



INSTALLATION RUNBOOK FOR Pluribus Networks + ML2 Plugin

Product Name: **[Pluribus Series Switches]**

Product Version: **[2.5.0]**

MOS Version: **[8.0]**

OpenStack Version: **[Liberty]**

Product Type: **[Network Switching]**

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Document History

Version	Revision Date	Description
0.1	12-09-2016	Initial Version
0.2	15-09-2016	Rally Test, Comments, CLI Details and additional updates
0.3	20-09-2016	Updated final comments DHCP comments and iPERF results

1. Introduction

This document is to serve as a detailed Deployment Guide for Netvisor ML2 Plugin. Pluribus Networks offers ML2 Plugin and Switching solutions. This document describes the reference architecture, installation steps for validated MOS+Pluribus Netvisor ML2 Plugin limitations and testing procedures.

1.1 Target Audience

Openstack Administrators, Network Administrator or Architects who are familiar with Openstack and Mirantis Openstack offerings and Pluribus Netvisor Solutions.

2. Product Overview

Pluribus Netvisor® is designed to run your Layer 2 and Layer 3 networking both more efficiently and at a lower cost than traditional switching infrastructure. It provides unparalleled agility, insight and security for your datacenter networking using a distributed controller fabric that eliminates the need for tap or broker infrastructure.

Feature Capabilities include:

Fabric Automation – Agility and simplification via an extensible, open, distributed controller fabric

Fabric Visibility – tap-free, flow-level monitoring and analysis with a network DVR “time machine”

Fabric Virtualization – Virtual network provisioning and Segmentation; support for multi-tenancy; vRouters

Extensibility – Programmability via Ansible, RESTful, Java and C APIs

L2/L3 – Compatible with all existing Layer-2/3 infrastructures CLI

Management – manage network switch hardware, resource pools and network configurations; high availability environment

Monitoring – including SNMP, sFlow, Traceroute and logging

Security – Flow-level (drop/log/mirror), MAC Security, Control Plane Traffic Protection, full L2/L3 ACL

QoS – CoS, DSCP, Strict Priority Queuing, Tos mapping

Audit – system, event and audit logging

Fabric Visibility Features

- **Telemetry** – inspects every individual TCP connection and client-server aggregated connection fabric statistics.

- **vFlow** - filtering fabric-wide data center switching traffic on a granular flow level and applying security/QoS actions or forwarding decisions on each defined flow.
- **vPort** - tracking endpoints/VMs on a global, fabric-wide endpoint table.

Pluribus Netvisor Open Stack ML2 Driver enables neutron to provision VLAN on Pluribus Netvisor OS Switches. This driver communicates to Netvisor OS devices using XML RPC as a transport protocol. This allows the Plugin to work with different Netvisor versions. Once a VLAN is provisioned on a specific TOR Netvisor automatically provisions the VLAN Across the Fabric and enables forwarding on all Switch to Switch Uplink Ports. This works in parallel with the vSwitch (OVS) driver plugin that resides on the compute hosts and provides integration between Computer and Networking

Although Pluribus Netvisor is able integrate with Neutron L3 capabilities, it is out of scope of this document.

3. Joint reference architecture

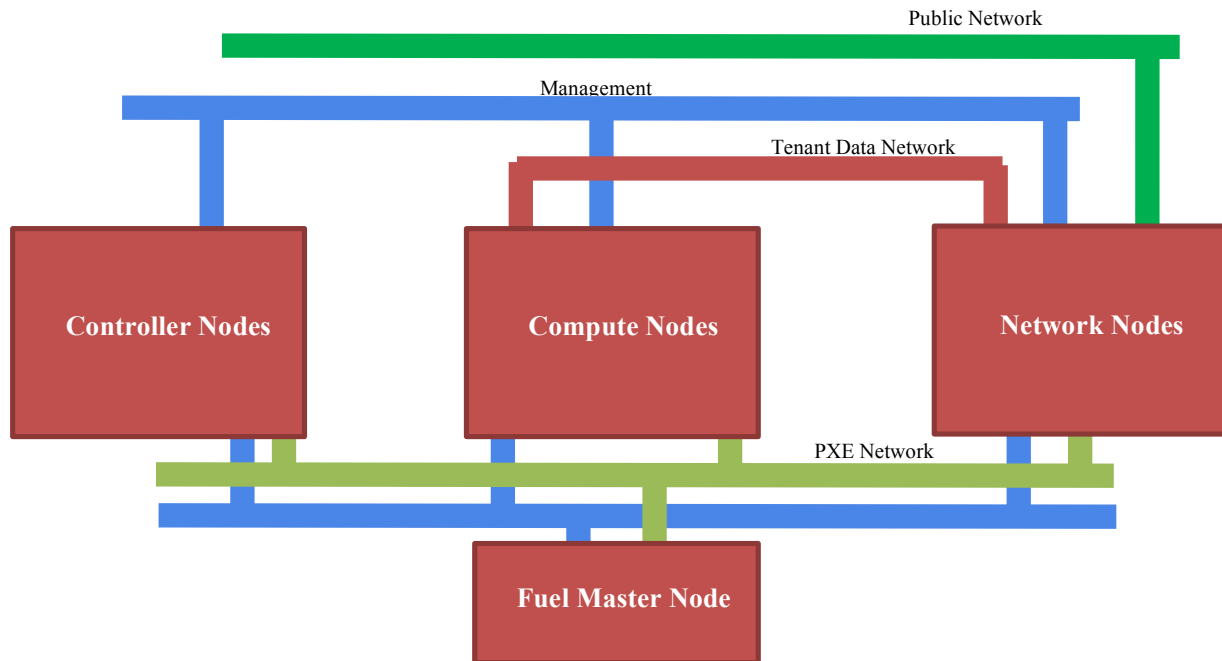
Pluribus Netvisor switches provide Layer 2 functionality + DHCP Services for the VMs for the scope of this document. Netvisors VNET feature creates a unique zone for each VLAN and thus completely segmenting each network and it's L3 Domain

vNET (A Zone is created per vNET for complete L2 Isolation, the Routing/L3 Instances for this L2 domain also resides in this zone)

It is recommended to use unique dedicated VLANs for all control plane communication (Management, PXE and Storage Network). All of these VLANs are present in a single OpenStack VNET.

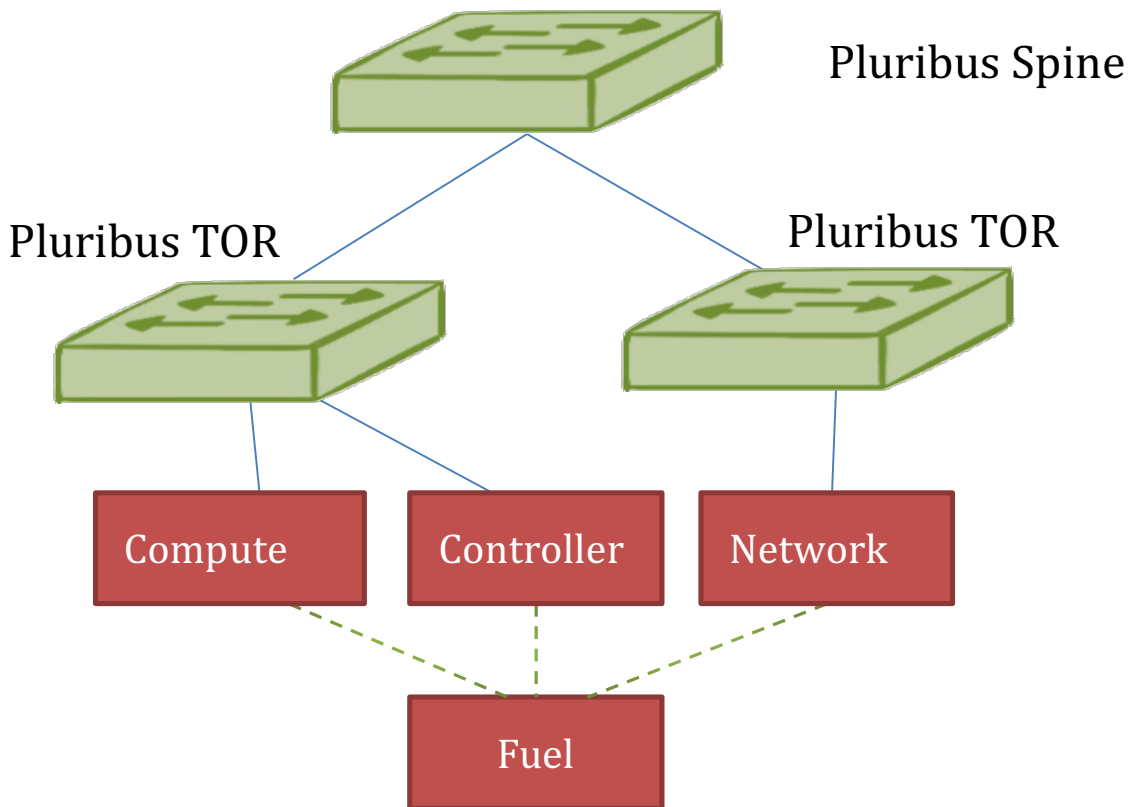
To isolate Tenant Data and Public Network, unique VLANS from the range of 1000-1030 were used in this document and each VLAN + vNET has its own unique VNET present which provides complete isolation of the tenant Network.

Logical Flow of the Network is described here, there are multiple networks for communication between the different services and VLANs are used to provision this



4. Physical & Logical network topology

This explains the physical setup



5. Installation and Configuration

5.1 Environment preparation

In our Installation we had 2 NICs on each node, NIC1 (eth0) was used for Public Network and NIC2 (en0s0p1) had VLAN Tagging enabled and had the Management, Storage, Tenant Data and PXE Networks.

5.2 MOS Installation

Liberty on Ubuntu 14 is the version used from MOS 8.0 Node

Create a new OpenStack environment



Name and Release

Name pluribus

Compute

OpenStack Release Liberty on Ubuntu 14.04

Networking Setup

Storage Backends

Additional Services

Finish

By default, Fuel uploads the software packages for the Fuel Slave nodes from the external repositories. Please verify the Fuel Master node has the Internet connection. If the Fuel Master node does not have access to the Internet, you must create a local mirror with all required software packages and configure Fuel to use the mirror before you deploy an OpenStack environment.

This option will install the OpenStack Liberty packages using Ubuntu as a base operating system. With high availability features built in, you are getting a robust, enterprise-grade OpenStack deployment.

Cancel

← Prev

Next →

KVM Based Compute

Create a new OpenStack environment



Name and Release

Compute

Networking Setup

Storage Backends

Additional Services

Finish

☒ QEMU-KVM

Select this option if you want to use QEMU as a hypervisor with capability of KVM acceleration.

☐ vCenter ⚠

Select this option if you run OpenStack on VMware vCenter.

Plugin for DVS/NSX is required to create an environment with vCenter and Neutron.
Please visit [Fuel plugins page](#) for details.

Cancel

← Prev

Next →

VLAN Based Segmentation

Create a new OpenStack environment



Name and Release

Compute

Networking Setup

Storage Backends

Additional Services

Finish

☒ **Neutron with ML2 plugin** ✓

Framework that enables simultaneous utilization of the layer 2 networking technologies through drivers.

☒ **Neutron with VLAN segmentation** ✓

Your network hardware must be configured for VLAN segmentation. This option supports up to 4095 networks.

☐ **Neutron with tunneling segmentation** ⚠

By default VXLAN tunnels will be used. This option supports millions of tenant data networks.

Cancel

← Prev

Next →

Ceph is used for all Storage

Create a new OpenStack environment



Name and Release

Compute

Networking Setup

Storage Backends

Additional Services

Finish

Block Storage:

☐ **LVM** ✓

Use default storage providers

☒ **Ceph** ✓

Use Ceph as backend for Cinder volumes

Image Storage:

☒ **Ceph** ✓

Use Ceph as backend for Glance images

Object Storage:

☒ **Ceph** ✓

Use Ceph as backend for Swift objects

Ephemeral Storage:

☒ **Ceph** ✓

Use Ceph as backend for Nova

Cancel

← Prev

Next →

L2 Configuration

Home / Environments / pluribus / Networks

pluribus (6 nodes)

Dashboard Nodes Networks Settings Logs Health Check

Network Settings (Neutron with VLAN segmentation)

[Add New Node Network Group](#)

Node Network Groups

default

Settings

Neutron L2

[Neutron L3](#)

[Other](#)

Neutron L2 Configuration

Neutron supports different types of network segmentation such as VLAN, GRE, VXLAN etc. This section is specific to VLAN segmentation related parameters such as VLAN ID ranges for tenant separation and the Base MAC address.

	Start	End
VLAN ID range	1000	1030
Base MAC address	fa:16:3e:00:00:00	

Network Verification

[Connectivity Check](#)

[Cancel Changes](#) [Save Settings](#)

3 Redundant controller nodes, 1 Compute and 2 Ceph Storage node was used

Controller (3)

☒ Select All

☒	Untitled (cc:3b) CONTROLLER	 	PENDING ADDITION	CPU: 2 (32) HDD: 5.8 TB RAM: 64.0 GB 
☒	Untitled (cc:11) CONTROLLER	 	PENDING ADDITION	CPU: 2 (32) HDD: 5.8 TB RAM: 64.0 GB 
☒	Untitled (cc:0f) CONTROLLER	 	PENDING ADDITION	CPU: 2 (32) HDD: 5.8 TB RAM: 64.0 GB 

Compute (1)

☒ Select All

☒	Untitled (fc:47) COMPUTE	 	PENDING ADDITION	CPU: 2 (32) HDD: 8.7 TB RAM: 32.0 GB 
-------------------------------------	--	---	------------------	--

Storage - Ceph OSD (2)

☒ Select All

☒	Untitled (fc:4b) CEPH-OSD	 	PENDING ADDITION	CPU: 2 (32) HDD: 8.7 TB RAM: 32.0 GB 
☒	Untitled (fc:49) CEPH-OSD	 	PENDING ADDITION	CPU: 2 (32) HDD: 8.7 TB RAM: 32.0 GB 

5.3 Pluribus Netvisor ML2 Plugin installation steps

The first Step after Mirantis OS setup is complete, is to enable SSH/SFTP Access to the Controller nodes from the Pluribus Switches. Login to the controller nodes and edit the `/etc/ssh/ssd_config` file and edit the following parameters:

PasswordAuthentication yes
PermitRootLogin yes

```
Port 22

AcceptEnv LANG LC_*
AllowTcpForwarding yes
ChallengeResponseAuthentication no
Ciphers aes256-ctr,aes192-ctr,aes128-ctr,arcfour256,arcfour128
GSSAPIAuthentication no
LogLevel VERBOSE
MACs hmac-sha2-512,hmac-sha2-256,hmac-ripemd160,hmac-sha1
PasswordAuthentication yes
PermitRootLogin yes
PrintMotd no
Protocol 2
PubkeyAuthentication yes
RSAAuthentication yes
StrictModes yes
Subsystem sftp /usr/lib/openssh/sftp-server
UseDNS no
UsePAM yes
UsePrivilegeSeparation yes
X11Forwarding no

"/etc/ssh/sshd_config" 22L, 520C written
root@node-11:~# service ssh restart_
```

Perform the following perquisite steps and then follow steps 1-4 as described below to download and install the plugin from the switch:

Prerequisites:

VNET, VLANs and other required configs have already been created on the switch. This includes the following steps:

- a. vNET-create
- b. vlan-create (of the VLAN assigned to the VNET)

- c. openstack-config-create
- d. openstack-interface-add (Add a management interface to the openstack instance)

Example configuration is shown below:

```
CLI (network-admin@switch) > vNET-create name test-vNET scope fabric vlans 20 vNET-mgr-
storage-pool pool-disk2
Creating test-vNET-mgr zone, please wait...
VNET created. Vlans assigned: 20
CLI (network-admin@switch) > vlan-create id 20 scope fabric
Vlan 20 created
CLI (network-admin@switch) > openstack-config-create name test-openstack vNET test-vNET
port 9090 vlans 200-300
CLI (network-admin@switch) > openstack-interface-add openstack-name test-openstack ip
10.100.100.227/16 vlan 0 if mgmt
Added interface eth0
```

The pluribus ML2 Driver resides on the switch.

Perform the following steps to download the package to the Openstack controller:

1. Enable SFTP on the switch

Run the following command on the switch CLI and provide a password for SFTP transfer:

```
CLI> admin-sftp-modify enable
```

Example:

```
CLI (network-admin@switch) > admin-sftp-modify enable
```

sftp password:

confirm sftp password:

2. Download the package from the switch to the controller:

The pn-ml2-package will be available in the "/sftp/export/pkg/debian/" directory on the switch.

Use sftp to login to the switch from the controller and get the pn_openstack_plugin.deb file.

Example:

```
root@controller:/# sftp sftp@switch.pluribusnetworks.com
```

Password:

```
Connected to switch.pluribusnetworks.com.
```

```
sftp> ls
```

```
disk-lib export import iso-lib nvOS usr
```

```
sftp> cd export/pkg/debian
```

```
sftp> ls
```

```
pn_openstack_plugin.deb
```

```
sftp> get pn_openstack_plugin.deb
```

```
Fetching /export/pkg/debian/pn_openstack_plugin.deb to pn_openstack_plugin.deb
```

```
/export/pkg/debian/pn_openstack_plugin.deb 100% 10KB 10.3KB/s
```

00:00

3. Install the package on the controller:

Use command "dpkg -i pn_openstack_plugin.deb" to install the package

Example:

```
root@controller:~# dpkg -i pn_openstack_plugin.deb
Selecting previously unselected package pn-openstack-plugin.
(Reading database ... 113621 files and directories currently installed.)
Preparing to unpack pn_openstack_plugin.deb ...
Unpacking pn-ml2-plugin (2.4.1) ...
Setting up pn-ml2-plugin (2.4.1) ...
```

You can use command "dpkg -L pn-ml2-plugin" to get a list of files installed by the package.

4. Run the installer script to configure the plugin:

Prerequisite:

You will need a "plugin.conf" file as input which contains the details of the openstack configuration.

An example of plugin.conf for the above configuration is shown below:

```
root@controller:# cat plugin.conf
[PLURIBUS_PLUGINS]
vswitch_plugin = neutron.plugins.ml2.plugin.Ml2Plugin
pn_port = 9090
pn_vlans = 200-300
extensions = enable
pn_switch = 10.100.100.227
```

A sample plugin.conf is provided in the package at /usr/lib/python2.7/dist-packages/pluribus/install/py/plugin.conf

Please refer to the sample and fill in the required fields.

a. Run the installer script

The installer script is available in "/usr/bin/python /usr/lib/python2.7/dist-packages/pluribus/install/py/pn_config_pkg.py".

Run this script as follows:

```
/usr/bin/python /usr/lib/python2.7/dist-packages/pluribus/install/py/pn_config_pkg.py -f <path-to-plugin.conf> -e <enable/disable extensions>
```

Example:

```
root@controller:# /usr/bin/python /usr/lib/python2.7/dist-packages/pluribus/install/py/pn_config_pkg.py -f plugin.conf -e disable
```

b. Restart the neutron-server service:

Use command "service neutron-server restart" , If no errors are seen, the installation went ok.

5.4 Limitations

Currently Netvisor creates a zone per VLAN and this might restrict the number of VLANs a user can deploy.

Redundancy/HA and Layer 3 Neutron plugins are outside the scope of this document.

5.5 Testing

5.5.1 Test cases and Test Results

Testing done with the debian openstack plugin package installation

1. Neutron net-create and vNET-show

```
root@node-21:~# neutron net-create net1
Created a new network:
```

Field	Value
admin_state_up	True
id	06adb6ab-8051-4b2a-8e75-3abe5f34c36a
mtu	0
name	net1
port_security_enabled	True
provider:network_type	vlan
provider:physical_network	physnet2
provider:segmentation_id	1004
router:external	False
shared	False
status	BUILD
subnets	
tenant_id	60828356c8624758a9a690281c0b5b10

```
CLI (network-admin@Spine) > vNET-show
```

switch	name	scope	vlangs	managed-ports	admin	vNET-mgr-name
Spine	mirantis	fabric	5	none	mirantis-admin	mirantis-mgr
Spine	net1-1004	fabric	1004	none	net1-1004-admin	net1-1004-mgr
Spine	openstack-global	fabric	none	none		

2. Neutron subnet-create and ip-pool-show, dhcp-show

```
root@node-21:~# neutron subnet-create net1 192.168.10.0/24 --name subnet1
Created a new subnet:
```

Field	Value
allocation_pools	{"start": "192.168.10.2", "end": "192.168.10.254"}
cidr	192.168.10.0/24
dns_nameservers	
enable_dhcp	True
gateway_ip	192.168.10.1
host_routes	
id	e82118e8-c551-4ece-909b-f22fee7db105
ip_version	4
ipv6_address_mode	

ipv6_ra_mode	
name	subnet1
network_id	06adb6ab-8051-4b2a-8e75-3abe5f34c36a
subnetpool_id	
tenant_id	60828356c8624758a9a690281c0b5b10

CLI (network-admin@Spine) > ip-pool-show

name	vNET	scope	vlan	start-ip	end-ip	network
subnet1-0	net1-1004	fabric	1004	192.168.10.3	192.168.10.254	192.168.10.0/24

CLI (network-admin@Spine) > dhcp-show

name	type	scope	vNET	is-global	vNET-service	state	gateway	pxe-boot
net1-1004-dhcp	dhcp	fabric	net1-1004	false	shared	enabled	::	disabled

3. Nova boot and dhcp-host-show

root@node-21:~# nova boot --flavor m1.micro --image TestVM --nic net-id=06adb6ab-8051-4b2a-8e75-3abe5f34c36a vm-1

Property	Value
OS-DCF:diskConfig	MANUAL
OS-EXT-AZ:availability_zone	
OS-EXT-SRV-ATTR:host	-
OS-EXT-SRV-ATTR:hypervisor_hostname	-
OS-EXT-SRV-ATTR:instance_name	instance-00000009
OS-EXT-STS:power_state	0
OS-EXT-STS:task_state	-
OS-EXT-STS:vm_state	building
OS-SRV-USG:launched_at	-
OS-SRV-USG:terminated_at	-
accessIPv4	
accessIPv6	
adminPass	49ECMxeNq2bD
config_drive	
created	2016-08-26T06:09:35Z
flavor	m1.micro (1cdb9c44-a617-457f-982f-81f1cffcfff5)
hostId	
id	949b006b-424c-4665-a587-a39b6dc95718
image	TestVM (cf5bf88c-8784-493f-93f7-b50799ec818f)
key_name	-
metadata	{}
name	vm-1
os-extended-volumes:volumes_attached	[]
progress	0
security_groups	default
status	BUILD
tenant_id	60828356c8624758a9a690281c0b5b10
updated	2016-08-26T06:09:35Z
user_id	d214c7787bf44976a0109a557926bee4

CLI (network-admin@Spine) > dhcp-host-show

dhcp-name	hostname	mac	pxe-boot	gateway-ip	fixed-ip
-----------	----------	-----	----------	------------	----------


```
-----
net1-1004-dhcp fa-16-3e-48-de-3b fa:16:3e:48:de:3b no 192.168.10.1 192.168.10.5
-----
```

Further testing:

Scenario 1: Traffic between two VMs in the same network.

Boot up another VM in the same subnet as vm-1 (192.168.10.0/24)

```
root@node-21:~# nova boot --flavor m1.micro --image TestVM --nic net-id=06adb6ab-8051-4b2a-8e75-3abe5f34c36a vm-same
```

Property	Value
OS-DCF:diskConfig	MANUAL
OS-EXT-AZ:availability_zone	
OS-EXT-SRV-ATTR:host	-
OS-EXT-SRV-ATTR:hypervisor_hostname	-
OS-EXT-SRV-ATTR:instance_name	instance-00000015
OS-EXT-STS:power_state	0
OS-EXT-STS:task_state	scheduling
OS-EXT-STS:vm_state	building
OS-SRV-USG:launched_at	-
OS-SRV-USG:terminated_at	-
accessIPv4	
accessIPv6	
adminPass	DUrdczAuk5mH
config_drive	
created	2016-08-26T09:36:23Z
flavor	m1.micro (1cdb9c44-a617-457f-982f-81f1cffcfff5)
hostId	
id	2c298ea7-e5f3-4777-97d5-ded33678401c
image	TestVM (cf5bf88c-8784-493f-93f7-b50799ec818f)
key_name	-
metadata	{}
name	vm-same
os-extended-volumes:volumes_attached	[]
progress	0
security_groups	default
status	BUILD
tenant_id	60828356c8624758a9a690281c0b5b10
updated	2016-08-26T09:36:22Z
user_id	d214c7787bf44976a0109a557926bee4

```

Connected (unencrypted) to: QEMU (Instance-00000015)
$ ifconfig eth0
eth0      Link encap:Ethernet  HWaddr FA:16:3E:39:A2:9B
          inet addr:192.168.10.6  Bcast:192.168.10.255  Mask:255.255.255.0
          inet6 addr: fe80::f816:3eff:fe39:a29b/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:103 errors:0 dropped:0 overruns:0 frame:0
          TX packets:106 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:8763 (8.5 KiB)  TX bytes:11612 (11.3 KiB)

$ ping 192.168.10.5
PING 192.168.10.5 (192.168.10.5): 56 data bytes
64 bytes from 192.168.10.5: seq=0 ttl=64 time=5.413 ms
64 bytes from 192.168.10.5: seq=1 ttl=64 time=1.325 ms
64 bytes from 192.168.10.5: seq=2 ttl=64 time=1.383 ms
64 bytes from 192.168.10.5: seq=3 ttl=64 time=0.994 ms
64 bytes from 192.168.10.5: seq=4 ttl=64 time=1.116 ms
64 bytes from 192.168.10.5: seq=5 ttl=64 time=0.952 ms

--- 192.168.10.5 ping statistics ---
6 packets transmitted, 6 packets received, 0% packet loss
round-trip min/avg/max = 0.952/1.863/5.413 ms
$ _

```

Ping vm-1 in subnet 192.168.10.0/24 from vm-same in 192.168.10.0/24

Scenario 2: Traffic between two VMs in different networks.

1. Boot up vm-2 in another subnet.
2. Create a router and add interfaces to the subnets: subnet1 and subnet2:

root@node-20:~# neutron router-show router1

Field	Value
admin_state_up	True
distributed	False
external_gateway_info	
ha	False
id	835b7d1a-a4de-4dd0-b517-9a9b359ae58d
name	router1
routes	
status	ACTIVE
tenant_id	60828356c8624758a9a690281c0b5b10

root@node-20:~# neutron router-port-list router1

id	name	mac_address	fixed_ips
1546741d-156d-4765-bccf-4e1210203326		fa:16:3e:56:09:cf	{"subnet_id": "d0033218-1972-4ed2-9c1f-60bab6b802a1", "ip_address": "192.168.60.1"}

```
| 2a706f19-24ba-4a8c-a268-9a0b779c4578 | | fa:16:3e:04:09:ec | {"subnet_id":  
"4c22241e-057e-4ed1-86b0-aefae68b8ab7", "ip_address": "192.168.30.1"} |  
| 8949301d-6a75-4d25-be19-78451df2b3f1 | | fa:16:3e:0d:64:c6 | {"subnet_id":  
"e8dbe092-a3f4-4e57-9efe-ea6aa3b76409", "ip_address": "192.168.20.1"} |  
| 9438a7fd-35be-4edc-853b-ba0a8f06c5d5 | | fa:16:3e:fc:86:03 | {"subnet_id":  
"e82118e8-c551-4ece-909b-f22fee7db105", "ip_address": "192.168.10.1"} |  
+-----+-----+-----+  
-----+
```

```
eth0      Link encap:Ethernet  HWaddr FA:16:3E:48:DE:3B  
          inet addr:192.168.10.5  Bcast:192.168.10.255  Mask:255.255.255.0  
          inet6 addr: fe80::f816:3eff:fe48:de3b/64  Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:184  errors:0  dropped:0  overruns:0  frame:0  
          TX packets:155  errors:0  dropped:0  overruns:0  carrier:0  
          collisions:0  txqueuelen:1000  
          RX bytes:16022 (15.6 KiB)  TX bytes:16506 (16.1 KiB)  
  
$ ping 192.168.20.5  
PING 192.168.20.5 (192.168.20.5): 56 data bytes  
64 bytes from 192.168.20.5: seq=0  ttl=63  time=7.608 ms  
64 bytes from 192.168.20.5: seq=1  ttl=63  time=1.121 ms  
64 bytes from 192.168.20.5: seq=2  ttl=63  time=1.520 ms  
64 bytes from 192.168.20.5: seq=3  ttl=63  time=1.160 ms  
64 bytes from 192.168.20.5: seq=4  ttl=63  time=1.466 ms  
64 bytes from 192.168.20.5: seq=5  ttl=63  time=1.304 ms  
  
--- 192.168.20.5 ping statistics ---  
6 packets transmitted, 6 packets received, 0% packet loss  
round-trip min/avg/max = 1.121/2.363/7.608 ms
```

Ping vm-2 in subnet 192.168.20.0/24 from vm-1 in 192.168.10.0/24 via Neutron router

Scenario 3: Provisioning a VM through Horizon

OpenStack

MIRANTIS

admin

admin

Project

Admin

System

Overview

Hypervisors

Host Aggregates

Instances

Volumes

Flavors

Images

Networks

Routers

Defaults

Metadata Definitions

System Information

Identity

All Hypervisors

Hypervisor Summary

VCPU Usage
Used 6 of 32

Memory Usage
Used 1.3GB of 31.3GB

Local Disk Usage
Used 1GB of 13.1TB

Hypervisor

Compute Host

Hostname	Type	VCPUs (used)	VCPUs (total)	RAM (used)	RAM (total)	Local Storage (used)	Local Storage (total)	Instances
node-23.domain.tld	QEMU	6	32	1.3GB	31.3GB	1GB	13.1TB	6

Displaying 1 item

Looking at the VMs from Horizon

Project	Host	Name	Image Name	IP Address	Size	Status	Task	Power State	Time since created	Actions
admin	node-23.domain.tld	new-vm	TestVM	192.168.10.7	m1.micro	Active	None	Running	5 days, 21 hours	Edit Instance
admin	-	amitsi	TestVM		m1.tiny	Error	None	No State	5 days, 23 hours	Edit Instance
admin	node-23.domain.tld	vm-same	TestVM	192.168.10.6	m1.micro	Active	None	Running	2 weeks, 3 days	Edit Instance
admin	node-23.domain.tld	vm-4	TestVM	192.168.60.5	m1.micro	Active	None	Running	2 weeks, 3 days	Edit Instance
admin	node-23.domain.tld	vm3	TestVM	192.168.30.5	m1.tiny	Active	None	Running	2 weeks, 3 days	Edit Instance
admin	node-23.domain.tld	vm-2	TestVM	192.168.20.5	m1.micro	Active	None	Running	2 weeks, 3 days	Edit Instance
admin	node-23.domain.tld	vm-1	TestVM	192.168.10.5	m1.micro	Active	None	Running	2 weeks, 3 days	Edit Instance

Scenario 4:

A test case was to test stability and reconfiguration. We deleted the existing network configuration from above and added the networks to Public Network (google) connectivity with the default configured Public Router

```
root@node-21:~# neutron subnet-list
```

```
+-----+-----+-----+
+-----+
| id                                | name                                |
| cidr                              | allocation_pools                    |
+-----+-----+-----+
+-----+
| 4c22241e-057e-4ed1-86b0-aefae68b8ab7 | subnet3                            |
| 192.168.30.0/24 | {"start": "192.168.30.2", "end": "192.168.30.254"} |
| d0033218-1972-4ed2-9c1f-60bab6b802a1 | subnet4                            |
| 192.168.60.0/24 | {"start": "192.168.60.2", "end": "192.168.60.254"} |
| e82118e8-c551-4ece-909b-f22fee7db105 | subnet1                            |
| 192.168.10.0/24 | {"start": "192.168.10.2", "end": "192.168.10.254"} |
| 28d91cba-e048-4b49-9d49-5c77ea142bd5 | admin_floating_net_subnet         |
| 10.9.0.0/16    | {"start": "10.9.101.130", "end": "10.9.101.254"} |
| e8dbe092-a3f4-4e57-9efe-ea6aa3b76409 | subnet2                            |
+-----+-----+-----+
```

```

192.168.20.0/24 | {"start": "192.168.20.2", "end": "192.168.20.254"} |
| 5aff970f-939a-4a02-80f9-bc1b2422b3bc | admin_internal_net__subnet |
192.168.111.0/24 | {"start": "192.168.111.2", "end": "192.168.111.254"} |
+-----+-----+-----+-----+
--++-----+

```

```

root@node-21:~# neutron router-list

```

```

+-----+-----+-----+-----+
-----+
-----+
-----+
----+
| id | name |
external_gateway_info
| distributed | ha |
+-----+-----+-----+-----+
-----+
-----+
----+
| 3a282fa7-7aee-4430-a5f1-85155a32b20c | router04 | {"network_id": "17fab5f6-1dfc-4642-91dc-4027c66177ca", "enable_snat": true, "external_fixed_ips": [{"subnet_id": "28d91cba-e048-4b49-9d49-5c77ea142bd5", "ip_address": "10.9.101.130"}]} |
False | False |
| 835b7d1a-a4de-4dd0-b517-9a9b359ae58d | router1 |
null
| False | False |
+-----+-----+-----+-----+
-----+
-----+
-----+
----+

```

```

root@node-21:~# neutron router-interface-delete router1 4c22241e-057e-4ed1-86b0-aefae68b8ab7

```

```

Removed interface from router router1.

```

```

root@node-21:~# neutron router-interface-delete router1 d0033218-1972-4ed2-9c1f-60bab6b802a1

```

```

Removed interface from router router1.

```

```

root@node-21:~# neutron router-interface-delete router1 e82118e8-c551-4ece-909b-f22fee7db105

```

```

Removed interface from router router1.

```

```

root@node-21:~# neutron router-interface-delete router1 e8dbe092-a3f4-4e57-9efe-ea6aa3b76409

```

```

Removed interface from router router1.

```

```

root@node-21:~# neutron router-delete router1

```

```

Deleted router: router1

```

```

root@node-21:~# neutron router-interface-add router04 4c22241e-057e-4ed1-86b0-aefae68b8ab7

```

```

Added interface 7899dee2-4ee1-4c72-924d-c129e7e46d82 to router router04.

```

```

root@node-21:~# neutron router-interface-add router04 d0033218-1972-4ed2-9c1f-60bab6b802a1

```

```

Added interface 83a5721e-562a-4247-87b2-b700be709e59 to router router04.

```

```

root@node-21:~# neutron router-interface-add router04 e82118e8-c551-4ece-909b-

```

f22fee7db105

Added interface 0b882f4e-5330-46cd-bcd0-56350f88f154 to router router04.

root@node-21:~# neutron router-interface-add router04 e8dbe092-a3f4-4e57-9efe-ea6aa3b76409

Added interface fd5669a6-d815-470e-8d7a-dbbeaf154e12 to router router04.

Configured Interface on VM

```
Connected (unencrypted) to: QEMU (instance-0000001b)
64 bytes from 8.8.8.8: seq=0 ttl=55 time=5.896 ms

--- 8.8.8.8 ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 5.896/5.896/5.896 ms
$ ifconfig
eth0      Link encap:Ethernet  HWaddr FA:16:3E:C5:38:41
          inet addr:192.168.10.7  Bcast:192.168.10.255  Mask:255.255.255.0
          inet6 addr: fe80::f816:3eff:fec5:3841/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2980 errors:0 dropped:0 overruns:0 frame:0
          TX packets:743 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:253457 (247.5 KiB)  TX bytes:124066 (121.1 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:12 errors:0 dropped:0 overruns:0 frame:0
          TX packets:12 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1020 (1020.0 B)  TX bytes:1020 (1020.0 B)

$ _
```

Testing Public Networking Connectivity

```
Connected (unencrypted) to: QEMU (instance-0000001b)
$
$
$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
z[11]+ Stopped ping 8.8.8.8
$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: seq=0 ttl=55 time=6.757 ms
64 bytes from 8.8.8.8: seq=1 ttl=55 time=5.037 ms
64 bytes from 8.8.8.8: seq=2 ttl=55 time=4.891 ms
64 bytes from 8.8.8.8: seq=3 ttl=55 time=5.220 ms
64 bytes from 8.8.8.8: seq=4 ttl=55 time=3.908 ms
64 bytes from 8.8.8.8: seq=5 ttl=55 time=4.848 ms
[21]+ Stopped ping 8.8.8.8
$
$
$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: seq=0 ttl=55 time=12.378 ms
64 bytes from 8.8.8.8: seq=1 ttl=55 time=5.129 ms

--- 8.8.8.8 ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 5.129/8.753/12.378 ms
$ ping 8.8.8.8
```

Scenario 5:

Check Health and verify all relevant tests through Fuel Health Check page pass

https://10.9.90.94:8443/#cluster/4/healthcheck

Most Visited Suggested Sites Getting Started Web Slice Gallery

OpenStack FOLIO ENVIRONMENTS EQUIPMENT RELEASES PLUGINS SUPPORT

Home / Environments / pluribus / Health Check

pluribus (6 nodes)

Dashboard Nodes Networks Settings Logs Health Check

OpenStack Health Check

☒ Select All Provide credentials Stop Tests

	Expected Duration	Actual Duration	Status
☒ Sanity tests. Duration 30 sec - 2 min			
☒ Request flavor list	20 s.	0.8	✓
☒ Request image list using Nova	20 s.	0.7	✓
☒ Request instance list	20 s.	0.8	✓
☒ Request absolute limits list	20 s.	0.0	✓
☒ Request snapshot list	20 s.	0.7	✓
☒ Request volume list	20 s.	0.6	✓
☒ Request image list using Glance v1	10 s.	0.0	✓
☒ Request image list using Glance v2	10 s.	0.0	✓
☒ Request stack list	20 s.	0.0	✓
☒ Request active services list	20 s.	0.4	✓

https://10.9.90.94:8443/#cluster/4/healthcheck

Most Visited Suggested Sites Getting Started Web Slice Gallery

☒ Create user and authenticate with it.	80 s.	8.9	✓
☒ HA tests. Duration 30 sec - 8 min	Expected Duration	Actual Duration	Status
☒ Check state of haproxy backends on controllers	10 s.	1.2	✓
☒ Check data replication over mysql	10 s.	3.7	✓
☒ Check if amount of tables in databases is the same on each node	10 s.	4.0	✓
☒ Check galera environment state	10 s.	1.8	✓
☒ Check pacemaker status	10 s.	1.5	✓
☒ RabbitMQ availability	100 s.	12.4	✓
☒ RabbitMQ replication	100 s.	29.7	✓

Scenario 6:

Test Using Rally

```
root@node-21:~/rally# rally task start
samples/tasks/scenarios/neutron/create-and-delete-networks.yaml
```



```
-----  
---  
Preparing input task  
-----  
---
```

Input task is:

```
---  
NeutronNetworks.create_and_delete_networks:  
-  
  args:  
    network_create_args: {}  
  runner:  
    type: "constant"  
    times: 10  
    concurrency: 1  
  context:  
    users:  
      tenants: 1  
      users_per_tenant: 1  
    quotas:  
      neutron:  
        network: -1
```

Task syntax is correct :)

```
2016-09-16 05:45:03.079 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Task validation.  
2016-09-16 05:45:03.085 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Task validation of scenarios names.  
2016-09-16 05:45:03.088 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Task validation of scenarios names.  
2016-09-16 05:45:03.088 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Task validation of syntax.  
2016-09-16 05:45:03.107 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Task validation of syntax.  
2016-09-16 05:45:03.107 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Task validation of semantic.  
2016-09-16 05:45:03.107 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Task validation check cloud.  
2016-09-16 05:45:03.348 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Task validation check cloud.  
2016-09-16 05:45:03.358 2331 INFO  
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Enter context: `users`  
2016-09-16 05:45:04.133 2331 INFO  
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Enter context: `users`  
2016-09-16 05:45:04.257 2331 INFO  
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Exit context: `users`
```

```
2016-09-16 05:45:06.961 2331 INFO
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-
92c2-78e830359904 | Completed: Exit context: `users`
2016-09-16 05:45:06.962 2331 INFO rally.task.engine [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | Completed: Task validation of semantic.
2016-09-16 05:45:06.962 2331 INFO rally.task.engine [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | Completed: Task validation.
Task config is valid :)
```

```
-----
---
Task 04794c49-3996-4cb0-92c2-78e830359904: started
-----
---
```

Benchmarking... This can take a while...

To track task status use:

```
rally task status
or
rally task detailed
```

```
Using task: 04794c49-3996-4cb0-92c2-78e830359904
2016-09-16 05:45:06.975 2331 INFO rally.api [-] Benchmark Task 04794c49-3996-
4cb0-92c2-78e830359904 on Deployment 61888ec5-8df6-49b9-aecc-e89f0342351d
2016-09-16 05:45:06.978 2331 INFO rally.task.engine [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | Starting: Benchmarking.
2016-09-16 05:45:06.985 2331 INFO rally.task.engine [-] Running benchmark
with key:
```

```
{
  "kw": {
    "runner": {
      "type": "constant",
      "concurrency": 1,
      "times": 10
    },
    "args": {
      "network_create_args": {}
    },
    "context": {
      "users": {
        "users_per_tenant": 1,
        "tenants": 1
      },
      "quotas": {
        "neutron": {
          "network": -1
        }
      }
    }
  }
}
```

```

    },
    "name": "NeutronNetworks.create_and_delete_networks",
    "pos": 0
}
2016-09-16 05:45:06.992 2331 INFO
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-
92c2-78e830359904 | Starting: Enter context: `users`
2016-09-16 05:45:07.675 2331 INFO
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-
92c2-78e830359904 | Completed: Enter context: `users`
2016-09-16 05:45:07.675 2331 INFO
rally.plugins.openstack.context.quotas.quotas [-] Task 04794c49-3996-4cb0-
92c2-78e830359904 | Starting: Enter context: `quotas`
2016-09-16 05:45:07.948 2331 INFO
rally.plugins.openstack.context.quotas.quotas [-] Task 04794c49-3996-4cb0-
92c2-78e830359904 | Completed: Enter context: `quotas`
2016-09-16 05:45:07.968 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 1 START
2016-09-16 05:45:09.690 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 1 END: OK
2016-09-16 05:45:09.695 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 2 START
2016-09-16 05:46:04.514 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 2 END: OK
2016-09-16 05:46:04.523 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 3 START
2016-09-16 05:46:58.585 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 3 END: OK
2016-09-16 05:46:58.591 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 4 START
2016-09-16 05:47:53.959 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 4 END: OK
2016-09-16 05:47:53.964 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 5 START
2016-09-16 05:47:55.748 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 5 END: OK
2016-09-16 05:47:55.756 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 6 START
2016-09-16 05:47:57.450 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 6 END: OK
2016-09-16 05:47:57.457 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 7 START
2016-09-16 05:47:59.267 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 7 END: OK
2016-09-16 05:47:59.272 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 8 START
2016-09-16 05:48:52.818 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 8 END: OK
2016-09-16 05:48:52.823 3430 INFO rally.task.runner [-] Task 04794c49-3996-
4cb0-92c2-78e830359904 | ITER: 9 START

```

```
2016-09-16 05:49:46.450 3430 INFO rally.task.runner [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | ITER: 9 END: OK
2016-09-16 05:49:46.456 3430 INFO rally.task.runner [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | ITER: 10 START
2016-09-16 05:50:40.096 3430 INFO rally.task.runner [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | ITER: 10 END: OK
2016-09-16 05:50:40.106 2331 INFO
rally.plugins.openstack.context.cleanup.user [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: user resources cleanup
2016-09-16 05:50:42.152 2331 INFO
rally.plugins.openstack.context.cleanup.user [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: user resources cleanup
2016-09-16 05:50:42.152 2331 INFO
rally.plugins.openstack.context.quotas.quotas [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Exit context: `quotas`
2016-09-16 05:50:42.310 2331 INFO
rally.plugins.openstack.context.quotas.quotas [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Exit context: `quotas`
2016-09-16 05:50:42.310 2331 INFO
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Starting: Exit context: `users`
2016-09-16 05:50:44.925 2331 INFO
rally.plugins.openstack.context.keystone.users [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Exit context: `users`
2016-09-16 05:50:46.122 2331 INFO rally.task.engine [-] Load duration is:
332.126073
2016-09-16 05:50:46.123 2331 INFO rally.task.engine [-] Full runner duration
is: 332.152256
2016-09-16 05:50:46.123 2331 INFO rally.task.engine [-] Full duration is
337.936048
2016-09-16 05:50:46.141 2331 INFO rally.task.engine [-] Task 04794c49-3996-4cb0-92c2-78e830359904 | Completed: Benchmarking.
```

```
-----
---
Task 04794c49-3996-4cb0-92c2-78e830359904: finished
-----
---
```

test scenario NeutronNetworks.create_and_delete_networks

args position 0

args values:

```
{
  "runner": {
    "type": "constant",
    "concurrency": 1,
    "times": 10
  },
  "args": {
    "network_create_args": {}
  }
}
```

```

},
"context": {
  "users": {
    "users_per_tenant": 1,
    "project_domain": "default",
    "user_choice_method": "random",
    "user_domain": "default",
    "tenants": 1,
    "resource_management_workers": 20
  },
  "quotas": {
    "neutron": {
      "network": -1
    }
  }
}
}

```

```

-----
---
Task 04794c49-3996-4cb0-92c2-78e830359904 has 0 error(s)
-----
---
```

Response Times (sec)					
Action	Min (sec)	Median (sec)	90%ile (sec)	95%ile (sec)	Count
neutron.create_network	0.392	0.431	0.447	0.487	10
neutron.delete_network	1.264	53.109	54.476	54.702	10
total	1.694	53.585	54.873	55.12	10

```

Load duration: 332.126073
Full duration: 337.936048
```

HINTS:

```

* To plot HTML graphics with this data, run:
    rally task report 04794c49-3996-4cb0-92c2-78e830359904 --out
    output.html

```

* To generate a JUnit report, run:

```
rally task report 04794c49-3996-4cb0-92c2-78e830359904 --junit --out
output.xml
```

* To get raw JSON output of task results, run:

```
rally task results 04794c49-3996-4cb0-92c2-78e830359904
```

```
root@node-21:~/rally# rally task report 04794c49-3996-4cb0-92c2-78e830359904
--out output.html
root@node-21:~/rally#
```

CLI (network-admin@Spine) > vNET-show

switch name	scope	vlangs	managed-ports	admin
vNET-mgr-name				
-----	-----	-----	-----	-----
Spine mirantis	fabric	5	none	mirantis-
admin mirantis-mgr				
Spine net1-1004	fabric	1004	none	net1-1004-
admin net1-1004-mgr				
Spine net2-1030	fabric	1030	none	net2-1030-
admin net2-1030-mgr				
Spine net3-1001	fabric	1001	none	net3-1001-
admin net3-1001-mgr				
Spine net4-1025	fabric	1025	none	net4-1025-
admin net4-1025-mgr				
Spine newnet-1005	fabric	1005	none	newnet-1005-
admin newnet-1005-mgr				
Spine openstack-global	fabric	none	none	
Spine s_rally_03b1ba3e_3bxyqeyW-1003	fabric	1003	none	
s_rally_03b1ba3e_3bxyqeyW-1003-admin s_rally_03b1ba3e_3bxyqeyW-1003-mgr				
Spine s_rally_03b1ba3e_5lMPmuCA-1008	fabric	1008	none	
s_rally_03b1ba3e_5lMPmuCA-1008-admin s_rally_03b1ba3e_5lMPmuCA-1008-mgr				
Spine s_rally_03b1ba3e_D8q4WVih-1014	fabric	1014	none	
s_rally_03b1ba3e_D8q4WVih-1014-admin s_rally_03b1ba3e_D8q4WVih-1014-mgr				
Spine s_rally_03b1ba3e_Gab4XcBL-1024	fabric	1024	none	
s_rally_03b1ba3e_Gab4XcBL-1024-admin s_rally_03b1ba3e_Gab4XcBL-1024-mgr				
Spine s_rally_03b1ba3e_MUHzdmLD-1017	fabric	1017	none	
s_rally_03b1ba3e_MUHzdmLD-1017-admin s_rally_03b1ba3e_MUHzdmLD-1017-mgr				
Spine s_rally_03b1ba3e_OHOBvTMz-1010	fabric	1010	none	
s_rally_03b1ba3e_OHOBvTMz-1010-admin s_rally_03b1ba3e_OHOBvTMz-1010-mgr				
Spine s_rally_03b1ba3e_PhD6ldKr-1007	fabric	1007	none	
s_rally_03b1ba3e_PhD6ldKr-1007-admin s_rally_03b1ba3e_PhD6ldKr-1007-mgr				
Spine s_rally_03b1ba3e_Vaqn6IEP-1027	fabric	1027	none	
s_rally_03b1ba3e_Vaqn6IEP-1027-admin s_rally_03b1ba3e_Vaqn6IEP-1027-mgr				
Spine s_rally_03b1ba3e_ZvrTlWGh-1018	fabric	1018	none	
s_rally_03b1ba3e_ZvrTlWGh-1018-admin s_rally_03b1ba3e_ZvrTlWGh-1018-mgr				

```
Spine s_rally_03b1ba3e_tXWtMSfG-1002 fabric 1002 none
s_rally_03b1ba3e_tXWtMSfG-1002-admin s_rally_03b1ba3e_tXWtMSfG-1002-mgr
```

Scenario 6:

Iperf Traffic throughput testing between VMs

VM Specs

2 Centos 7.0 VMs were used to test performance using Iperf

VM1: Centos70-2

VM2: Centos70

Instances

Instance Name Filter Filter Launch Instance Terminate Instances More Actions											
	Instance Name	Image Name	IP Address	Size	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
☐	Centos70-2	Centos	192.168.10.30	m1.xlarge	Centos7	Active	nova	None	Running	22 hours, 39 minutes	Create Snapshot
☐	Centos70	Centos	192.168.10.29	m1.large	Centos7	Active	nova	None	Running	22 hours, 51 minutes	Create Snapshot
☐	vm-same	TestVM	192.168.10.6	m1.micro	-	Active	nova	None	Running	1 month	Create Snapshot
☐	vm-4	TestVM	192.168.60.5	m1.micro	-	Active	nova	None	Running	1 month	Create Snapshot
☐	vm3	TestVM	192.168.30.5	m1.tiny	-	Active	nova	None	Running	1 month	Create Snapshot
☐	vm-2	TestVM	192.168.20.5	m1.micro	-	Active	nova	None	Running	1 month	Create Snapshot
☐	vm-1	TestVM	192.168.10.5	m1.micro	-	Active	nova	None	Running	1 month	Create Snapshot
Displaying 7 items											

```
CLI (network-admin@spine) > dhcp-host-show
dhcp-name      hostname      mac           pxe-boot gateway-ip  fixed-ip
-----
net1-1004-dhcp fa-16-3e-48-de-3b fa:16:3e:48:de:3b no      192.168.10.1 192.168.10.5
net1-1004-dhcp fa-16-3e-39-a2-9b fa:16:3e:39:a2:9b no      192.168.10.1 192.168.10.6
net1-1004-dhcp fa-16-3e-ea-92-54 fa:16:3e:ea:92:54 no      192.168.10.1 192.168.10.29
net1-1004-dhcp fa-16-3e-0d-5b-2f fa:16:3e:0d:5b:2f no      192.168.10.1 192.168.10.30
net2-1030-dhcp fa-16-3e-11-11-ef fa:16:3e:11:11:ef no      192.168.20.1 192.168.20.5
net3-1001-dhcp fa-16-3e-0a-c7-f2 fa:16:3e:0a:c7:f2 no      192.168.30.1 192.168.30.5
net4-1025-dhcp fa-16-3e-7f-90-f9 fa:16:3e:7f:90:f9 no      192.168.60.1 192.168.60.5
CLI (network-admin@spine) >
```

TCP Test

Client Logs:

```
[root@centos70-2 centos]# iperf3 -s
-----
Server listening on 5201
-----
Accepted connection from 192.168.10.29, port 38223
[ 51] local 192.168.10.30 port 5201 connected to 192.168.10.29 port 38224
[ ID] Interval                Transfer          Bandwidth
[ 51] 0.00-1.00 sec           74.9 MBytes      626 Mbits/sec
[ 51] 1.00-2.00 sec           82.1 MBytes      689 Mbits/sec
[ 51] 2.00-3.00 sec           90.4 MBytes      757 Mbits/sec
[ 51] 3.00-4.00 sec           85.8 MBytes      720 Mbits/sec
[ 51] 4.00-5.00 sec           80.9 MBytes      678 Mbits/sec
[ 51] 5.00-6.00 sec           81.2 MBytes      682 Mbits/sec
[ 51] 6.00-7.00 sec           89.4 MBytes      749 Mbits/sec
[ 51] 7.00-8.00 sec           92.0 MBytes      773 Mbits/sec
[ 51] 8.00-9.00 sec           78.4 MBytes      656 Mbits/sec
[ 51] 9.00-10.00 sec          84.9 MBytes      712 Mbits/sec
[ 51] 10.00-11.01 sec          87.9 MBytes      736 Mbits/sec
[ 51] 11.01-12.00 sec          88.8 MBytes      746 Mbits/sec
[ 51] 12.00-13.00 sec          92.2 MBytes      773 Mbits/sec
[ 51] 13.00-14.00 sec          88.0 MBytes      739 Mbits/sec
[ 51] 14.00-15.00 sec          86.1 MBytes      722 Mbits/sec
[ 51] 15.00-16.01 sec          77.6 MBytes      650 Mbits/sec
[ 51] 16.01-17.00 sec          85.9 MBytes      722 Mbits/sec
[ 51] 17.00-18.01 sec          79.8 MBytes      662 Mbits/sec
[ 51] 18.01-19.00 sec          87.5 MBytes      742 Mbits/sec
[ 51] 19.00-20.00 sec          86.4 MBytes      725 Mbits/sec
[ 51] 20.00-21.00 sec          81.3 MBytes      683 Mbits/sec
[ 51] 21.00-22.00 sec          70.9 MBytes      594 Mbits/sec
[ 51] 22.00-23.00 sec          88.2 MBytes      740 Mbits/sec
[ 51] 23.00-24.00 sec          87.1 MBytes      731 Mbits/sec
[ 51] 24.00-25.01 sec          84.2 MBytes      706 Mbits/sec
[ 51] 25.01-26.00 sec          89.6 MBytes      753 Mbits/sec
[ 51] 26.00-27.01 sec          81.4 MBytes      681 Mbits/sec
[ 51] 27.01-28.01 sec          69.9 MBytes      586 Mbits/sec
[ 51] 28.01-29.00 sec          69.5 MBytes      584 Mbits/sec
[ 51] 29.00-30.00 sec          85.5 MBytes      716 Mbits/sec
[ 51] 30.00-30.02 sec           0.00 Bytes       0.00 bits/sec
-----
[ ID] Interval                Transfer          Bandwidth
[ 51] 0.00-30.02 sec           2.45 GBytes      701 Mbits/sec
-----
Server listening on 5201
-----
```

Server Logs:

Connecting to host 192.168.10.30, port 5201

```
[ 4] local 192.168.10.29 port 38224 connected to 192.168.10.30 port 5201
[ ID] Interval                Transfer          Bandwidth      Retr  Cwnd
[ 4] 0.00-1.00 sec           76.4 MBytes      640 Mbits/sec    0     332 KBytes
[ 4] 1.00-2.00 sec           82.7 MBytes      693 Mbits/sec    0     342 KBytes
[ 4] 2.00-3.00 sec           90.2 MBytes      757 Mbits/sec    0     342 KBytes
[ 4] 3.00-4.00 sec           85.9 MBytes      721 Mbits/sec    0     351 KBytes
[ 4] 4.00-5.00 sec           80.8 MBytes      678 Mbits/sec    0     356 KBytes
[ 4] 5.00-6.00 sec           81.2 MBytes      682 Mbits/sec    0     362 KBytes
[ 4] 6.00-7.00 sec           89.4 MBytes      749 Mbits/sec    0     362 KBytes
[ 4] 7.00-8.00 sec           92.0 MBytes      772 Mbits/sec    0     369 KBytes
[ 4] 8.00-9.00 sec           78.4 MBytes      658 Mbits/sec    0     369 KBytes
[ 4] 9.00-10.00 sec          84.8 MBytes      712 Mbits/sec    0     375 KBytes
[ 4] 10.00-11.00 sec          87.9 MBytes      737 Mbits/sec    0     375 KBytes
```


[4]	11.00-12.00	sec	88.7 MBytes	745 Mbits/sec	0	376 KBytes
[4]	12.00-13.00	sec	92.2 MBytes	774 Mbits/sec	0	378 KBytes
[4]	13.00-14.00	sec	88.1 MBytes	739 Mbits/sec	0	380 KBytes
[4]	14.00-15.00	sec	86.1 MBytes	722 Mbits/sec	0	382 KBytes
[4]	15.00-16.00	sec	77.8 MBytes	652 Mbits/sec	0	383 KBytes
[4]	16.00-17.00	sec	85.9 MBytes	721 Mbits/sec	0	385 KBytes
[4]	17.00-18.00	sec	79.7 MBytes	668 Mbits/sec	0	385 KBytes
[4]	18.00-19.00	sec	87.5 MBytes	735 Mbits/sec	0	385 KBytes
[4]	19.00-20.00	sec	86.4 MBytes	724 Mbits/sec	0	385 KBytes
[4]	20.00-21.03	sec	79.4 MBytes	648 Mbits/sec	0	386 KBytes
[4]	21.03-22.00	sec	72.8 MBytes	628 Mbits/sec	0	397 KBytes
[4]	22.00-23.00	sec	88.3 MBytes	741 Mbits/sec	0	397 KBytes
[4]	23.00-24.00	sec	87.1 MBytes	731 Mbits/sec	0	397 KBytes
[4]	24.00-25.00	sec	84.2 MBytes	707 Mbits/sec	0	397 KBytes
[4]	25.00-26.00	sec	89.7 MBytes	752 Mbits/sec	0	397 KBytes
[4]	26.00-27.00	sec	81.3 MBytes	683 Mbits/sec	0	397 KBytes
[4]	27.00-28.00	sec	70.2 MBytes	588 Mbits/sec	0	397 KBytes
[4]	28.00-29.00	sec	69.1 MBytes	581 Mbits/sec	0	397 KBytes
[4]	29.00-30.01	sec	85.5 MBytes	714 Mbits/sec	0	397 KBytes
- - - - -						
[ID]	Interval		Transfer	Bandwidth	Retr	
[4]	0.00-30.01	sec	2.45 GBytes	702 Mbits/sec	0	sender
[4]	0.00-30.01	sec	2.45 GBytes	701 Mbits/sec		receiver

iperf Done.

UDP Test

Client Logs:

```

root@centos70-2 centos1# iperf3 -s
-----
Server listening on 5201
-----
Accepted connection from 192.168.10.29, port 38238
Warning: Unable to set socket pacing, using application pacing instead
[ 51] local 192.168.10.30 port 5201 connected to 192.168.10.29 port 43591
[ ID] Interval           Transfer     Bandwidth       Jitter         Lost/Total Datagrams
[ 51] 0.00-1.00    sec   1.09 MBytes  9.09 Mbits/sec  0.104 ms      0/139 (0%)
[ 51] 1.00-2.00    sec   1.19 MBytes  9.96 Mbits/sec  0.104 ms      0/152 (0%)
[ 51] 2.00-3.00    sec   1.20 MBytes 10.0 Mbits/sec  0.099 ms      0/153 (0%)
[ 51] 3.00-4.00    sec   1.19 MBytes  9.96 Mbits/sec  0.100 ms      0/152 (0%)
[ 51] 4.00-5.00    sec   1.20 MBytes 10.0 Mbits/sec  0.143 ms      0/153 (0%)
[ 51] 5.00-6.00    sec   1.19 MBytes  9.96 Mbits/sec  0.116 ms      0/152 (0%)
[ 51] 6.00-7.00    sec   1.20 MBytes 10.0 Mbits/sec  0.124 ms      0/153 (0%)
[ 51] 7.00-8.00    sec   1.20 MBytes 10.0 Mbits/sec  0.182 ms      0/153 (0%)
[ 51] 8.00-9.00    sec   1.19 MBytes  9.96 Mbits/sec  0.183 ms      0/152 (0%)
[ 51] 9.00-10.00   sec   1.20 MBytes 10.0 Mbits/sec  0.148 ms      0/153 (0%)
[ 51] 10.00-11.00   sec   1.20 MBytes 10.0 Mbits/sec  0.140 ms      0/153 (0%)
[ 51] 11.00-12.00   sec   1.19 MBytes  9.96 Mbits/sec  0.146 ms      0/152 (0%)
[ 51] 12.00-13.00   sec   1.20 MBytes 10.0 Mbits/sec  0.121 ms      0/153 (0%)
[ 51] 13.00-14.00   sec   1.19 MBytes  9.97 Mbits/sec  0.195 ms      0/152 (0%)
[ 51] 14.00-15.00   sec   1.20 MBytes 10.0 Mbits/sec  0.121 ms      0/153 (0%)
[ 51] 15.00-16.00   sec   1.19 MBytes  9.96 Mbits/sec  0.126 ms      0/152 (0%)
[ 51] 16.00-17.00   sec   1.20 MBytes 10.0 Mbits/sec  0.149 ms      0/153 (0%)
[ 51] 17.00-18.00   sec   1.20 MBytes 10.0 Mbits/sec  0.110 ms      0/153 (0%)
[ 51] 18.00-19.00   sec   1.19 MBytes  9.96 Mbits/sec  0.118 ms      0/152 (0%)
[ 51] 19.00-20.00   sec   1.20 MBytes 10.0 Mbits/sec  0.147 ms      0/153 (0%)
[ 51] 20.00-21.00   sec   1.20 MBytes 10.0 Mbits/sec  0.168 ms      0/153 (0%)
[ 51] 21.00-22.00   sec   1.19 MBytes  9.96 Mbits/sec  0.098 ms      0/152 (0%)
[ 51] 22.00-23.00   sec   1.20 MBytes 10.0 Mbits/sec  0.115 ms      0/153 (0%)
[ 51] 23.00-24.00   sec   1.19 MBytes  9.96 Mbits/sec  0.099 ms      0/152 (0%)
[ 51] 24.00-25.00   sec   1.20 MBytes 10.0 Mbits/sec  0.102 ms      0/153 (0%)
[ 51] 25.00-26.00   sec   1.19 MBytes  9.96 Mbits/sec  0.082 ms      0/152 (0%)
[ 51] 26.00-27.00   sec   1.20 MBytes 10.0 Mbits/sec  0.200 ms      0/153 (0%)
[ 51] 27.00-28.00   sec   1.19 MBytes  9.96 Mbits/sec  0.127 ms      0/152 (0%)
[ 51] 28.00-29.00   sec   1.20 MBytes 10.0 Mbits/sec  0.098 ms      0/153 (0%)
[ 51] 29.00-30.00   sec   1.20 MBytes 10.0 Mbits/sec  0.117 ms      0/153 (0%)
[ 51] 30.00-30.01   sec   0.00 Bytes   0.00 bits/sec  0.117 ms      0/0 (0%)
-----
[ ID] Interval           Transfer     Bandwidth       Jitter         Lost/Total Datagrams
[ 51] 0.00-30.01   sec   0.00 Bytes   0.00 bits/sec  0.117 ms      0/4564 (0%)
-----
Server listening on 5201
-----

```

Server Logs:

Connecting to host 192.168.10.30, port 5201

[4] local 192.168.10.29 port 43591 connected to 192.168.10.30 port 5201

[ID]	Interval		Transfer	Bandwidth	Total Datagrams
[4]	0.00-1.00	sec	1.09 MBytes	9.10 Mbits/sec	139
[4]	1.00-2.00	sec	1.19 MBytes	9.96 Mbits/sec	152
[4]	2.00-3.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	3.00-4.00	sec	1.19 MBytes	9.96 Mbits/sec	152
[4]	4.00-5.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	5.00-6.00	sec	1.19 MBytes	9.96 Mbits/sec	152
[4]	6.00-7.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	7.00-8.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	8.00-9.00	sec	1.19 MBytes	9.96 Mbits/sec	152
[4]	9.00-10.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	10.00-11.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	11.00-12.00	sec	1.19 MBytes	9.96 Mbits/sec	152
[4]	12.00-13.00	sec	1.20 MBytes	10.0 Mbits/sec	153
[4]	13.00-14.00	sec	1.19 MBytes	9.96 Mbits/sec	152

[4]	14.00-15.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	15.00-16.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	16.00-17.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	17.00-18.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	18.00-19.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	19.00-20.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	20.00-21.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	21.00-22.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	22.00-23.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	23.00-24.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	24.00-25.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	25.00-26.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	26.00-27.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	27.00-28.00	sec	1.19 MBytes	9.96 Mbits/sec	152	
[4]	28.00-29.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
[4]	29.00-30.00	sec	1.20 MBytes	10.0 Mbits/sec	153	
- - - - -						
[ID]	Interval		Transfer	Bandwidth	Jitter	Lost/Total
Datagrams						
[4]	0.00-30.00	sec	35.7 MBytes	9.97 Mbits/sec	0.117 ms	0/4564 (0%)
[4]	Sent 4564 datagrams					

iperf Done.