Installing Cisco Nexus 1000V for KVM

This chapter contains the following sections:

Steps to Install the Cisco Nexus 1000V for KVM

You can use the following high-level procedure to guide you through the installation process.

Before You Begin

- Decide on a deployment model. See Supported Topologies.
- Make sure that your network, servers, operating system, hypervisor, and MAAS deployment meet the minimum requirements. See System Requirements.
- Gather the required network information for the Juju configuration file (config.yaml file). See Canonical documentation at this URL: http://maas.ubuntu.com/docs/install.html.
- Gather the required network information for the global configuration file. See Preparing the Configuration and Mapping Files.
- Gather any unique network information for the VEMs. See Mapping File Parameters.

Procedure

	Command or Action	Purpose
Step 1	Install and configure MAAS.	See Installing and Configuring MAAS, on page 2.
Step 2	Install and configure Juju.	See Installing and Configuring Juju, on page 3.
Step 3	Install and configure the OpenStack services.	See Installing and Configuring the OpenStack Services, on page 3.
Step 4	Verify that the correct version of the Cisco Nexus Plug-in for OpenStack Neutron was installed.	See Verifying the Cisco Nexus Plug-in for OpenStack Neutron Version, on page 4
Step 5	Install and configure the Cisco Nexus 1000V for KVM.	See Installing and Configuring the Cisco Nexus 1000V for KVM, on page 5.
Step 6	Install and configure the VXLAN Gateway.	(Optional) See Installing and Configuring the VXLAN Gateway Using Juju Charms, on page 5.

Installing and Configuring MAAS

You need to install and configure MAAS. For detailed information about this procedure, see the Canonical documentation at this URL: http://maas.ubuntu.com/docs/install.html.

Procedure

Step 1 Install the following MAAS packages.

- maas
- maas-region-controller
- maas-cluster-controller
- maas-dhcp/maas-dns

Step 2 Set up the initial MAAS configuration:

a) Designate the MAAS server API URL.
b) Create a MAAS admin account.
c) Import the boot images (only necessary during the first time setup).
d) Configure DHCP.
e) Configure the immediate upstream switch to be in STP PortFast mode for fast convergence on ports in the forwarding state.

Installing and Configuring Juju

You need to install and configure Juju. For detailed information about this procedure, see the Canonical documentation at this URL http://juju.ubuntu.com/install.

The following procedure is required to deploy the Cisco Nexus 1000V for KVM.

Procedure

Step 1 Install a stable Juju-core.

Step 2 Synchronize the Juju cloud tool.

Step 3 Configure Juju.

a) Generate the Juju configuration file.

b) Customize the Juju configuration file in MAAS mode.

c) Create a MAAS bootstrap node.

Installing and Configuring the OpenStack Services

You install and configure the OpenStack services using the jujucharm-n1k Debian package that you get either from the Cisco PPA or the Juju Charm store.

For more details about this procedure, see the Canonical documentation at http://juju.ubuntu.com/docs/config-openstack.html.

Before You Begin

Make sure that the virtual machines, physical servers, and/or local containers are set up based on your deployment model.

Make sure that you have defined the correct HTTP proxy as the http_proxy and https_proxy environment variables. The HTTP proxy is used if a firewall blocks web access.

Procedure

Step 1 Enter the following command:
sudo -E add-apt-repository -y `ppa:cisco-n1kv/icehouse-updates`

Step 2 Enter the following command:
sudo apt-get update

Step 3 Enter the following command:
Note All the charms are contained in the tar file brought in by the jujucharm-n1k.

sudo apt-get install jujucharm-n1k

Step 4 Enter the following command:

tar zxf /opt/cisco/n1kv/charms/jujucharm-n1k-precise_5.2.1.sk3.1.1.YYYYMMDDhhmm.tar.gz

Step 5 Enter the following command:
cd ./jujucharm-n1k/charms

Step 6 Deploy the OpenStack services.

Note The OpenStack charms in the jujucharm-n1k Debian package contain Cisco Nexus 1000V for KVM-specific changes and need to be installed locally. For information about installing these services, see Installing and Configuring the Cisco Nexus 1000V for KVM, on page 5.

All other required OpenStack charms can be either downloaded locally from their respective bzr branches and deployed from the local repository or can be deployed directly from the Juju Charm store using the **juju deploy --config** *config-file charm-name* command.

juju deploy --config *config-file* **--repository=. local:trusty**/*charm-name*

Verifying the Cisco Nexus Plug-in for OpenStack Neutron Version

If you downloaded the Cisco Nexus 1000V for KVM software from the Cisco PPA, an issue exists where you might download an incompatible version of Cisco Nexus Plug-in for OpenStack Neutron.

Every 12 hours, the Cisco Nexus 1000V for KVM software version is checked, and if it is not the latest version, the latest version is reposted to the Cisco PPA. The reason that the version is checked is that the Debian packages for the Cisco Nexus 1000V include the version of OpenStack from the Ubuntu PPA, and whenever a new version of OpenStack is posted to the Ubuntu PPA, this version is used in the Cisco Nexus 1000V for KVM software Debian packages. This *upstream* version of OpenStack may contain an *incompatible* version of the Cisco Nexus Plug-in for OpenStack Neutron.

For the latest Cisco Nexus 1000V for KVM features to work properly, you must ensure that the latest version of the Cisco Nexus Plug-in for OpenStack Neutron is installed.

There are two ways that you can ensure that you have the latest version:

- Log into the nodes and check the Cisco Nexus Plug-in for OpenStack Neutron apt policy. Verify that the source of the installed version points to the Cisco PPA. This example shows that the correct version is installed. The Installed field shows 1:2014.1.1-0ubuntu2+springfieldv1407151351 as the image that is installed, and the Version table shows the source of that image is the Cisco PPA.

```
~$ sudo apt-cache policy neutron-server
neutron-server:
  Installed: 1:2014.1.1-0ubuntu2+springfieldv1407151351
  Candidate: 1:2014.1.1-0ubuntu2+springfieldv1407151351
  Version table:
 *** 1:2014.1.1-0ubuntu2+springfieldv1407151351 0
        900 https://private-ppa.launchpad.net/springfield-team/icehouse-staging/ubuntu/
 trusty/main amd64 Packages
        100 /var/lib/dpkg/status
     1:2014.1.1-0ubuntu2 0
        500 http://archive.ubuntu.com//ubuntu/ trusty-updates/main amd64 Packages
     1:2014.1-0ubuntu1.3 0
        500 http://archive.ubuntu.com//ubuntu/ trusty-security/main amd64 Packages
```

- Add the following command to the late_commands in /etc/maas/preseed/generic and use default installer for MAAS deployment:

```
echo -en 'Package: *\nPin: release o=LP-PPA-cisco-n1kv-icehouse-updates\nPin-Priority:
 900' > /target/etc/apt/preferences.d/n1kv-pin-900 && \
```

Installing and Configuring the Cisco Nexus 1000V for KVM

Perform this procedure to install and configure the Cisco Nexus 1000V for KVM on a physical server or as a VM. To deploy the Cisco Nexus 1000V for KVM on a Cisco Cloud Services Platform, see Installing VSM on the Cisco Nexus Cloud Services Platform.

Before You Begin

Make sure that you have defined the necessary parameters in the global configuration file and mapping file for your deployment.

Procedure

Step 1 Deploy the primary VSM.
juju deploy –u --config *config-file* **--repository=. local:trusty/vsm vsm-primary**

Step 2 Deploy the secondary VSM.
juju deploy –u --config *config-file* **--repository=. local:trusty/vsm vsm-secondary**

Step 3 Deploy VEMs.

a) **juju deploy –u --config** *config-file* **--repository=. local:trusty/vem**
b) **juju add-relation nova-compute vem**
c) **juju add-relation vem vsm-primary**
d) **juju add-relation quantum-gateway vem**
e) (Optional) **juju set vem mapping=$(cat mapping.yaml)**

Installing and Configuring the VXLAN Gateway Using Juju Charms

The VXLAN Gateway is an optional addition to the Cisco Nexus 1000V for KVM deployment. If you want to deploy the VXLAN Gateway with the Cisco Nexus 1000V for KVM, you can use the VXLAN Gateway charm. For a complete, step-by-step procedure to install and configure the VXLAN Gateway, see Steps to Install and Configure VXLAN Gateway.

Before You Begin

Ensure that the deployment meets the minimum requirements. See Information About the VXLAN Gateway Deployment and Guidelines and Limitations for Cisco Nexus 1000V VXLAN Gateway.

If you are not using DHCP to configure IP addresses on the VTEPS, you must have configured static IP addresses on the VTEPs. To do this, you must have configured the vtep_config parameter in a custom mapping file for the VEM charm. For information, see Cisco Nexus 1000V for KVM VEM Charm Parameters.

You have created two port profiles on the switch (VSM): one for the uplinks on the gateway and one for the VTEP interface. For information, see Configuring a Port Profile for the Uplink on the VXLAN Gateway and Configuring a Port Profile for the VTEP on the VXLAN Gateway.

The source of the VXLAN Gateway image is configured in your VXLAN Gateway charm mapping.file. For information, see Cisco Nexus 1000V for KVM VXLAN Gateway Charm Parameters.

Ensure that the Nova cloud controller is started before deploying the VXLAN Gateway charm. To start the Nova cloud controller, use the **juju status nova-cloud-controller** command.

Procedure

Step 1 Deploy the VXLAN Gateway.

a) **juju deploy –u --config** *config-file* **--repository=. local:trusty/vxlan-gateway**

b) **juju add-relation nova-cloud-controller vxlan-gateway**

Step 2 Configure the VXLAN Gateway.
You need to configure the data and management interfaces, high availability, and the VXLAN-to-VLAN mappings. For information, see Installing and Configuring the VXLAN Gateway.