ network / {print $2}') --publicurlhttp://10.0.0.2:9696 --adminurl http://10.0.0.2:9696 --internalurl http://10.0.0.2:9696--region regionOne

3. 建立数据库及数据库用户

mysql -uroot -popenstack -e 'createdatabase neutron'

mysql -uroot -popenstack -e 'grant allon neutron.\* to "neutron"@"%" identified by"neutron"'

4. 编辑/etc/neutron/neutron.conf文件添加或修改如下行

[DEFAULT]

router\_distributed = true

use\_stderr = false

log\_dir = /var/log/neutron

core\_plugin = ml2

service\_plugins = router

auth\_strategy = keystone

host = Kilo-con

allow\_overlapping\_ips = true

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

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

nova\_url = http://10.0.0.2:8774/v2

nova\_region\_name = regionOne

nova\_admin\_username = nova

nova\_admin\_tenant\_name = service

nova\_admin\_password = nova

nova\_admin\_auth\_url = http://10.0.0.2:35357/v2.0

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

[agent]

root\_helper = sudo neutron-rootwrap/etc/neutron/rootwrap.conf

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000

identity\_uri = http://10.0.0.2:35357

admin\_tenant\_name = service

admin\_user = neutron

admin\_password = neutron

[database]

connection =mysql://neutron:neutron@10.0.0.2/neutron

use\_db\_reconnect = true

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

5. 编辑/etc/neutron/dhcp\_agent.ini文件添加或修改如下行

[DEFAULT]

interface\_driver =neutron.agent.linux.interface.OVSInterfaceDriver

dnsmasq\_config\_file =/etc/neutron/neutron-dnsmasq.conf

6. 新建/etc/neutron/neutron-dnsmasq.conf添加如下行

dhcp-option-force=26,1450

log-facility =/var/log/neutron/dnsmasq.log

7. 编辑/etc/neutron/l3\_agent.ini文件添加或修改如下行

[DEFAULT]

interface\_driver =neutron.agent.linux.interface.OVSInterfaceDriver

handle\_internal\_only\_routers = false

enable\_metadata\_proxy = false

agent\_mode = dvr\_snat

8. 编辑/etc/neutron/plugins/ml2/ml2\_conf.ini文件添加或修改如下行

[ml2]

type\_drivers = flat,vxlan

tenant\_network\_types = vxlan

mechanism\_drivers = openvswitch,l2population

[ml2\_type\_vxlan]

vni\_ranges = 1000:5000

9. 编辑/etc/neutron/plugins/openvswitch/ovs\_neutron\_plugin.ini文件添加或修改如下行

[ovs]

local\_ip = 20.0.0.2

bridge\_mappings = external:br-ex

[agent]

tunnel\_types = vxlan

vxlan\_udp\_port = 4789

l2\_population = true

arp\_responder = true

enable\_distributed\_routing = true

[securitygroup]

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

10.建立ml2插件配置文件软链

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

11.编辑/etc/sysctl.conf文件添加或修改如下行

net.ipv4.ip\_forward = 1

net.ipv4.conf.all.rp\_filter = 0

net.ipv4.conf.default.rp\_filter = 0

12.重加载内核参数

sysctl -p

13.初始化数据库

su -s /bin/sh -c "neutron-db-manage upgrade kilo" neutron

14.启动并设置开机自启动openvswitch

systemctl start openvswitch

systemctl enable openvswitch

15.建立openvswitch端口

ovs-vsctl add-br br-int

ovs-vsctl add-br br-ex

16.像br-ex添加网卡

ovs-vsctl add-port br-ex eth3

17.启动并设置开机自启动neutron服务

systemctl start neutron-server

systemctl start neutron-dhcp-agent

systemctl startneutron-openvswitch-agent

systemctl start neutron-l3-agent

systemctl start neutron-ovs-cleanup

systemctl start neutron-netns-cleanup

systemctl enable neutron-server

systemctl enable neutron-dhcp-agent

systemctl enableneutron-openvswitch-agent

systemctl enable neutron-l3-agent

systemctl enable neutron-ovs-cleanup

systemctl enable neutron-netns-cleanup

18.添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 9696 -j ACCEPT

iptables-save > /etc/sysconfig/iptables

19.建立内网，外网，路由及绑定子网和接口到路由器

source /root/admin-openrc

neutron net-create --shared--provider:network\_type vxlan internal-network

neutron subnet-create internal-network100.100.100.0/24 --name internal-network-subnet --gateway 100.100.100.1--allocation-pool start=100.100.100.10,end=100.100.100.200 --enable-dhcp--ip-version 4 --dns-nameserver 202.106.0.20

neutronnet-create ext-net --shared --router:external --provider:network\_type flat--provider:physical\_network external

neutronsubnet-create ext-net 200.200.200.0/24 --name ext-network-subnet --gateway200.200.200.1 --allocation-pool start=200.200.200.10,end=200.200.200.200--disable-dhcp --ip-version 4 --dns-nameserver 202.106.0.20

neutronrouter-create router

neutronrouter-interface-add router internal-network-subnet

neutronrouter-gateway-set router ext-net

**Nova服务安装**

1. 安装Nova

yum install -yopenstack-nova-api openstack-nova-conductor openstack-nova-consoleopenstack-nova-novncproxy openstack-nova-scheduler

2. 建立user,role,service,endpoint

keystone user-create --name nova --passnova

keystone user-role-add --user nova--tenant service --role admin

keystone service-create --name nova--type compute --description "OpenStack Compute Service"

keystone endpoint-create --service-id$(keystone service-list | awk '/ compute / {print $2}') --publicurlhttp://10.0.0.2:8774/v2/%\(tenant\_id\)s --internalurl http://10.0.0.2:8774/v2/%\(tenant\_id\)s--adminurl http://10.0.0.2:8774/v2/%\(tenant\_id\) --region regionOne

3. 建立数据库及数据库用户

mysql -uroot -popenstack -e 'create databasenova'

mysql -uroot -popenstack -e 'grant allon nova.\* to "nova"@"%" identified by "nova"'

4. 编辑/etc/nova/nova.conf文件添加或修改如下行

[DEFAULT]

my\_ip = 10.0.0.2

host = Kilo-con

pybasedir =/usr/lib/python2.7/site-packages

bindir = /usr/bin

enabled\_apis = osapi\_compute

tempdir = $state\_path/tmp

record = true

daemon = true

web = /usr/share/novnc

[api\_database]

connection =mysql://nova:nova@10.0.0.2/nova

[database]

connection =mysql://nova:nova@10.0.0.2/nova

use\_db\_reconnect = true

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000/

auth\_host = 10.0.0.2

identity\_uri = http://10.0.0.2:35357/

admin\_user = nova

admin\_password = nova

admin\_tenant\_name = service

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

5. 初始化数据库

su -s /bin/sh -c "nova-manage db sync" nova

6. 启动并设置开机自启动

systemctl start openstack-nova-api

systemctl startopenstack-nova-conductor

systemctl startopenstack-nova-scheduler

systemctl start openstack-nova-consoleauth

systemctl startopenstack-nova-novncproxy

systemctl enable openstack-nova-api

systemctl enableopenstack-nova-conductor

systemctl enableopenstack-nova-scheduler

systemctl enableopenstack-nova-consoleauth

systemctl enable openstack-nova-novncproxy

7. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 8774 -j ACCEPT

iptables-save >/etc/sysconfig/iptables

**Cinder服务安装**

1. 安装Cinder

yum install -y openstack-cinder

2. 建立user,role,service,endpoint

keystone user-create --name cinder--pass cinder

keystone user-role-add --user cinder--tenant service --role admin

keystone service-create --name cinder--type volume --description "OpenStack Block Storage Service"

keystone service-create --name cinderv2--type volumev2 --description "OpenStack Block Storage Service"

keystone endpoint-create --service-id$(keystone service-list | awk '/ volume / {print $2}') --publicurlhttp://10.0.0.2:8776/v1/%\(tenant\_id\)s--internalurl http://10.0.0.2:8776/v1/%\(tenant\_id\)s --adminurlhttp://10.0.0.2:8776/v1/%\(tenant\_id\)s --region regionOne

keystone endpoint-create --service-id$(keystone service-list | awk '/ volumev2 / {print $2}') --publicurlhttp://10.0.0.2:8776/v2/%\(tenant\_id\)s --internalurlhttp://10.0.0.2:8776/v2/%\(tenant\_id\)s --adminurlhttp://10.0.0.2:8776/v2/%\(tenant\_id\)s --region regionOne

3. 建立数据库及数据库用户

mysql -uroot -popenstack -e 'createdatabase cinder'

mysql -uroot -popenstack -e 'grant allon cinder.\* to "cinder"@"%" identified by "cinder"'

4. 编辑/etc/cinder/cinder.conf文件添加或修改如下行

[DEFAULT]

my\_ip = 10.0.0.2

host = Kilo-con

auth\_strategy = keystone

enabled\_backends = ssd-volume

backup\_ceph\_user = storages

backup\_ceph\_pool = storages

backup\_driver = cinder.backup.drivers.ceph

nova\_endpoint\_template = http://10.0.0.2:8774/v2/%(project\_id)s

nova\_endpoint\_admin\_template = http://10.0.0.2:8774/v2/%(project\_id)s

os\_region\_name = regionOne

[database]

connection =mysql://cinder:cinder@10.0.0.2/cinder

use\_db\_reconnect = true

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000/

auth\_version = v2.0

auth\_host = 10.0.0.2

identity\_uri = http://10.0.0.2:35357/

admin\_user = cinder

admin\_password = cinder

admin\_tenant\_name = service

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

[ssd-volume]

volume\_driver = cinder.volume.drivers.rbd.RBDDriver

rbd\_pool = storages

volume\_backend\_name = ssd-volume

rbd\_user = storages

rbd\_ceph\_conf = /etc/ceph/ceph.conf

rbd\_secret\_uuid = Ceph配置第九步值或通过virshsecret-list查看

rados\_connect\_timeout = -1

5. 初始化数据库

su -s /bin/sh -c "cinder-manage db sync" cinder

注：这里会报给WARNING的错误，官方正在修，https://bugs.launchpad.net/cinder/+bug/1431374

6. 启动并设置开机自启动

systemctl start openstack-cinder-api

systemctl startopenstack-cinder-scheduler

systemctl start openstack-cinder-volume

systemctl start openstack-cinder-backup

systemctl enable openstack-cinder-api

systemctl enableopenstack-cinder-scheduler

systemctl enableopenstack-cinder-volume

systemctl enableopenstack-cinder-backup

7. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 8776 -j ACCEPT

iptables-save > /etc/sysconfig/iptables

8. 建立卷类型

cinder type-create ssd-volume

9. 定义卷类型关键字

cinder type-key ssd-volume set volume\_backend\_name=ssd-volume

**计算节点安装**

Ceph配置

1. 安装ceph-common

yum install -y ceph-common

2. 拷贝配置文件和管理员凭证到本机

scp /etc/ceph/ceph.client.admin.keyring /etc/ceph/ceph.conf10.0.0.3:/etc/ceph/

3. 导出client.storages凭证

ceph auth get-or-create client.storages >>/etc/ceph/ceph.client.storages.keyring

4. 安装libvirt

yum install -y libvirt

5. 编辑/etc/libvirt/libvirtd.conf文件添加或修改如下行

listen\_tls = 0

listen\_tcp = 1

listen\_addr = "0.0.0.0"

auth\_tcp = "none"

6. 编辑/etc/sysconfig/libvirtd文件添加或修改如下行

LIBVIRTD\_ARGS="--listen"

7. 启动并设置开机自启动

systemctl start libvirtd

systemctl enable libvirtd

8. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m tcp --dport 16509 -j ACCEPT

iptables-save > /etc/sysconfig/iptables

9. 生成libvirt secret使用uuid

uuidgen

10.新建ceph-storages-secrets.xml文件添加如下内容

<secret ephemeral='no' private='no'>

<uuid>第九步生成值</uuid>

<usage type='ceph'>

<name>client.storages secret</name>

</usage>

</secret>

11.建立secret

virsh secret-define ceph-storages-secrets.xml

12.设置libvirt secret值

virsh secret-set-value --secret第九步生成值 --base64 $(ceph auth get-keyclient.storages)

Neutron服务安装

1. 安装Neutron

yum install -y openstack-neutron openstack-neutron-ml2openstack-neutron-openvswitch

2. 编辑/etc/neutron/neutron.conf文件添加或修改如下行

[DEFAULT]

router\_distributed = true

use\_stderr = false

log\_dir = /var/log/neutron

core\_plugin = ml2

service\_plugins = router

auth\_strategy = keystone

host = Kilo-com-1

allow\_overlapping\_ips = true

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

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

nova\_url = http://10.0.0.2:8774/v2

nova\_region\_name = regionOne

nova\_admin\_username = nova

nova\_admin\_tenant\_name = service

nova\_admin\_password = nova

nova\_admin\_auth\_url = http://10.0.0.2:35357/v2.0

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

[agent]

root\_helper = sudo neutron-rootwrap/etc/neutron/rootwrap.conf

[keystone\_authtoken]

auth\_uri = http://10.0.0.2:5000

identity\_uri = http://10.0.0.2:35357

admin\_tenant\_name = service

admin\_user = neutron

admin\_password = neutron

[database]

connection =mysql://neutron:neutron@10.0.0.2/neutron

use\_db\_reconnect = true

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

3. 编辑/etc/neutron/l3\_agent.ini文件添加或修改如下行

[DEFAULT]

interface\_driver =neutron.agent.linux.interface.OVSInterfaceDriver

handle\_internal\_only\_routers = false

enable\_metadata\_proxy = false

agent\_mode = dvr

4. 编辑/etc/neutron/plugins/ml2/ml2\_conf.ini文件添加或修改如下行

[ml2]

type\_drivers = flat,vxlan

tenant\_network\_types = vxlan

mechanism\_drivers = openvswitch,l2population

[ml2\_type\_vxlan]

vni\_ranges = 1000:5000

5. 编辑/etc/neutron/plugins/openvswitch/ovs\_neutron\_plugin.ini文件添加或修改如下行

[ovs]

local\_ip = 20.0.0.3

bridge\_mappings = external:br-ex

[agent]

tunnel\_types = vxlan

vxlan\_udp\_port = 4789

l2\_population = true

arp\_responder = true

enable\_distributed\_routing = true

[securitygroup]

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

6. 编辑/etc/sysctl.conf文件添加或修改如下行

net.ipv4.ip\_forward = 1

net.ipv4.conf.all.rp\_filter = 0

net.ipv4.conf.default.rp\_filter = 0

7. 重加载内核参数

sysctl -p

8. 启动并设置开机自启动openvswitch

systemctl start openvswitch

systemctl enable openvswitch

9. 建立openvswitch端口

ovs-vsctl add-br br-int

ovs-vsctl add-br br-ex

10.像br-ex添加网卡

ovs-vsctl add-port br-ex eth3

11.启动并设置开机自启动neutron服务

systemctl startneutron-openvswitch-agent

systemctl start neutron-l3-agent

systemctl start neutron-ovs-cleanup

systemctl start neutron-netns-cleanup

systemctl enableneutron-openvswitch-agent

systemctl enable neutron-l3-agent

systemctl enable neutron-ovs-cleanup

systemctl enable neutron-netns-cleanup

Nova服务安装

1. 安装Nova

yum install -yopenstack-nova-compute

2. 编辑/etc/nova/nova.conf文件添加或修改如下行

[DEFAULT]

my\_ip = 10.0.0.3

host = Kilo-com-1

pybasedir =/usr/lib/python2.7/site-packages

bindir = /usr/bin

tempdir = $state\_path/tmp

network\_api\_class ＝ nova.network.neutronv2.api.API

linuxnet\_interface\_driver =nova.network.linux\_net.LinuxOVSInterfaceDriver

security\_group\_api = neutron

use\_cow\_images = false

firewall\_driver =nova.virt.firewall.NoopFirewallDriver

novncproxy\_base\_url = http://10.0.0.2:6080/vnc\_auto.html

vncserver\_listen = 10.0.0.3

vncserver\_proxyclient\_address =10.0.0.3

[cinder]

endpoint\_template = http://10.0.0.2:8776/v2/%(project\_id)s

[glance]

host = 10.0.0.2

[libvirt]

inject\_password = true

inject\_key = true

inject\_partition = -1

cpu\_mode = host-passthrough

images\_type = rbd

images\_rbd\_pool = storages

images\_rbd\_ceph\_conf = /etc/ceph/ceph.conf

rbd\_user = storages

rbd\_secret\_uuid = e69a4552-89af-422e-be4a-c912ce55d81b

[neutron]

url = http://10.0.0.2:9696

admin\_username = neutron

admin\_password = neutron

admin\_tenant\_name = service

region\_name = regionOne

admin\_auth\_url = http://10.0.0.2:35357/v2.0

[oslo\_messaging\_rabbit]

rabbit\_host = 10.0.0.2

rabbit\_password = openstack

3. 启动并设置开机自启动

systemctl start openstack-nova-compute

systemctl enable openstack-nova-compute

4. 添加防火墙规则

iptables -I INPUT 2 -s 10.0.0.0/24 -ptcp -m multiport --dports 5900:6900 -j ACCEPT

iptables-save >/etc/sysconfig/iptables

**Horizon安装**

1. 安装Horizon

yum install -y openstack-dashboard

2. 编辑/etc/openstack-dashboard/local\_settings文件修改或添加如下行

ALLOWED\_HOSTS = ['\*',]

OPENSTACK\_HOST = "10.0.0.2"

3. 启动并设置开机自启动

systemctl start httpd

systemctl enable httpd

4. 添加防火墙规则

iptables -I INPUT 2 -p tcp -m tcp--dport 80 -j ACCEPT

iptables-save > /etc/sysconfig/iptables