

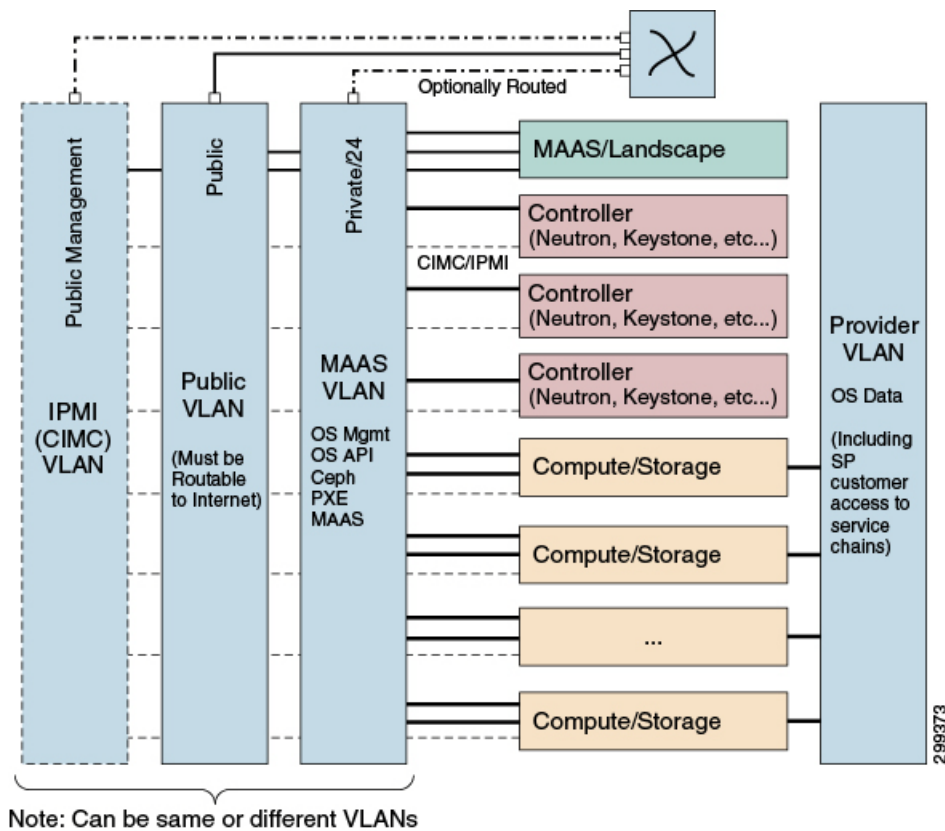


CHAPTER 5

OpenStack Installer

The following network topology must be in place and correct before the installer is executed.

Figure 5-1 Cisco PoD Cloud Installer Network Topology



Supported Deployment Topologies

The following are the variants of how OpenStack Controller services, Nova compute and Ceph storage can be deployed with podcloudinstaller across the physical machines in a VMS generic Pod.

- Minimum 3 nodes—Fully Converged
 - All machines as OpenStack controllers in an HA cluster, compute, and storage

- Minimum 6 nodes—Semi Converged
 - 3 machines as OpenStack controllers in an HA cluster
 - 3 (or more) machines with both storage and compute co-located
- Minimum 9 nodes—Dedicated Roles
 - 3 machines as OpenStack controllers in an HA cluster
 - 3 (or more) machines used for storage
 - 3 (or more) machines used for compute

Installer Preconditions

Before running the POD Cloud Installer, the following pre-conditions in your environment must be met. These conditions should be used as a checklist when setting up the hardware in a POD.

Network Configuration

- MAAS network ports must be in access mode (VLAN tagged on the switch).
- MAAS is acting as a proxy for the other servers to reach the Internet to download packages during the install process. One port on the MAAS Server must be on a network that has a route to the internet (direct or via an upstream HTTP proxy).
- The network should be /24 or larger and set aside for MAAS, with no other devices on the network. MAAS will run DHCP on this network and hand out addresses in this range, so any other device occupying an IP address will collide.
- The IPMI/CIMC network needs to be reachable by MAAS through one of the non-CIMC ports on the MAAS server (e.g., 1G port).

MAAS Server

- Ubuntu 14.04 installed, ssh running.
- NIC—MAAS VLAN w/ static IP defined. Either a single raw statically configured interface or a bridge is supported. A Bridge will be created if it doesn't already exist.
- NIC—CIMC/IPMI VLAN w/ static IP defined. If IPMI is in-band, this is **OPTIONAL**
- >=200G Disk, >=16G RAM, >=4 core

All Openstack Nodes (Compute, Storage or Controller)

- First virtual disk: RAID1 or similar. The operating system will go here.
- NIC—MAAS VLAN, set to **boot first** in BIOS.
- Hardware Clocks need to be set accurately. Note that these are separate from the CIMC clocks.

Storage Node Specific Requirements

- Second (or more) virtual disk(s): RAID0. Ceph will use these. The Ceph disks should be configured as multiple RAID0 volumes, rather than as a large striped RAID0 spanning multiple disks. There must be at least one virtual disk configured in this way per storage node.

Preparing the MAAS Server

The MAAS server is where the Pod cloud installer will be run from. Run these commands for this procedure as a non-root user:

Step 1 Make sure passwordless sudo is enabled.

```
sudo visudo
# Change the line:
%sudo ALL=(ALL:ALL) ALL
# To look like:
%sudo ALL=(ALL:ALL) NOPASSWD: ALL
# Save the file, `visudo` will check it for errors before saving.
```

Step 2 Install the add-apt-repository tool.

```
sudo apt-get install software-properties-common
```

Step 3 Add the juju PPA.

```
sudo add-apt-repository -y ppa:juju/stable
```

Step 4 Add the MAAS PPA.

```
sudo add-apt-repository -y ppa:maas-maintainers/stable
```

Step 5 Add the Cisco-specific Landscape PPA (one long line).

```
sudo add-apt-repository "deb
https://landscape-cisco:p0NSJJ3gNSV8FLRJXr1C@private-ppa.launchpad.net/la
ndscape/lds-cisco-odl-release/ubuntu trusty main"
```

Step 6 Import the GPG key that signs the Landscape PPA (one line).

```
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-key 6E85A86E4652B4E6
```

Step 7 Now refresh the repositories.

```
sudo apt-get update
```

Step 8 Install the Pod installer package, and **exit** your current shell and log back in.

```
sudo apt-get install pod-cloud-installer
exit
```

Step 9 Verify you are a member of the **libvirtd** group.

```
id
# Should see NNN(libvirtd) in the list
```

Customize Your Configuration File

Once your MAAS server is set up, you can proceed with copying the sample configuration and filling out all the fields to match your environment.

```
cd ~
cp /etc/pod-cloud-installer/openstack-sample.cfg deploy.cfg
# Edit the file following the instructions in the file's inline comments.
```

Deploy Your Cloud

You are now ready to deploy the cloud. Run the following command. It will probably take 2 hours or more for the installation to fully complete.

```
pod-cloud-installer -c ~/deploy.cfg --all
```

If an individual phase fails, you may run the whole thing again with the above command, or you may selectively run phases of the installation (all phases listed here, in order, for clarity).

```
pod-cloud-installer -c ~/deploy.cfg --install-maas
pod-cloud-installer -c ~/deploy.cfg --validate-maas
pod-cloud-installer -c ~/deploy.cfg --install-lds
pod-cloud-installer -c ~/deploy.cfg --validate-lds
pod-cloud-installer -c ~/deploy.cfg --install-cloud
pod-cloud-installer -c ~/deploy.cfg --validate-cloud
pod-cloud-installer -c ~/deploy.cfg --report
```

You can run the following command to get detailed help information at anytime:

```
pod-cloud-installer --help
man pod-cloud-installer
```

Adding Hardware

Perform the following procedure to add hardware to an existing installation.

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- Step 1** Run *podcloudinstaller report* to list out URLs for MAAS and Landscape (LDS).
 - Step 2** Power on new hardware.
 - Step 3** In the MAAS Web UI:
 - a. Wait for node(s) to be at **New** status in the MAAS UI.
 - b. 3Rename node(s), then **Commission** from the **Take Action** menu.
 - c. Wait for node(s) to be in **Ready** status.
 - d. Add desired combination of tags: *openstackcompute, penstackstorage*
 - Step 4** In the Landscape Web UI:
 - a. Click **Openstack** along the top.
 - b. Scroll to the bottom.
 - c. Select desired node(s).
 - d. Click **add hardware**.

The new node(s) will be ready a few minutes after the activity finishes.
