The VMware DVS plugin for Fuel 6.1 installation guide

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1 Revision history

Version	Revision date	Editor	Comment
0.1	09.01.2015	Igor Gajsin (igajsin@mirantis.com)	Created the first version.

2 Document purpose

The purpose of this document is to describe how to install, configure and use the VMware DVS plugin for Fuel 6.1.

3 Key terms, acronyms and abberviations

Term/acronym/abbreviation	**Definition**
VM	Virtual Machine
MOS	Mirantis OpenStack
OVS	Open vSwitch
Neutron ML2 plugin	The Neutron Modular Layer 2 plugin is a framework allowing OpenStack Networking to simultaneously utilize the variety of layer 2 networking technologies
vmware_dvs driver	The driver in the Neutron ML2 plugin which provides interaction with dvSwitch on vCenter
VMware DVS plugin	The plugin for Fuel which installs and configures vmware_dvs driver on a MOS environment
dvSwitch	distributed vSwitch on VMware ESXi [1]
VMware ESXi	bare-metal hypervisor
VMware vCenter Server	Central control point for VMware vSphere
VMware vSphere	VMware's cloud computing virtualization operating system.

4 The VMware DVS plugin

MOS supports using vCenter as a hypervisor in a vCenter-only or heterogeneous, mixed with KVM environments. There is the vmware_dvs driver for Neutron ML2 plugin which provides usage Neutron for networking in such environments. Thereby environments receives an advanced network features:

- Ability to create multi-tier networks (e.g., web tier, db tier, app tier).
- Control over IP addressing.
- Ability to insert an configure their own services (e.g., firewall, IPS)
- VPN/Bridge to remote physical hosting or customer premises.

5 Licensing information

Component	**License**
vmware_dvs driver	Apache 2.0
VMware DVS plugin	Apache 2.0

[1] http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1010555

6 Assumptions and limitations

6.1 Assumptions

1. dvSwitch must be provisioned by using vCenter firstly and manually.
2. There must be a mapping between physical network and dvSwitch:
   (a) different physnet to different dvSwitch
   (i.e. physnet1:dvswitch1, physnet2:dvswitch2),
   (b) different physnet to the same dvSwitch
   (i.e. physnet1:dvswitch1, physnet2:dvswitch1).
3. VLANs will be used as a tenant network separation by KVM's OVS and ESXi's dvSwitch (must be the same for tenant network regardless which switch type OVS or dvSwitch)
4. There must be an ability to:
   (a) create / terminate a port group on dvSwitch
   (b) bind port from such port group to a VM
   (c) disable state of the neutron port group or port on dvSwitch
   (d) assign multiple vNIC to a single VM deployed on ESXi
5. Name of driver is vmware_dvs
6. Plugin supports addition controller-nodes after deploy.
7. Plugin has to carry with it code of vmware_dvs and all their dependencies to be independent from network's conditionals when install.

6.2 Limitations

- VMware DVS plugin be enabled only in environments with Neutron as the networking option.
- Only VLANs are supported for tenant network separation (VxLAN support can be added later, if project will be continued).
- Only vSphere 5.5 is supported

7 Requirements

The plugin has the following requirements for software

Requirements	**Version**
Fuel	6.1
vCenter	5.5

8 Installation Guide

8.1 Prerequisites

This guide assumes that you have installed Fuel and all the nodes of your future environment are discovered and functional. Note, that you need to have a connectivity to correctly configured vCenter with precreated dvSwitch and clusters.

8.2 Obtaining the VMware DVS plugin

You can download it from Fuel Plugins Catalog or build from the github repositories via some steps:

1. Create and activate a virtual environment:

   ```
   $ virtualenv fpb
   $ .  fpb/bin/activate
   ```

2. Install the fuel plugin builder:

   ```
   (fpb)user@host:/path$ pip install fuel-plugin-builder
   ```

3. Get plugin sources from github.

   ```
   (fpb)user@host:/path$ git clone https://github.com/stackforge/fuel-plugin-vmware-dvs.git
   ```

4. Patch the template file in the fuel plugin builder

   ```
   (fpb)user@host:/path$ patch fpb/lib/python2.7/site-packages/fuel_plugin_builder/
   /templates/build/plugin_rpm.spec.mako fuel-plugin-vmware-dvs/hack.diff
   ```

5. Build the plugin

   ```
   (fpb)user@host:/path$ fpb --build fuel-plugin-vmware-dvs/
   Plugin is built
   ```

6. Put the plugin into Fuel Master node

   ```
   $ scp fuel-plugin-vmware-dvs-1.0-1.0.1-1.noarch.rpm <Fuel Master node ip>:/tmp
   ```

7. Login to the Fuel Master node and install the plugin:

   ```
   $ ssh root@<Fuel Master node ip>
   [root@nailgun ~]# fuel plugins --install /tmp/fuel-plugin-vmware-dvs-1.01.0.11.noarch.rpm
   [root@nailgun  ]# fuel plugins
   DEPRECATION WARNING: /etc/fuel/client/config.yaml exists and will be used as the source for
   settings.  This behavior is deprecated.  Please specify the path to your custom settings file
   in the FUELCLIENT_CUSTOM_SETTINGS environment variable.
   ```

id	name	version	package_version
2	fuel-plugin-vmware-dvs	1.0.1	2.0.0

8.3 Removing the VMware DVS plugin

To uninstall Zabbix plugin, follow these steps:

1. Delete all Environments in which VMware DVS plugin has been enabled.

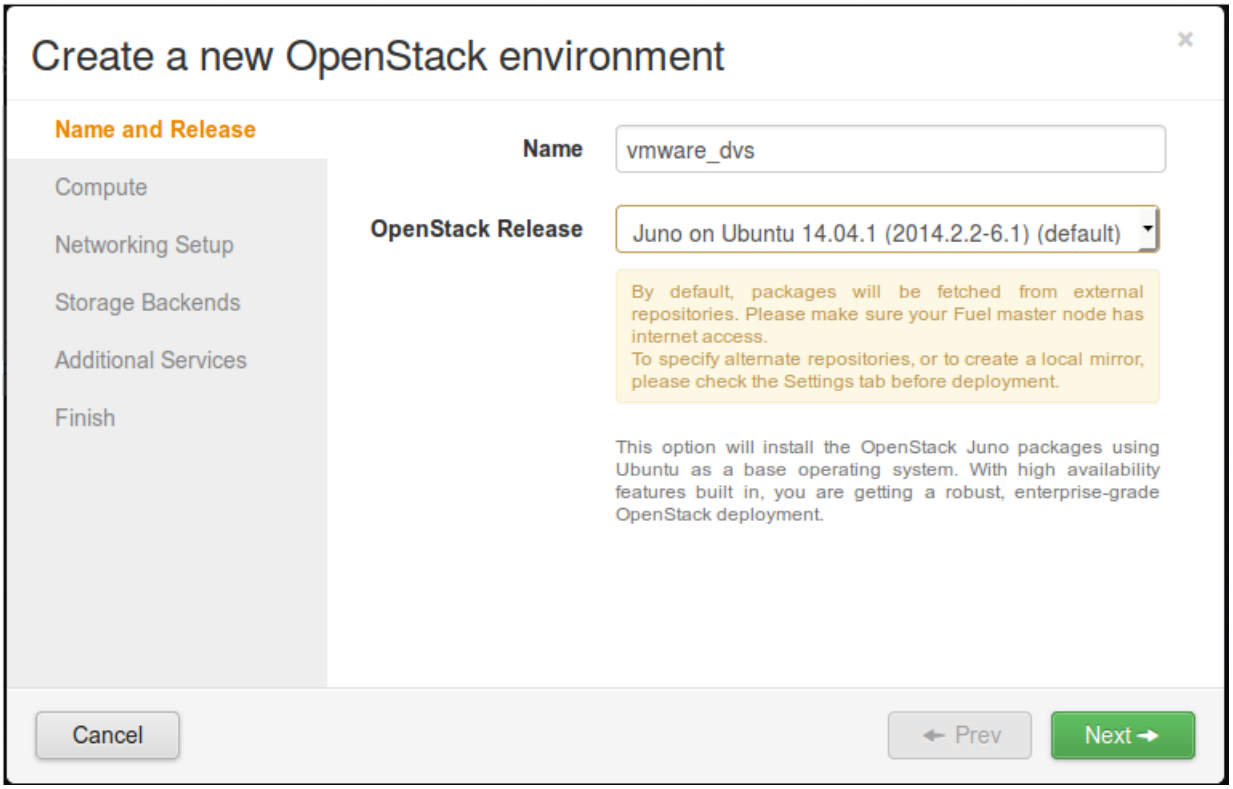
2. Uninstall the plugin:
   ```
   # fuel plugins --remove fuel-plugin-vmware-dvs==1.0.1
   ```

3. Check if the plugin was uninstalled successfully:

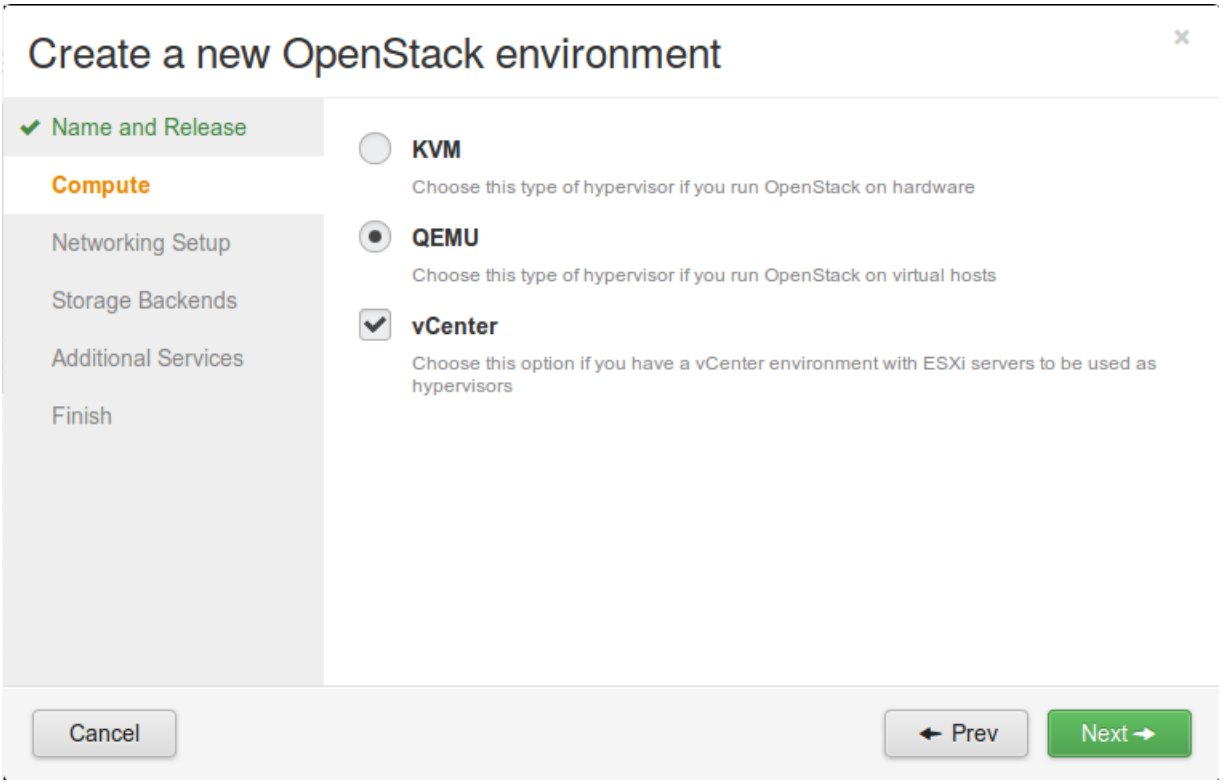
id	name	version	package_version

9 Configuring VMware DVS plugin

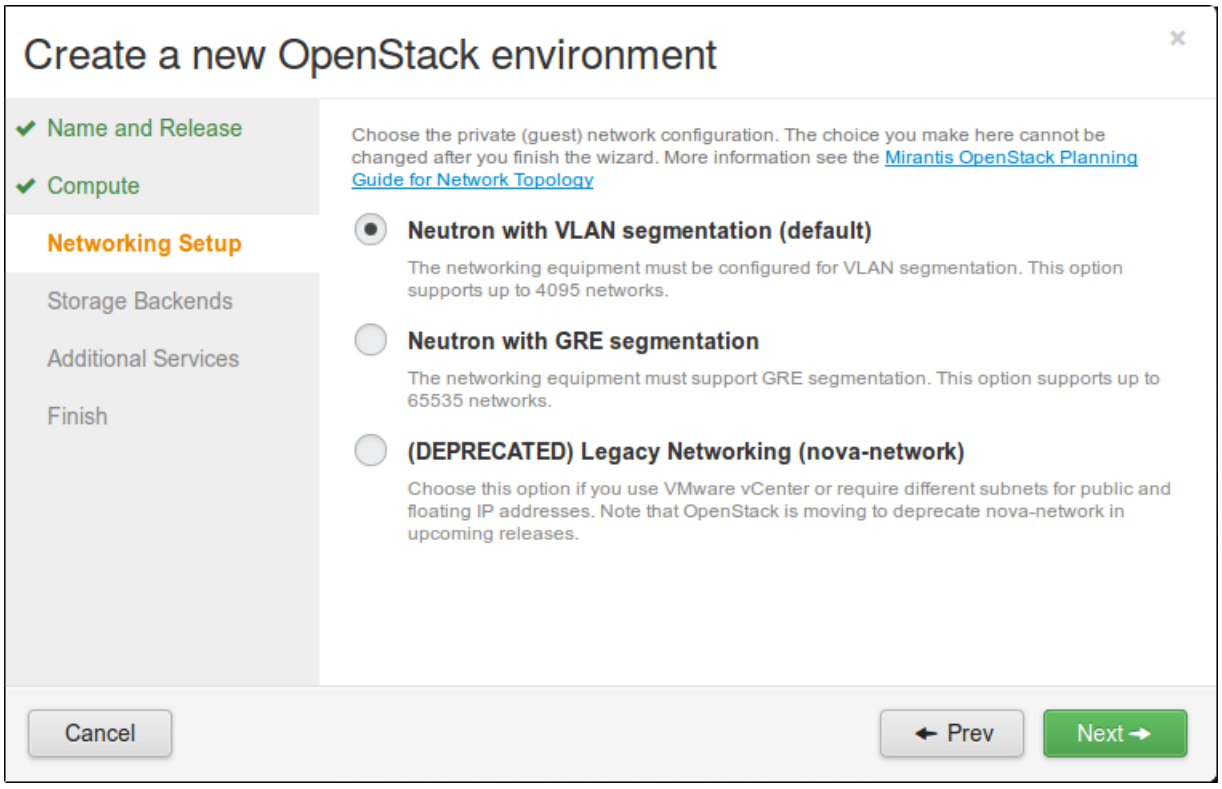
1. Create a new OpenStack environment with Fuel UI wizard



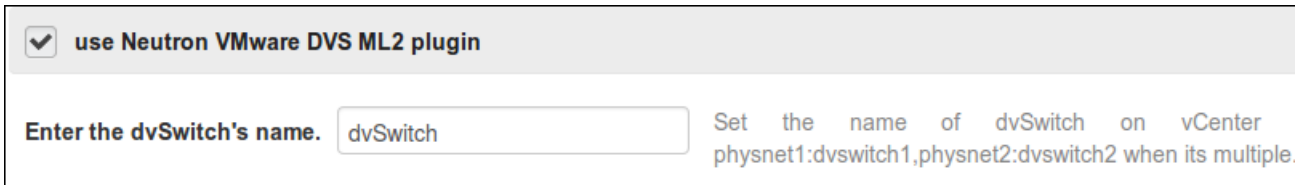
2. Please set vCenter checkbox on choosing compute's type step.



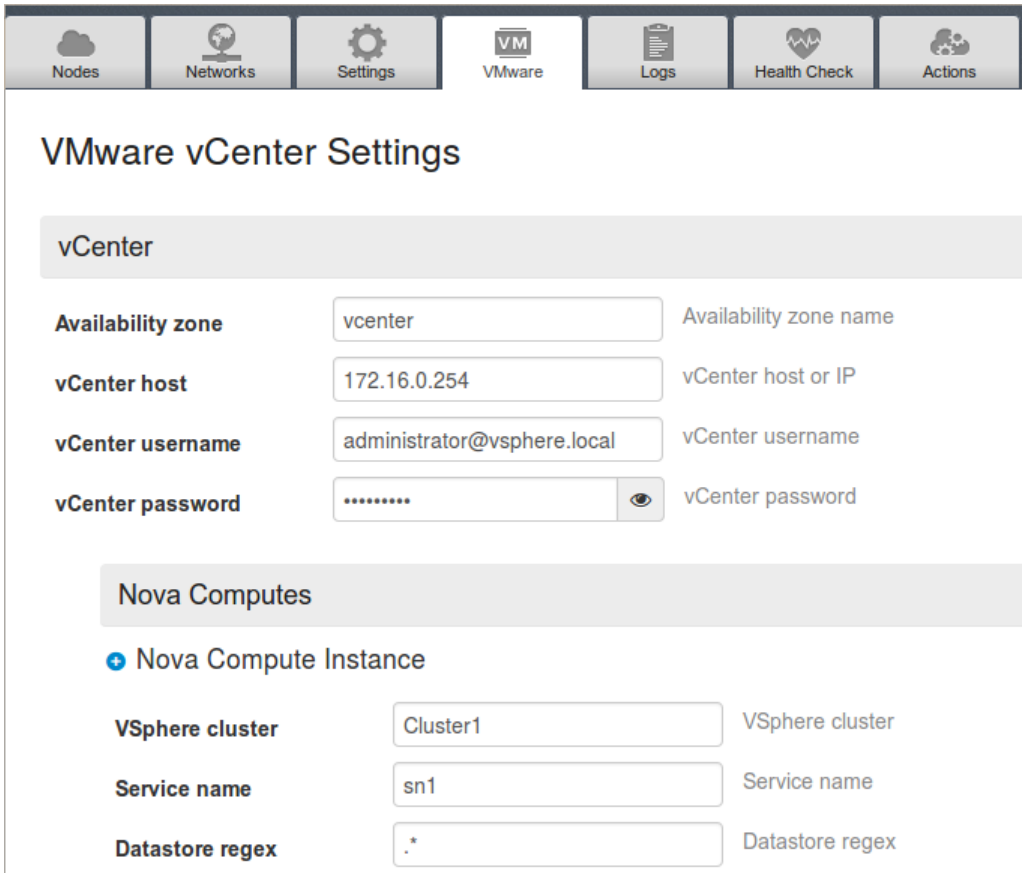
3. Please select Neutron with VLAN segmentation network model, which is the only network type supported with VMware DVS plugin



4. There are no limitations on other steps in the wizard.
5. Add at least 1 Controller and 1 Compute node to the environment.
6. Turn on the plugin usage checkbox and set correct name of dvSwitch in the Settings tab.



7. Fill the vmware configuration fields on the VMware tab.

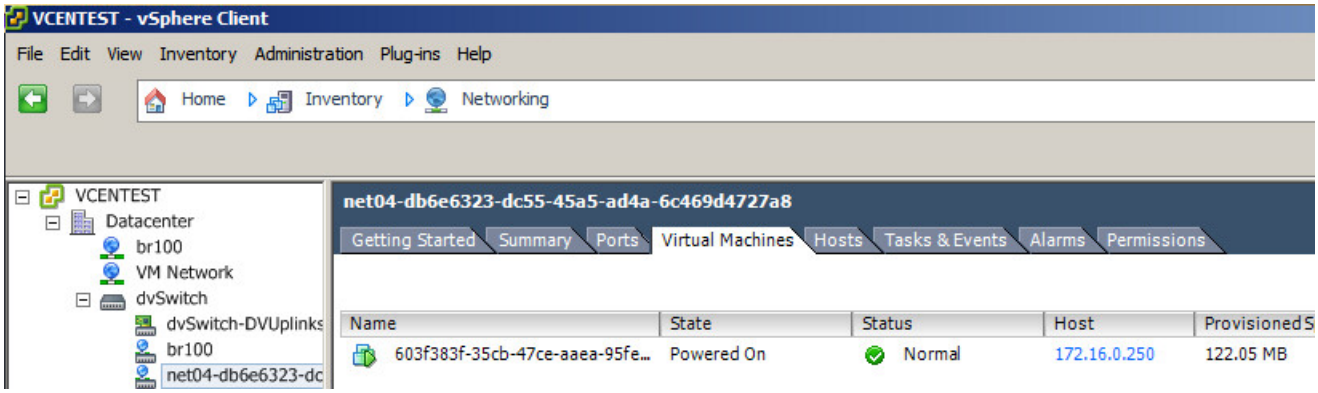


The rest configuration is up to you. See Mirantis OpenStack User Guide for instructions to configure other options.

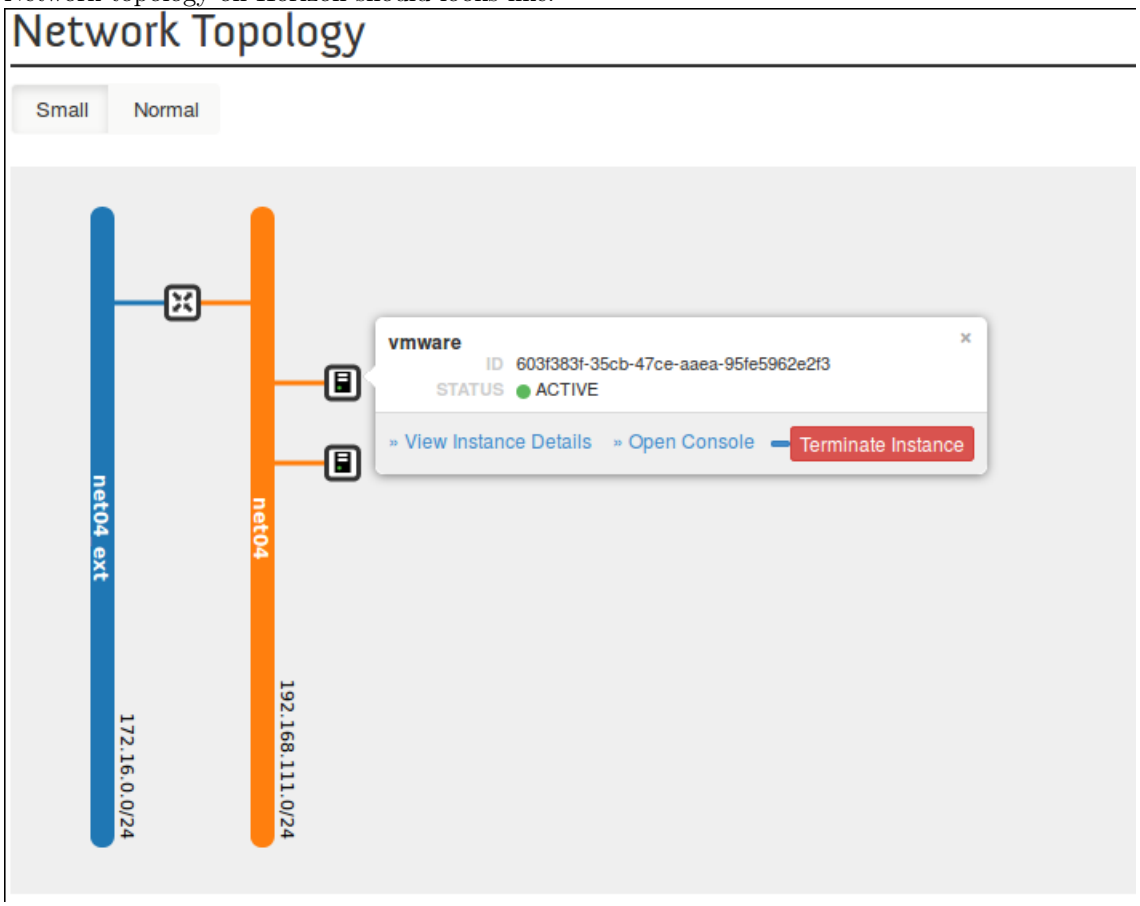
8. Click "Deploy changes" to deploy the environment.

10 Usage Guide

Once OpenStack has been deployed, we can start using Neutron for networking. The net04 port group should appear on the vCenter:



Network topology on Horizon should looks like:



where vmware is an instace located on the vCenter.
You can use Neutron for such instance totally same way as for KVM located instances.