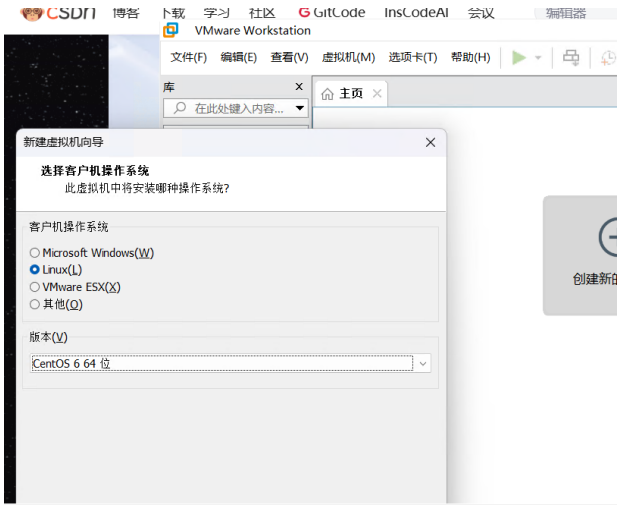
Openstack 安装与部署

李凯涛_2023327100056

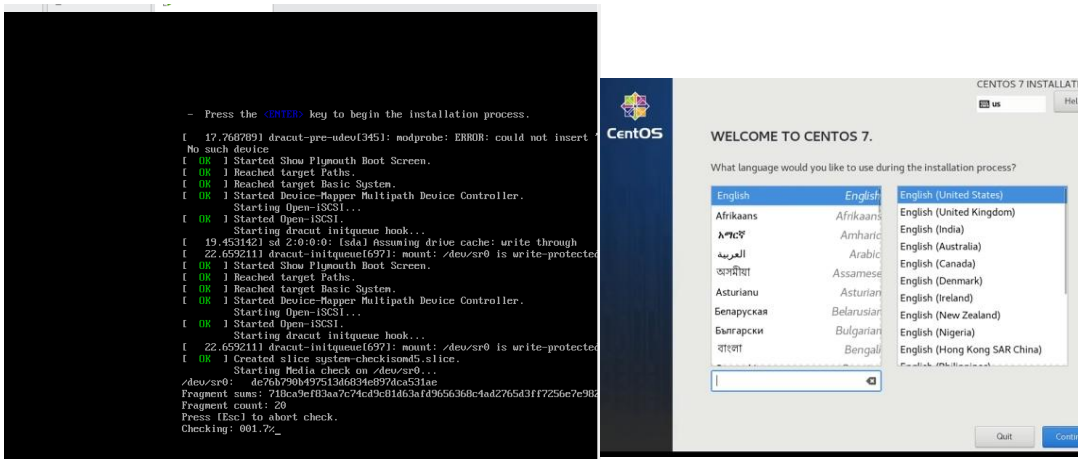
完成流程

配置环境

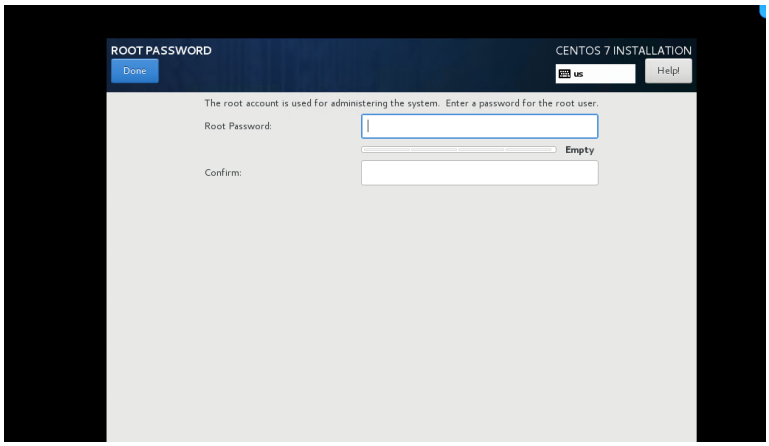


配置两张网卡进行使用

安装 ceso7 镜像



设置镜像密码：2025ces

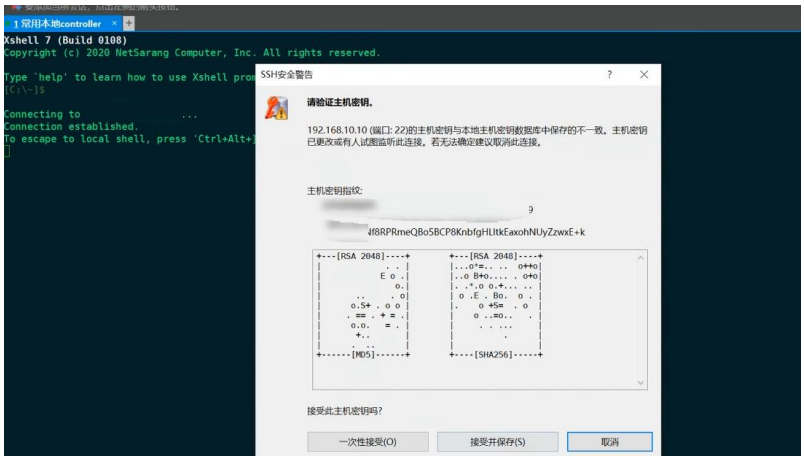


配置第 1 块网卡

#vi /etc/sysconfig/netwprk-script/ifcfg-ens33

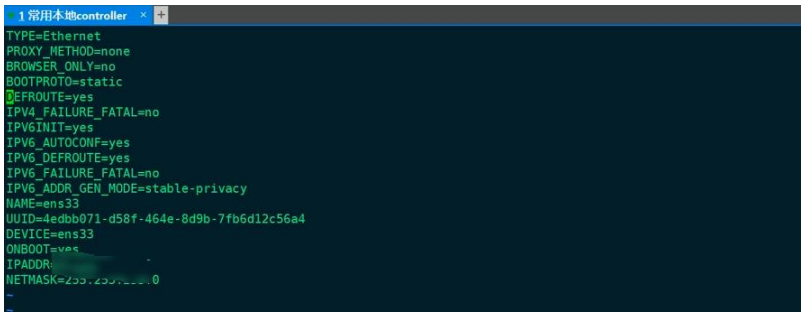
```
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=static
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens33
```

在 Xhell 上可以查看到我们已经成功连接



按照第一次方法再配置第 2 块网卡

#vi /etc/sysconfig/netwprk-script/ifcfg-ens34



之后关闭防火墙 两个节点都要做

systemctl stop firewalld 关闭防火墙

systemctl disable firewalld 设置防火墙开机不自启

Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.

Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.

setenforce 0 强制关闭 selinux 防火墙

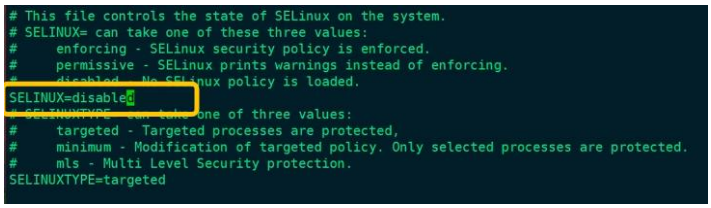
getenforce 查看 selinux 防火墙的状态

Permissive 修改为 disabled

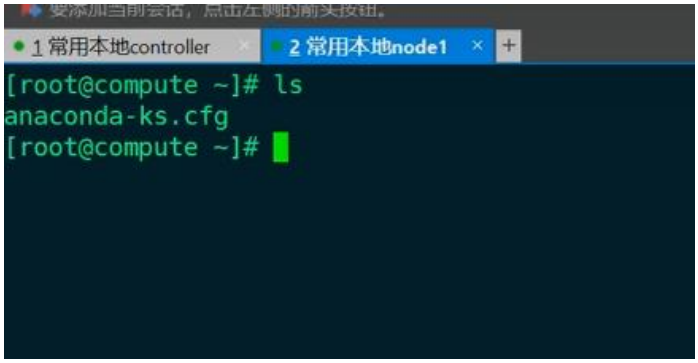
vi /etc/selinux/config

vi /etc/hosts

rm -rf /etc/yum.repos.d/



克隆一台新虚拟机，有两台新的机子



进行些样云配置

[centos]

name=centos

enabled=1

gpgcheck=0

baseurl=file:///opt/centos

[iaas]

name=iaas

enabled=1

gpgcheck=0

baseurl=file://opt/iaas/iaas-repo

创建一个 centos 与 iaas 的文件夹

mkdir /opt/centos

mkdir /opt/iaas

准备进行 yum 源文件处理并之后跟上一步一样配置样云

vi /etc/yum.repos.d/Cent^C

rm-rf/etc/yum.repos.d/*

vi/etc/yum.repos.d/ftp.repo

```
[root@compute ~]# ls
anaconda-ks.cfg
[root@compute ~]# ls
anaconda-ks.cfg  CentOS-7-x86_64-DVD-2009.iso  chinaskills_cloud_iaas_v2.0.1.iso
[root@compute ~]# vi /etc/yum.repos.d/Cent^C
[root@compute ~]# rm -rf /etc/yum.repos.d/*
[root@compute ~]# vi /etc/yum.repos.d/ftp.repo
```

挂载镜像并考到 opt 的 centos 下

Mount CentOS-7-x86_64-DVD-2009.iso^C

Mount -o loop CentOS-7-x86_64-DVD-2009.iso/mnt/

```
root@controller ~]# ls
naconda-ks.cfg  CentOS-7-x86_64-DVD-2009.iso  chinaskills_cloud_iaas_v2.0.1.iso
root@controller ~]# mount CentOS-7-x86_64-DVD-2009.iso^C
root@controller ~]# mount -o loop CentOS-7-x86_64-DVD-2009.iso /mnt/
ount: /dev/loop0 is write-protected, mounting read-only
root@controller ~]# cp -rvf /mnt/* /opt/centos/
```

输出效果

```
/mnt/repodata' -> '/opt/centos/repodata'
/mnt/repodata/0e82d111931e402316702696ae4178e65673dc0f9c23a2bb012d192cb2625ea1-primary.sql
5702696ae4178e65673dc0f9c23a2bb012d192cb2625ea1-primary.sqlite.bz2'
/mnt/repodata/4a1c8221285db1b9d5361d4567baa883e60ee29c32d8d0a1b7777d7d7761664d-filelists.x
61d4567baa883e60ee29c32d8d0a1b7777d7d7761664d-filelists.xml.gz'
/mnt/repodata/60aa4673bf5fa63d1a7a640ef407b8e48fe5b3337720d844a29a53fec130d6da-filelists.s
d1a7a640ef407b8e48fe5b3337720d844a29a53fec130d6da-filelists.sqlite.bz2'
/mnt/repodata/9d6292fa12fd9ca472fafa8c0b348c3e1f139681aa066d41dc53b3563bcd1f53-other.sqlit
fa8c0b348c3e1f139681aa066d41dc53b3563bcd1f53-other.sqlite.bz2'
/mnt/repodata/a4e2b46586aa556c3b6f814dad5b16db5a669984d66b68e873586cd7c7253301-c7-x86_64-c
66c3b6f814dad5b16db5a669984d66b68e873586cd7c7253301-c7-x86_64-comps.xml.gz'
/mnt/repodata/a532e7a8702a10ffb880fe381f35662cfbde9014e85ea32cba19da7677f6aca3-primary.xml
381f35662cfbde9014e85ea32cba19da7677f6aca3-primary.xml.gz'
/mnt/repodata/b157d8b012febabf1c72d579b5155b8519a362a64bbd37c40acb22b6cc544ccf-other.xml.g
b5155b8519a362a64bbd37c40acb22b6cc544ccf-other.xml.gz'
/mnt/repodata/cca56f3cffa18f1e52302dbfcf2f0250a94c8a37acd8347ed6317cb52c8369dc-c7-x86_64-c
2302dbfcf2f0250a94c8a37acd8347ed6317cb52c8369dc-c7-x86_64-comps.xml'
/mnt/repodata/repomd.xml' -> '/opt/centos/repodata/repomd.xml'
/mnt/repodata/repomd.xml.asc' -> '/opt/centos/repodata/repomd.xml.asc'
/mnt/repodata/TRANS.TBL' -> '/opt/centos/repodata/TRANS.TBL'
/mnt/RPM-GPG-KEY-CentOS-7' -> '/opt/centos/RPM-GPG-KEY-CentOS-7'
```

之后解除挂载,并把新的镜像挂载到 mnt 下

umount /mnt/

mount -o loop chinaskills_cloud_iaas_v2.0.1.iso/mnt/

cp -rvf /mnt/* /opt/iaas/

运行效果

之后再解除刚才的挂载

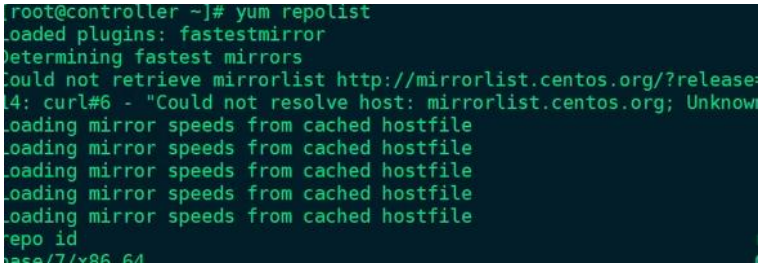
Umount /mnt/

rm -rf CentOS-7-x86_64-DVD-2009.iso

rm -rf chinaskills_cloud_iaas_v2.0.1.iso

ls

之后 yum repolist



完成 yum 源

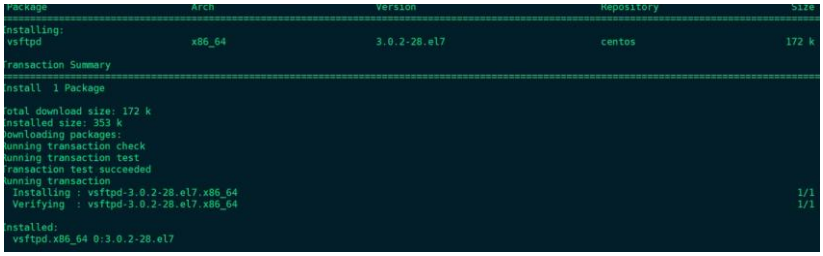
rm -rf /etc/yum.repos.d/C*

YUM R^C

yum repolist

下载新的安装包

yum install -y vim vsftpd iaas-xiandian



配置 vsftpd 服务

vi /etc/vsftpd/vsftpd.conf

添加 anon_root=/opt/

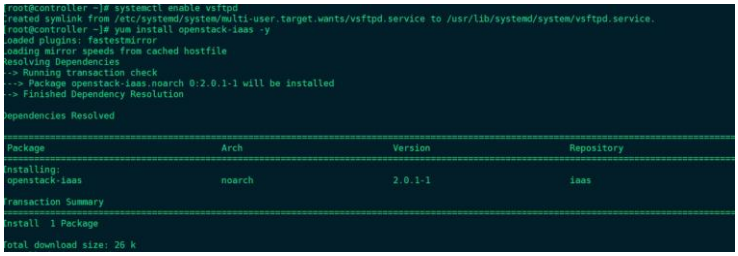
开启 vsftpd 并自启动

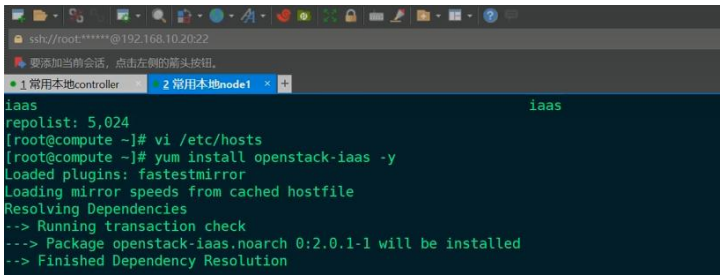
systemctl restart vsftpd

systemctl enable vsftpd

下载新的软件包并在两台机子都执行

Yum install openstack-iaas-y





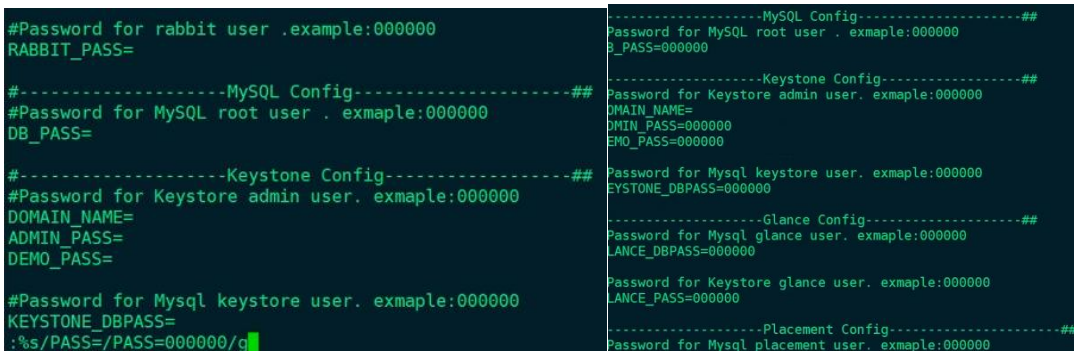
输入下面指令修改脚本，修改相应的 HOST_IP 与 HOST_PASS

vi /etc/openstack/openrc.sh

并在最低行把密码修改为 00000

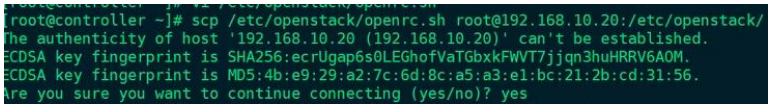
KEYSTONE DBPASS=

:%s/PASS=/PASS=000000/g

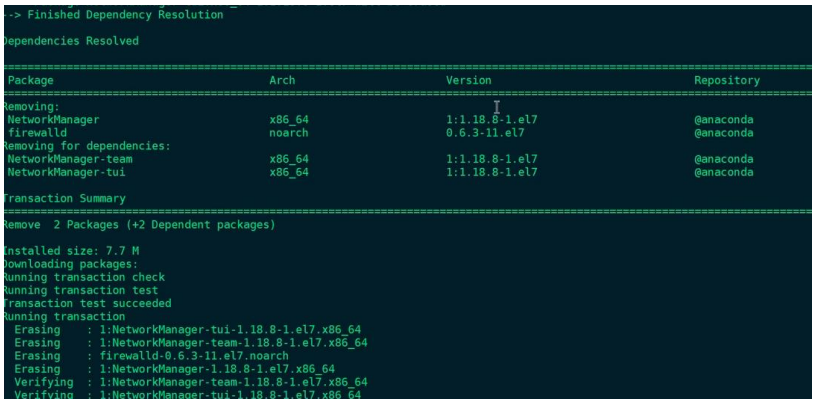


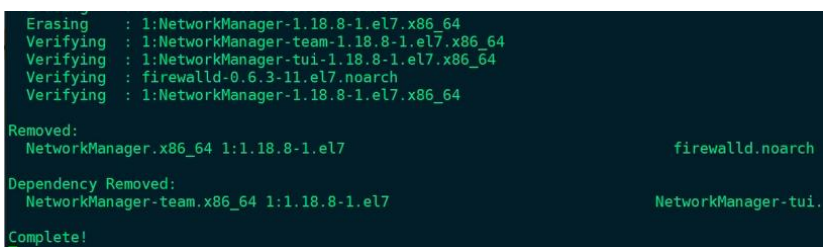
修改完脚本之后，把 openrc.shroot 脚本文件传到 20 节点

scp /etc/openstack/openrc.shroot@192.168.10.20:/etc/openstack/



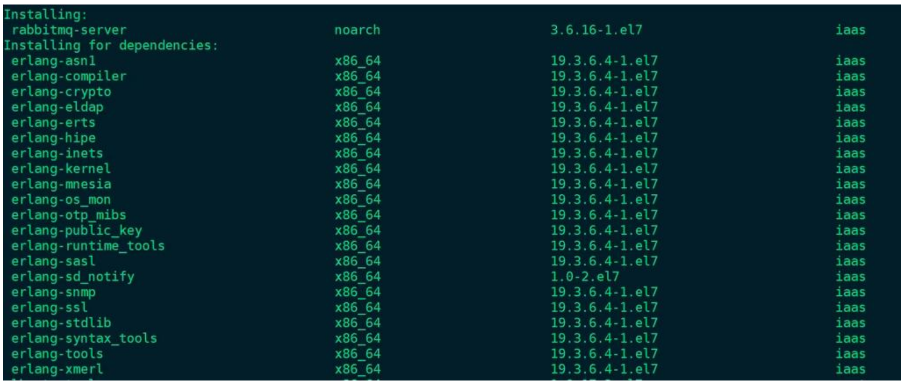
之后在两台机子都执行 iaas-pre-host.sh 完成初始化





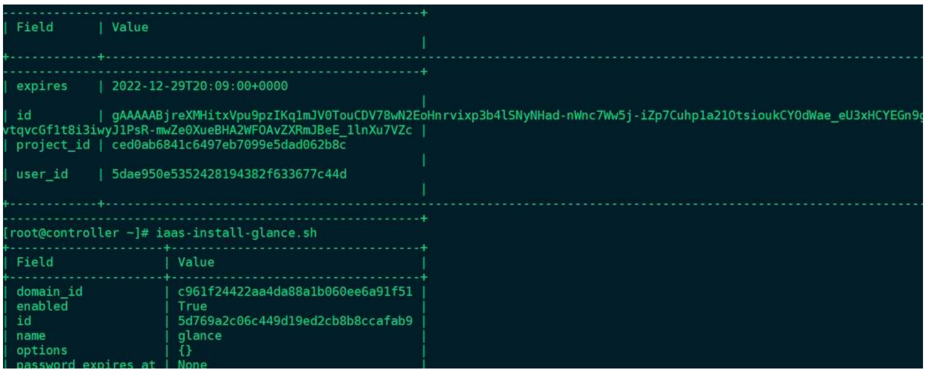
之后需要完成初始化并安装相应数据库

在一台机子执行 iaas-install-mysql.sh



另一条机子执行 iaas-install-keystone.sh

再跑新的脚本 iaas-install-glance.sh



再之前那台机子执行 iaas-install-placement.sh 脚本

```
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Upgraded database to: train_contract01, current revision(s): train_contract01
INFO  [alembic.runtime.migration] Context impl MySQLImpl.
INFO  [alembic.runtime.migration] Will assume non-transactional DDL.
Database is synced successfully.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-api
service.
Created symlink from /etc/systemd/system/multi-user.target.wants/openstack-glance-reg
-registry.service.
[root@controller ~]# iaas-install-placement.sh
```

在跑完刚才脚本的基础后，需要 下载核心主件 nova

iaas-install-nova-controller.sh

```
Dependency Installed:
  openstack-placement-common.noarch 0:2.0.0-1.el7                    python2-microversion-par
  python2-os-resource-classes.noarch 0:0.5.0-1.el7                   python2-os-traits.noarch
  python2-placement.noarch 0:2.0.0-1.el7

Complete!
/usr/lib/python2.7/site-packages/pymysql/cursors.py:170: Warning: (1280, u"Name 'alembic_version_
  result = self._query(query)
[root@controller ~]# iaas-install-nova-controller.sh
```

之后在这台机子跑 iaas-install-neutron-compute.sh

在另一台机子跑从节点脚本 iaas-install-nova-compute.sh

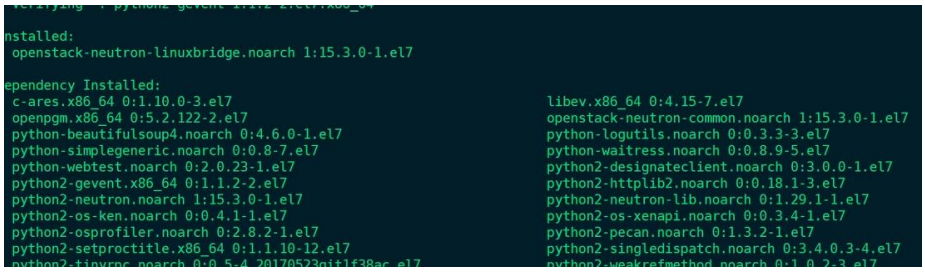
```
--> Package libnfsidmap.x86_64 0:0.25-19.el7 will be installed
--> Package libsodium.x86_64 0:1.0.18-2.el7 will be installed
--> Package libxml2-python.x86_64 0:2.9.1-6.el7.5 will be installed
--> Package python-dns.noarch 0:1.15.0-5.el7 will be installed
-> Processing Dependency: python-crypto for package: python-dns-1.15.0-5.el7.noarch
--> Package python-kazoo.noarch 0:2.2.1-1.el7 will be installed
--> Package python-kitchen.noarch 0:1.1.1-5.el7 will be installed
--> Package python-openvswitch.x86_64 1:2.12.0-1.el7 will be installed
-> Processing Dependency: libopenvswitch-2.12.so.0(libopenvswitch_0)(64bit) for package: 1:python-openvswitch-2.12.0
-> Processing Dependency: libopenvswitch-2.12.so.0()(64bit) for package: 1:python-openvswitch-2.12.0-1.el7.x86_64
--> Package python-pycadf-common.noarch 0:2.10.0-2.el7 will be installed
--> Package python2-matplotlib.x86_64 0:2.0.0-3.el7 will be installed
-> Processing Dependency: python2-matplotlib-tk(x86-64) = 2.0.0-3.el7 for package: python2-matplotlib-2.0.0-3.el7.x8
-> Processing Dependency: python-matplotlib-data = 2.0.0-3.el7 for package: python2-matplotlib-2.0.0-3.el7.x86_64
-> Processing Dependency: python2-cycler >= 0.10.0 for package: python2-matplotlib-2.0.0-3.el7.x86_64
-> Processing Dependency: python2-functools32 for package: python2-matplotlib-2.0.0-3.el7.x86_64
-> Processing Dependency: dvipng for package: python2-matplotlib-2.0.0-3.el7.x86_64
```

之后在跑完 neutron-compute 脚本的机子，跑图形化界面脚本 iaas-install-dashboard.sh

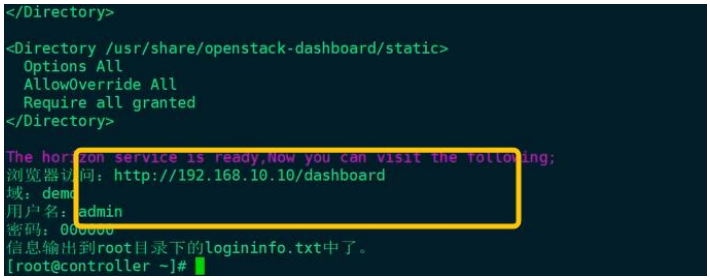
```
nstall  1 Package (+70 Dependent packages)

otal download size: 26 M
nstalled size: 115 M
ownloading packages:
otal                                                                    517 MB/s |  26 MB  00:00:00
unning transaction check
unning transaction test
ransaction test succeeded
unning transaction
  Installing : python2-XStatic-1.0.1-8.el7.noarch
  Installing : web-assets-filesystem-5-1.el7.noarch
  Installing : python2-scss-1.3.4-6.el7.x86_64
  Installing : python-XStatic-Angular-lrdragndrop-1.0.2.2-2.el7.noarch
  Installing : xstatic-angular-gettext-common-2.3.8.0-1.el7.noarch
  Installing : python2-XStatic-Angular-Gettext-2.3.8.0-1.el7.noarch
  Installing : xstatic-jasmine-common-2.4.1.1-1.el7.noarch
  Installing : python2-XStatic-Jasmine-2.4.1.1-1.el7.noarch
  Installing : mdi-common-1.4.57.0-4.el7.noarch
  Installing : python-XStatic-Hogan-2.0.0.2-2.el7.noarch
  Installing : xstatic-d3-common-3.5.17.0-1.el7.noarch
  Installing : python2-XStatic-D3-3.5.17.0-1.el7.noarch
  Installing : xstatic-termjs-common-0.0.7.0-1.el7.noarch
```

之后跑从节点脚本 iaas-install-neutron-compute.sh



之后通过复制连接进行访问 openstack 并输入账户与密码



所有基础主件都配置完成

遇到的问题与解决方案

1. 网络配置冲突

问题描述：部署完成后，虚拟机无法获取 IP 地址，ping 不通外部网络。

排查过程:

检查 Neutron 服务状态，发现 L3 agent 反复重启

查看日志发现"OVS bridge already exists"错误

发现之前测试留下的旧网络配置残留

清理残留网络配置

sudo ovs-vsctl del-br br-ex

sudo ovs-vsctl del-br br-int

sudo systemctl restart neutron-server neutron-l3-agent neutron-dhcp-agent

2.计算节点无法加入

问题描述：添加计算节点后，nova-compute 服务无法正常注册。

错误现象:

nova.exception.InvalidConfiguration: No hypervisor found

排查步骤:

1. 验证计算节点虚拟化支持：egrep -c '(vmx|svm)' /proc/cpuinfo

2. 发现是 BIOS 中 VT-x 未启用

解决方案:

进入 BIOS 启用 Intel VT-x/AMD-V

加载 kvm 模块:

```
sudo modprobe kvm
sudo modprobe kvm_intel
```

3. 仪表板访问异常

问题描述：Horizon 仪表板可以登录，但部分页面显示 500 错误。

错误日志：KeyError: 'context_is_admin'

原因分析:

不同组件版本不兼容（Keystone 和 Horizon 版本差异）

缓存数据不一致

```
# 清除缓存并重启服务
sudo rm -rf /var/cache/apache2/*
sudo systemctl restart apache2 memcached
```

总结

环境准备至关重要，部署前的硬件检查（虚拟化支持）、系统清理和资源规划直接影响部署成功率。建议制作标准化的预检清单：CPU 虚拟化支持；内存容量（至少 16GB）；磁盘空间（/var 分区单独分配）；网络拓扑规划。

这次实践让我深刻体会到，OpenStack 这样的复杂系统就像一座精密的钟表，每个齿轮（组件）都必须正确啮合。解决问题的过程虽然耗时，但获得的系统级视角和故障排查能力，是理论学习无法替代的宝贵经验。