OpenStack Installation - 1

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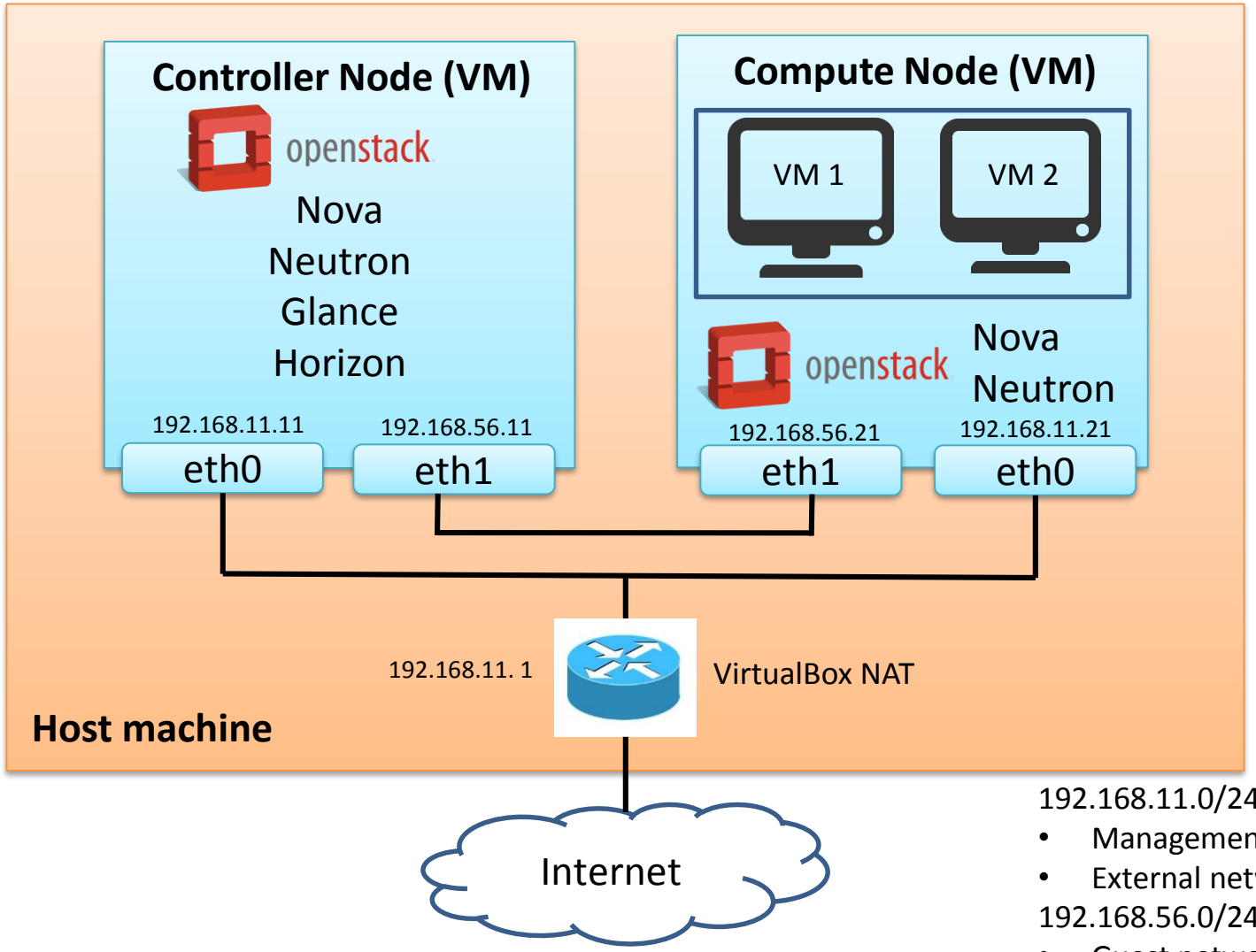
OpenStack Installation

❖ Environment Overview



192.168.11.0/24 Network
- Management/API network
- External network

192.168.56.0/24 Network
- Guest network (VLAN)

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❖ Preparation

- Host machine
  - Computing resources: 12 core, 24 GB memory, 1 TB HDD
  - X11 forwarding support for VirtualBox GUI in Linux
- Linux shell client
  - SSH connection for the host machine and OpenStack VM nodes
  - Windows: Putty (+ Xming), Xshell (+ Xmanager)
  - Mac OS: Xquartz
- VirtualBox
  - At least version 5.x.x should be installed in the host machine
- VM Images
  - CentOS 7.3 (ID: root, PW: stack)
  - Controller node: 2 vCPU, 4 GB memory, 10 GB HDD
  - Compute node: 4 vCPU, 4 GB memory, 10 GB HDD
  - Recommend to allocate more resource for the VMs if possible

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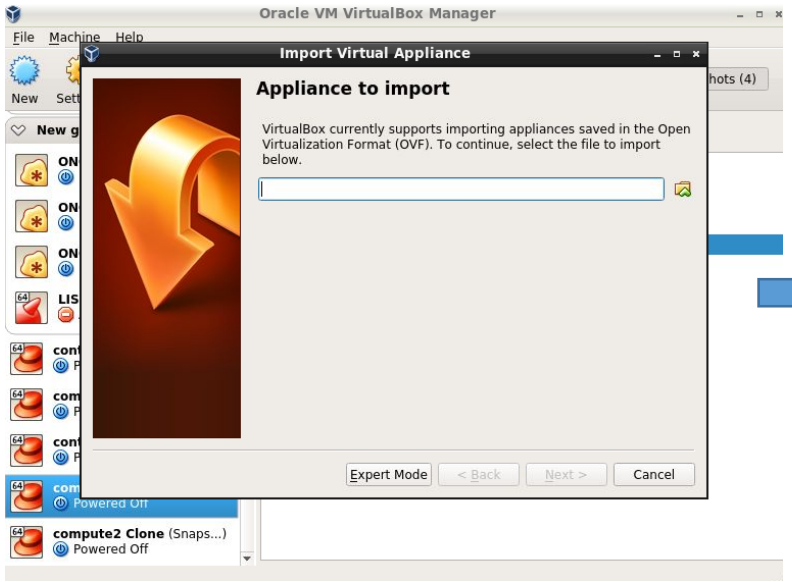
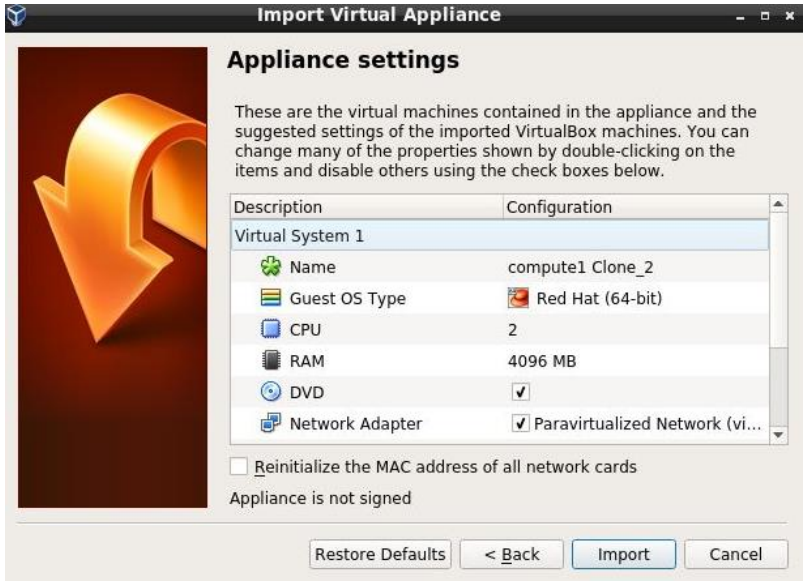
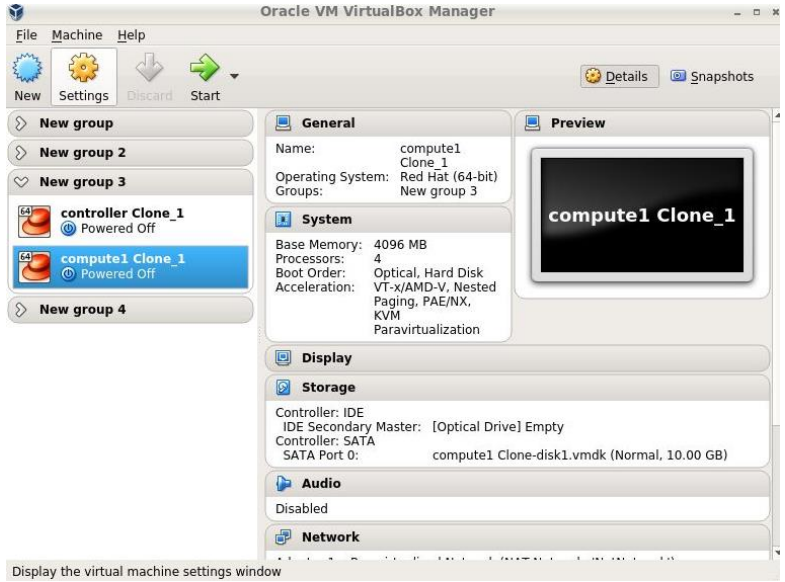
❖ VM Image Import

- File → Import Appliance
- Select the VM images downloaded
- Check “Reinitialize the MAC address of all network cards”







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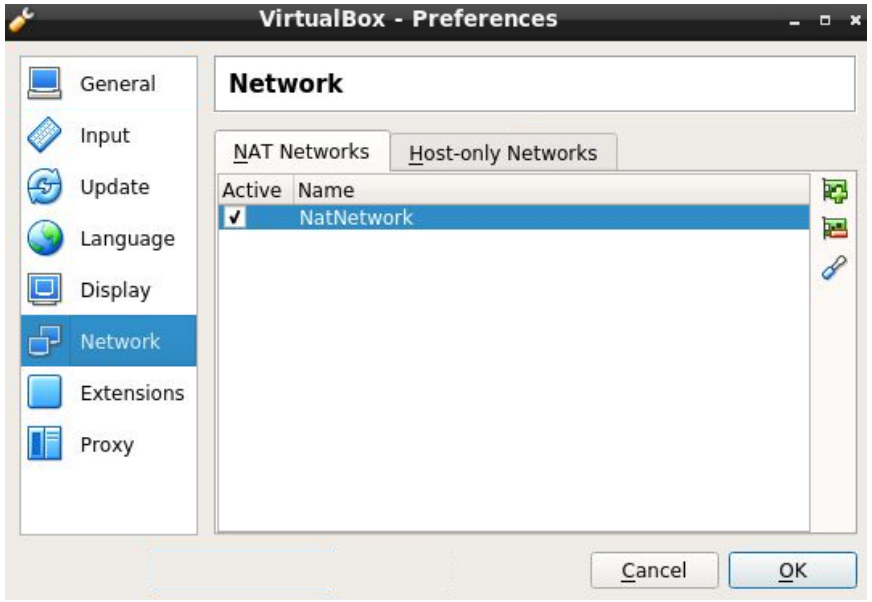
❖ NAT Network Setup

- File→ Preferences → Network → NAT Networks
- Add a new NAT network and edit it
- Uncheck “Supports DHCP”



<NAT Network Creation>

<NAT Network Setup>

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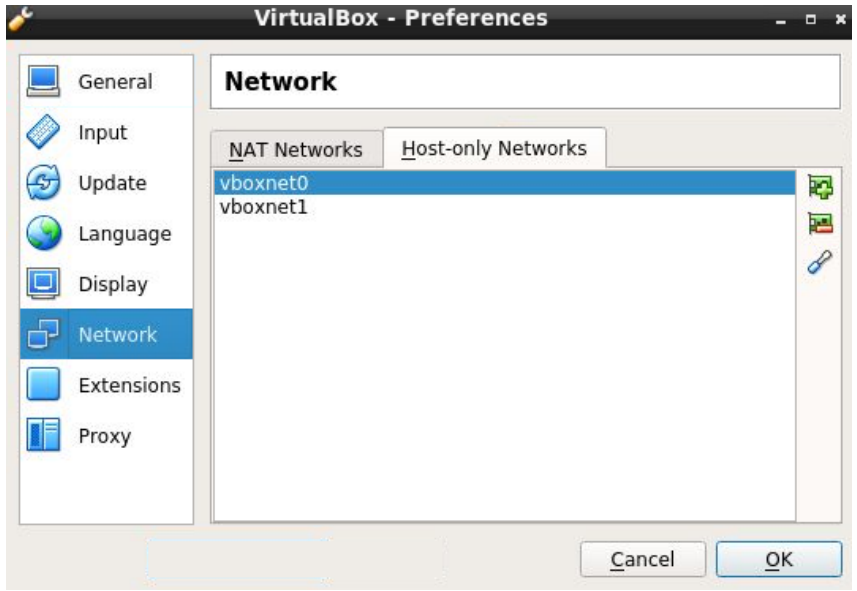
❖ Host-only Networks Setup

- Create two host-only networks
  - vboxnet0 (192.168.56.0/24) → OpenStack tenant network (VLAN)
  - vboxnet1 (10.10.1.0/24) → SSH connection to VMs from the host
- File → Preferences → Network → Host-only Networks
- Edit the selected network
- Disable DHCP server



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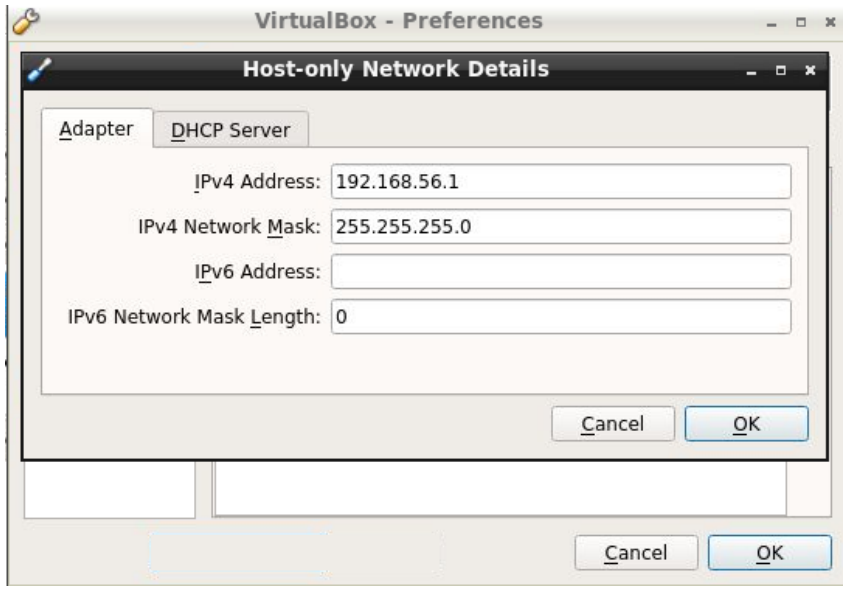

<Host-only Network Setup>

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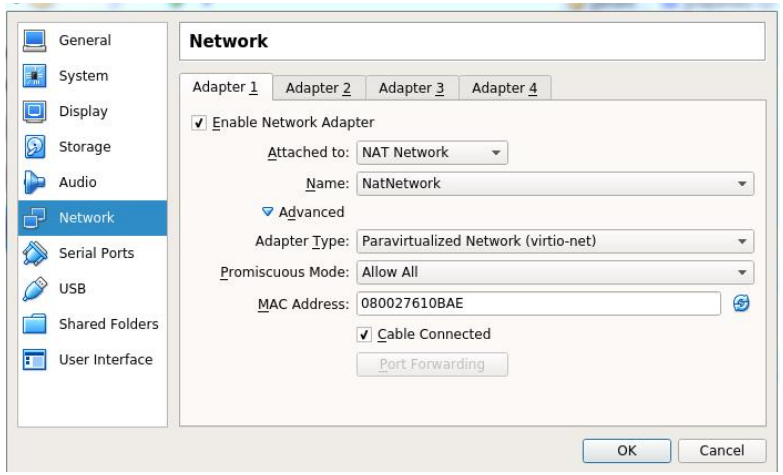
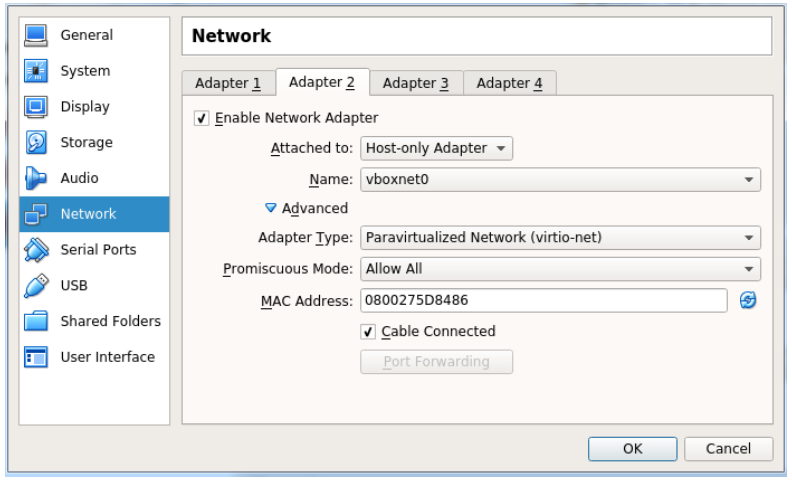
❖ VM Network Settings

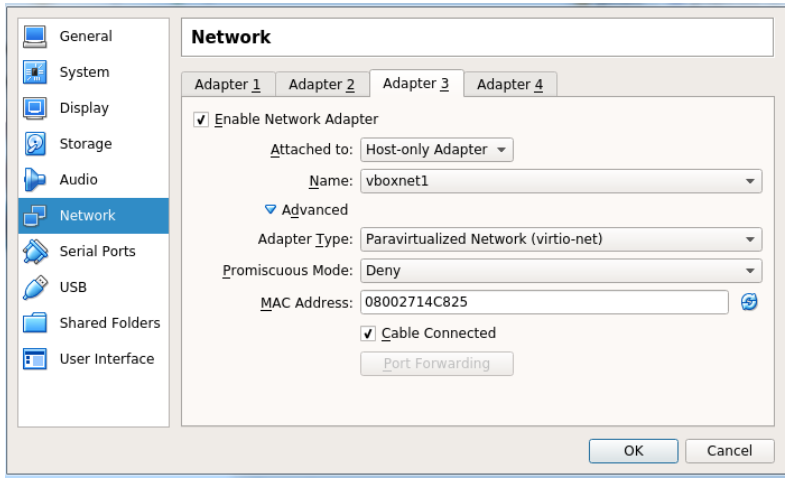
- Machine → Settings → Network
- Check the adapter 1~3 of the given two VMs
  - Adapter 1: NAT Network (192.168.11.0/24), Adatper Type (virtio-net), Promiscuous Mode (Allow All, only for Controller VM)
  - Adapter 2: Host-only Adapter (vboxnet0, 192.168.56.0/24), Adatper Type (virtio-net), Promiscuous Mode (Allow All for both nodes)
  - Adapter 3: Host-only Adapter (vboxnet1, 10.10.1.0/24), Adatper Type (virtio-net)



<Adapter 1>



<Adapter 2>



<Adapter 3>

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❖ Packstack Installation

- Start the two VMs (ID: root, PW: stack)
- Stop NetworkManager, firewalld service and set SELinux to permissive mode

```
## on both nodes

root@both:~$ systemctl disable NetworkManager
root@both:~$ service NetworkManager stop
root@both:~$ systemctl disable firewalld
root@both:~$ service firewalld stop
root@both:~$ setenforce 0
```

- Install Packstack package (only in the Controller VM)
  - Packstack is a utility for auto-deployment of OpenStack across multiple Red Hat servers
  - OpenStack Mitaka was used in this tutorial

```
## on controller node

root@controller:~$ vim /etc/environment
LANG=en_US.utf-8
LC_ALL=en_US.utf-8

root@controller:~$ yum install -y centos-release-openstack-mitaka
root@controller:~$ yum update -y
root@controller:~$ yum install -y openstack-packstack
root@controller:~$ yum install -y openstack-utils
```

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❖ Packstack Answer File

- A configuration file that defines settings of OpenStack components and networks to simplify the installation process

```
## on controller node

root@controller:~$ packstack --gen-answer-file=test_answer_file.txt
root@controller:~$ vim test_answer_file.txt
...
CONFIG_SWIFT_INSTALL=n
CONFIG_CEILOMETER_INSTALL=n
CONFIG_CINDER_INSTALL=n
CONFIG_NAGIOS_INSTALL=n
CONFIG_CONTROLLER_HOST=192.168.11.11
CONFIG_COMPUTE_HOSTS=192.168.11.21
CONFIG_NETWORK_HOSTS=192.168.11.11
CONFIG_NEUTRON_ML2_TYPE_DRIVERS=flat,vlan
CONFIG_NEUTRON_ML2_TENANT_NETWORK_TYPES=vlan
CONFIG_NEUTRON_ML2_MECHANISM_DRIVERS=openvswitch
CONFIG_NEUTRON_ML2_VLAN_RANGES=physnet1:100:200
CONFIG_NEUTRON_L2_AGENT=openvswitch
CONFIG_NEUTRON_OVS_BRIDGE_MAPPINGS=extnet:br-ex,physnet1:br-vlan
CONFIG_NEUTRON_OVS_BRIDGE_IFACES=br-ex:eth0,br-vlan:eth1
CONFIG_NEUTRON_OVS_BRIDGES_COMPUTE=br-vlan
CONFIG_KEYSTONE_ADMIN_PW=admin
CONFIG_PROVISION_DEMO=n
CONFIG_PROVISION_OVS_BRIDGE=y
...
```

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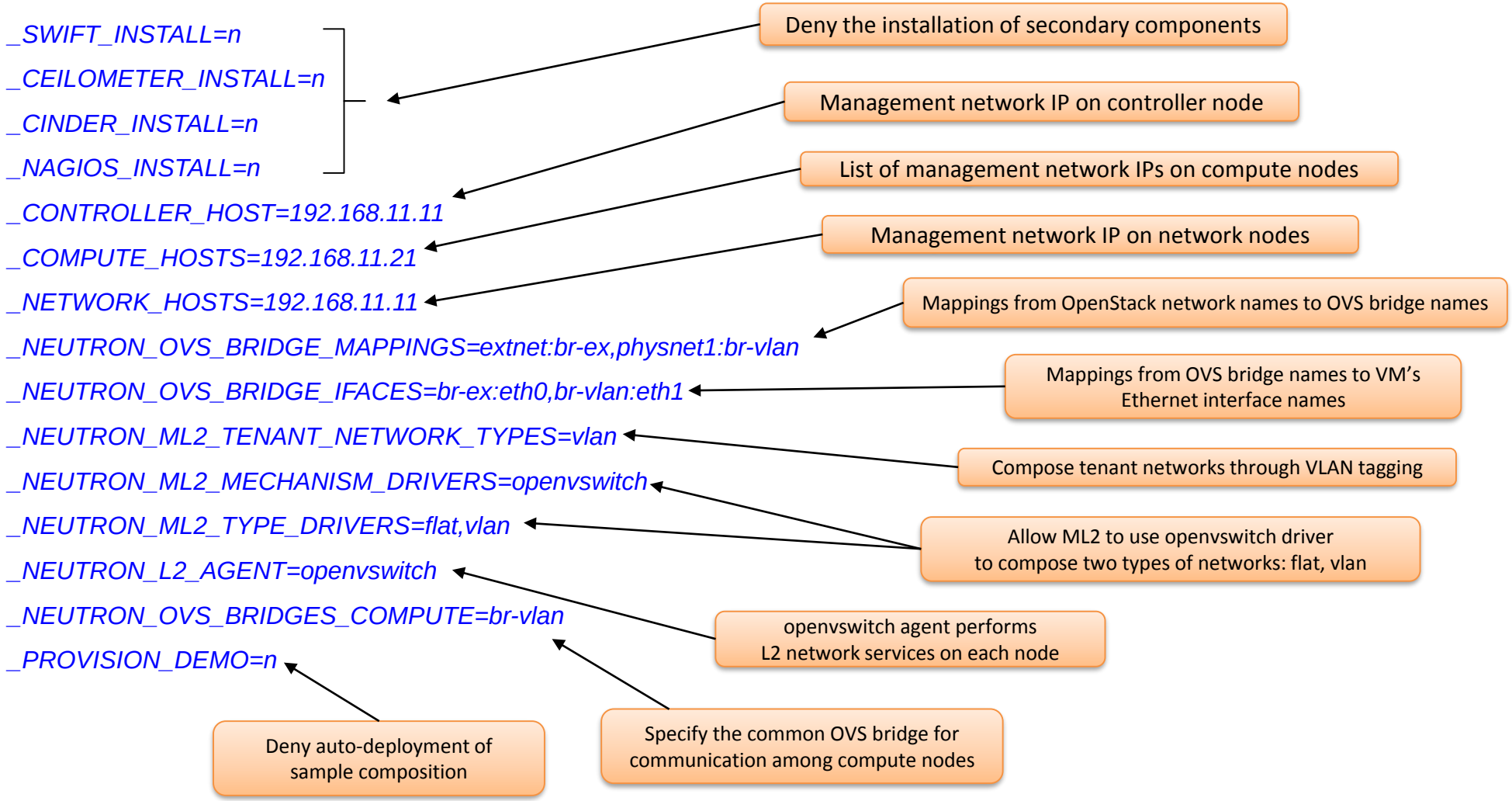
❖ Details on the Answer File Configurations



* Reference: https://github.com/openstack/packstack/blob/master/docs/packstack.rst