



# OpenStack Networking

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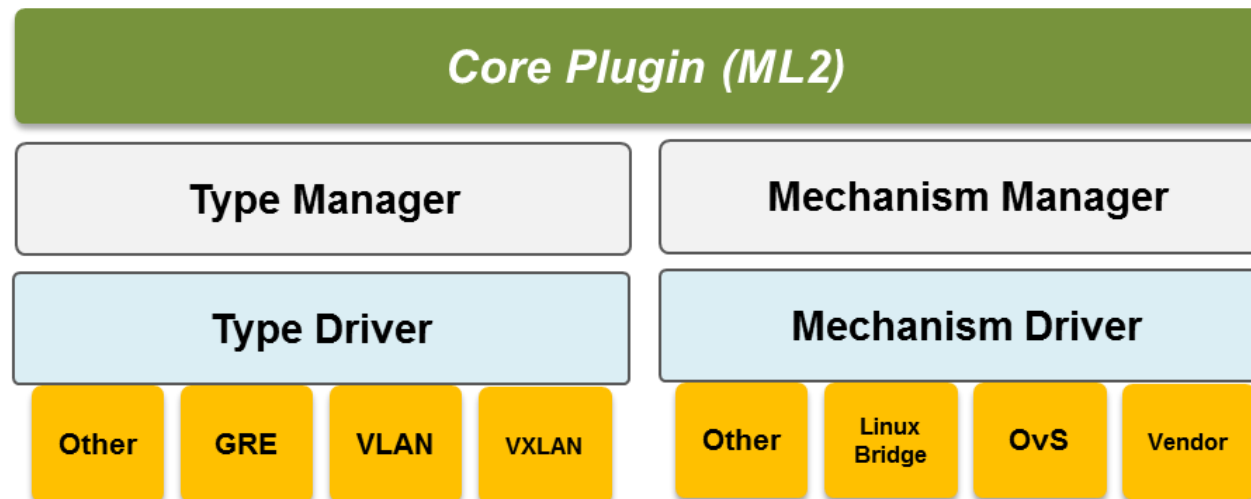
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- ❖ OpenStack Networking
- ❖ OpenStack Installation # 1
- ❖ OpenStack Installation # 2

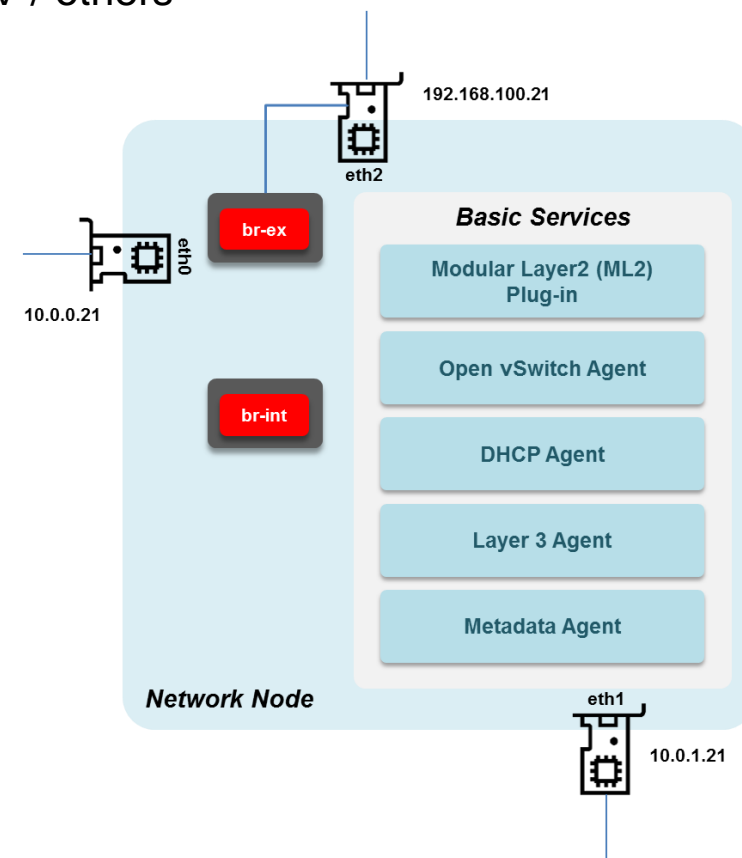
## ❖ OpenStack Networking (Neutron)

- Modular Layer 2 (ML2) plugin
  - A common framework for various L2 networking services needed in real world
    - Enables OpenStack networking to use them compatibly
    - Simplifies the way to add new and vendor-specific L2 networking technologies
  - Receives networking requests from the Neutron API server
    - Be aware of the **network type (VXLAN, GRE, etc.) configuration** of the requestor (tenant)
    - Relays the requests to the corresponding **mechanism (OvS, Linux Bridge, etc.) agents** on each node



## ❖ OpenStack Networking (Neutron)

- Layer 2 agent
  - Handles L2 service requests from a corresponding ML2 mechanism driver
  - Runs on each network node and compute node
  - Agent for OVS / Linux bridge / SR-IOV NIC Switch / MacVTap / Hyper-V / others
- Layer 3 agent
  - Provides advanced L3 services
  - Virtual router, NAT, VPN, load balancer
- DHCP agent
  - Provides DHCP operations to each VM
- Metadata agent
  - Provides tenant-specific network configuration
  - IP address space, ssh-keys, network namespace, etc.
- Security group
  - Firewall rules defined in a tenant-level
  - Filters network traffic to/from a VM

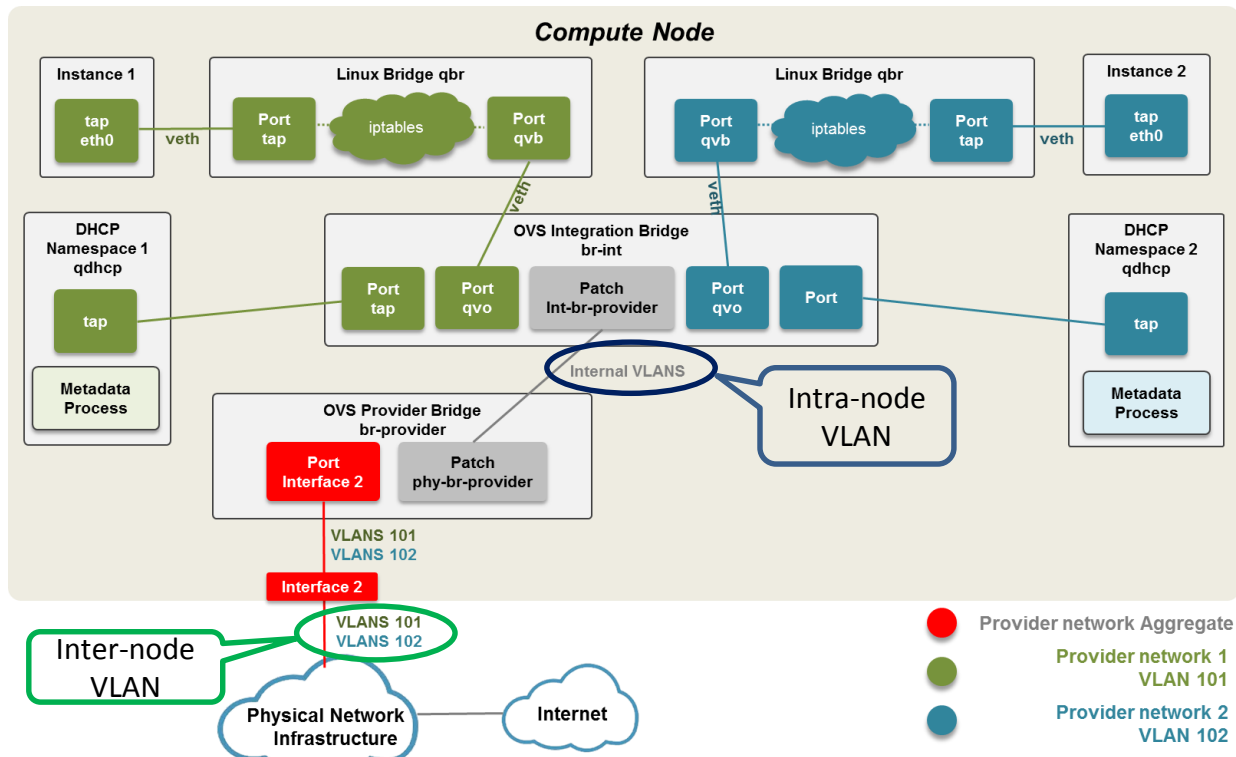


## ❖ OpenStack Networking (Neutron)

- Linux bridge for iptables
- OVS bridges for packet switching
- DHCP client for each VM

### Provider network

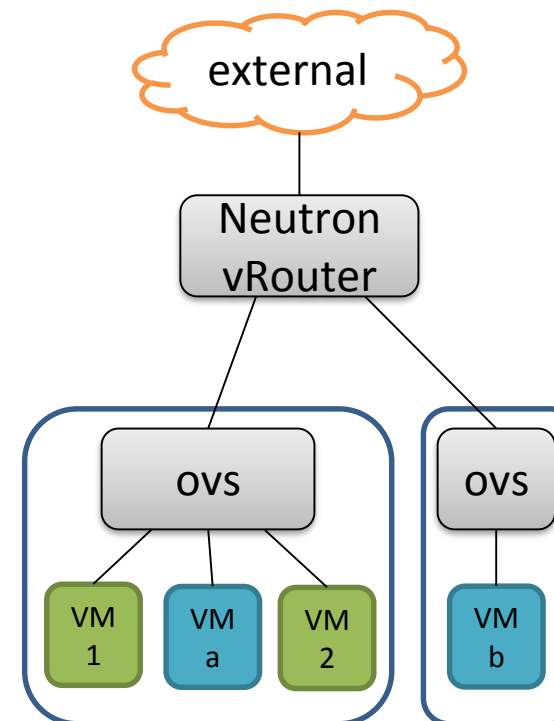
- Relies on existing infrastructure for Inter-node networking



<https://docs.openstack.org/mitaka/networking-guide/deploy-ovs-provider.html>

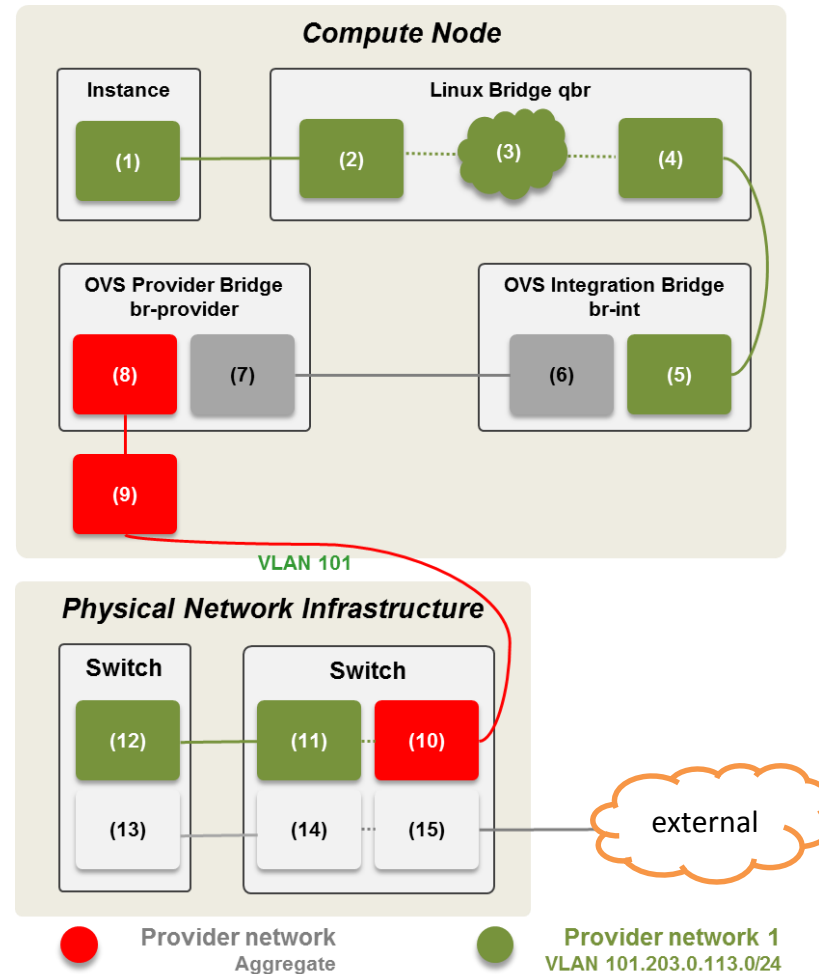
### Self service network

- Uses vRouter



## ❖ OpenStack Networking (Neutron)

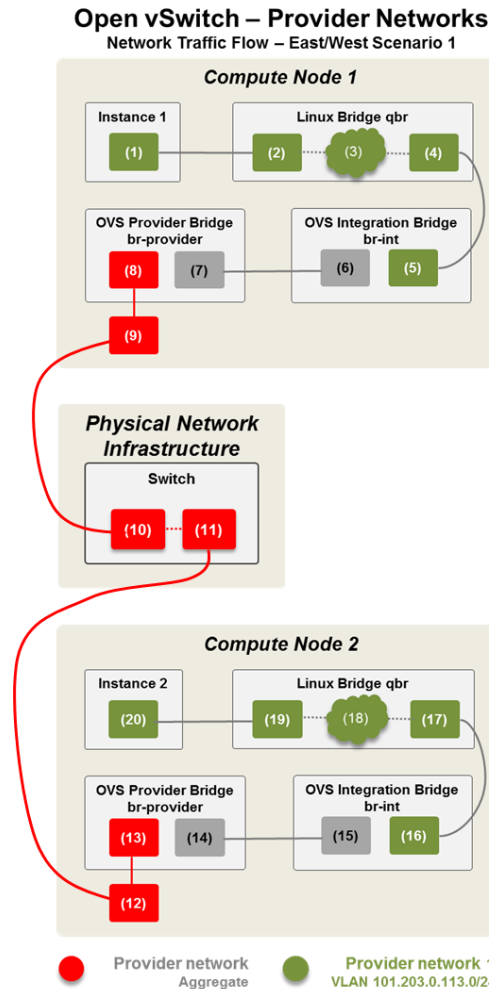
- North-south network traffic flow



<https://docs.openstack.org/mitaka/networking-guide/deploy-ovs-provider.html>

## ❖ OpenStack Networking (Neutron)

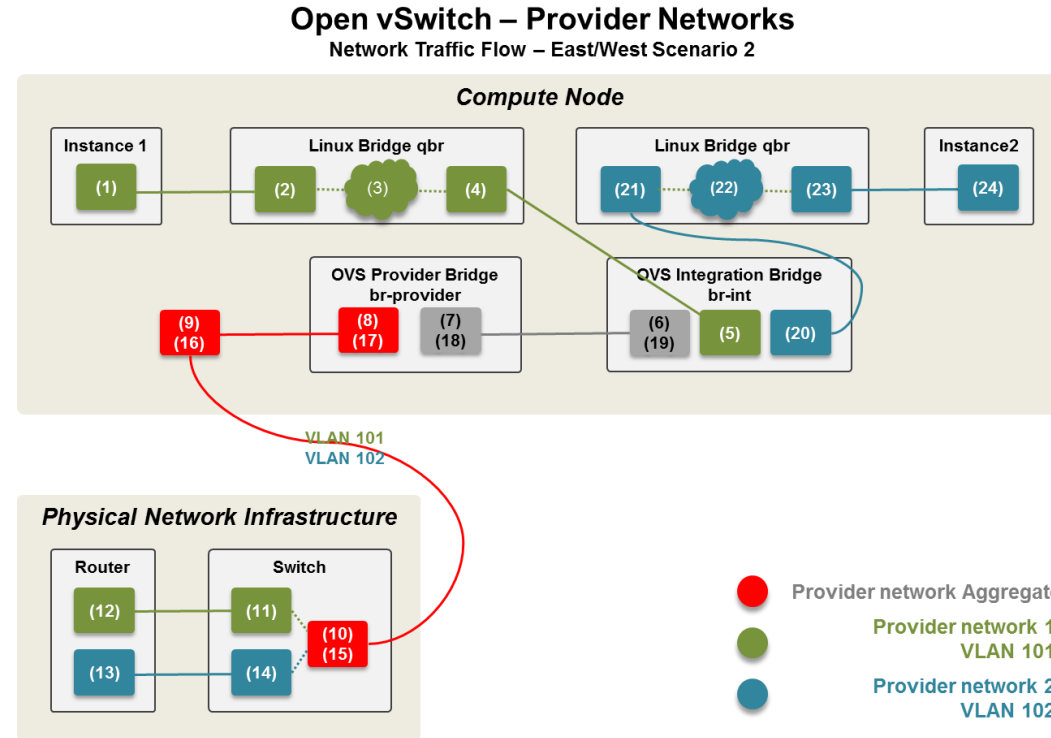
- Traffic flow b/w VMs on the same network



<https://docs.openstack.org/mitaka/networking-guide/deploy-ovs-provider.html>

## ❖ OpenStack Networking (Neutron)

- Traffic flow b/w VMs on different networks



<https://docs.openstack.org/mitaka/networking-guide/deploy-ovs-provider.html>



## ❖ OpenStack Additional Services

- <https://docs.openstack.org/ocata/install-guide-rdo/additional-services.html>

## ❖ OpenStack Installation

- Manual install guide: <https://docs.openstack.org/project-install-guide/ocata/>
- DevStack (Ubuntu): <https://github.com/openstack-dev/devstack>
- Jujucharms (Ubuntu): <https://jujucharms.com/openstack>
- Packstack (Redhat): <https://www.rdoproject.org/install/quickstart/>