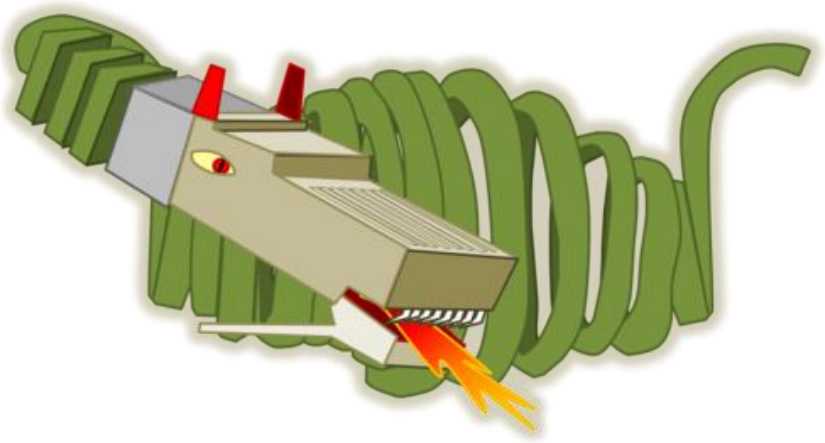
开源社
kaiyuanshe


# 2016中国开源年会

## China Open Source Conference 2016



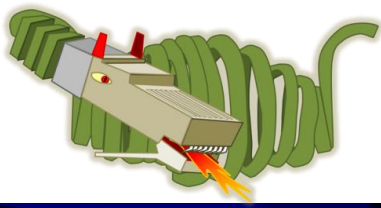
# dragonflow简介

肖宏辉　　华为技术有限公司

IRC： xiaohhui

# What is dragonflow?

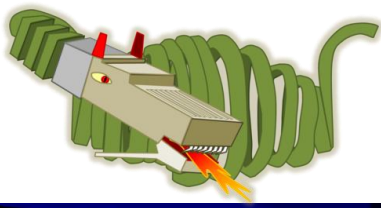
- Integral part of OpenStack Neutron
- Fully Open Source
  - https://launchpad.net/dragonflow
- Lightweight Distributed SDN Controller with pluggable database



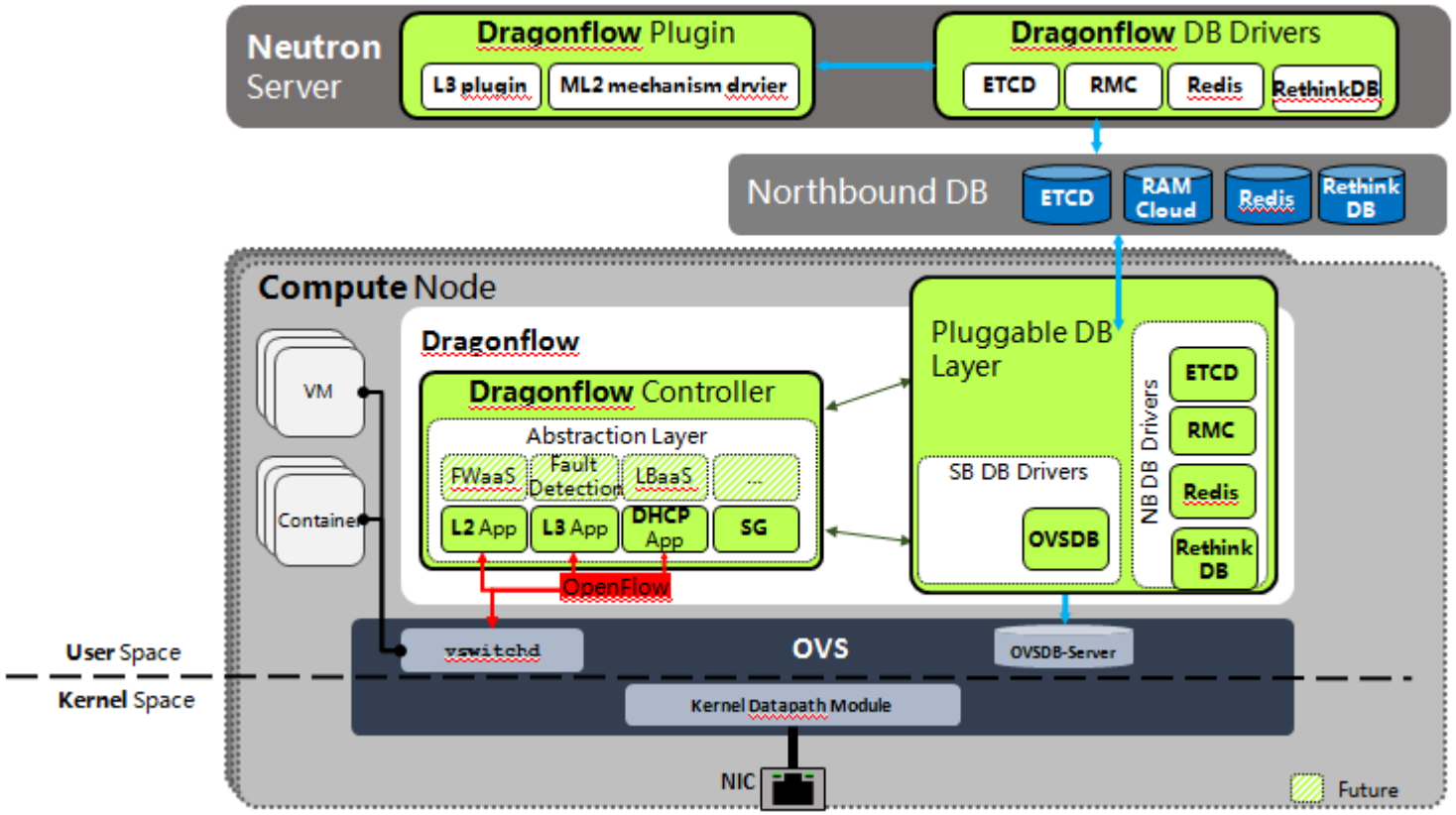
# What is dragonflow?

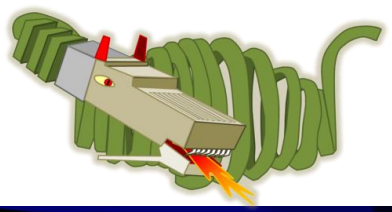
- Dragonflow architecture consists of Neutron plugins which maps the Neutron models to new logical topology models

- Dragonflow synchronizes this with local Dragonflow controllers which are distributed at each of the compute nodes using a pluggable distributed DB solution.

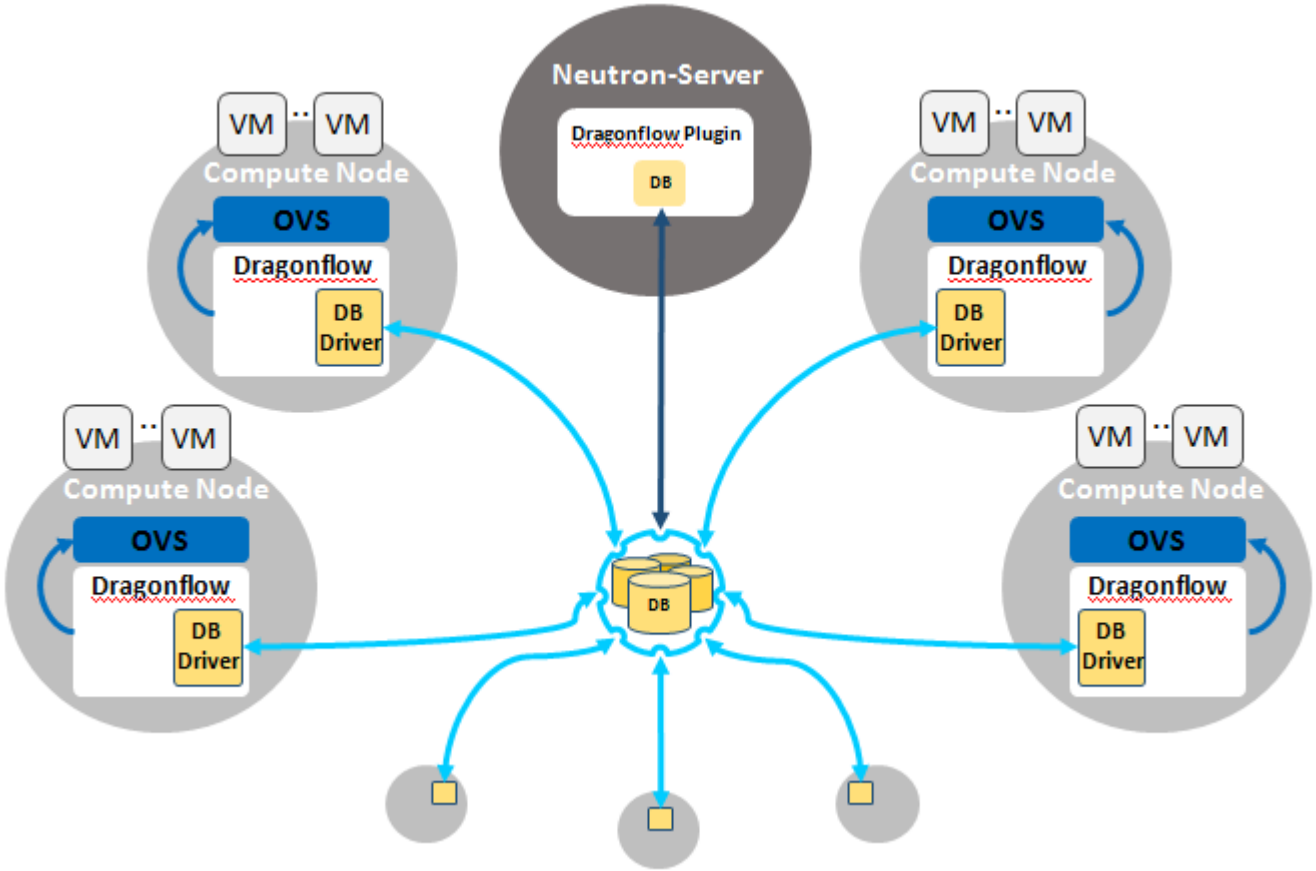


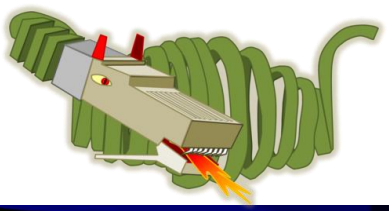
# Dragonflow architecture



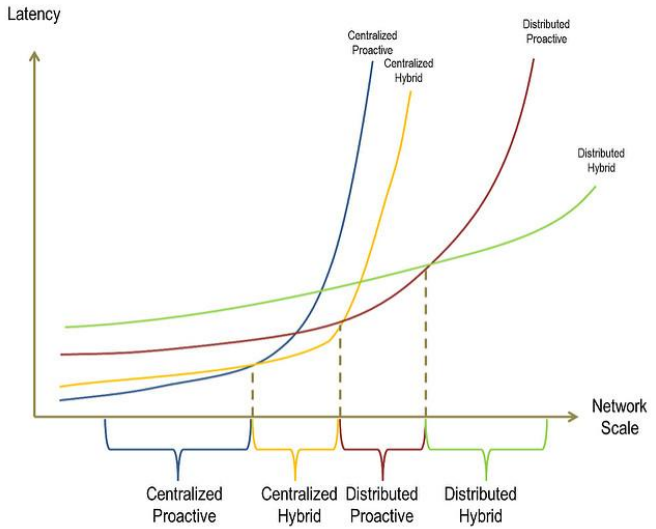
# Data synchronization in Dragonflow



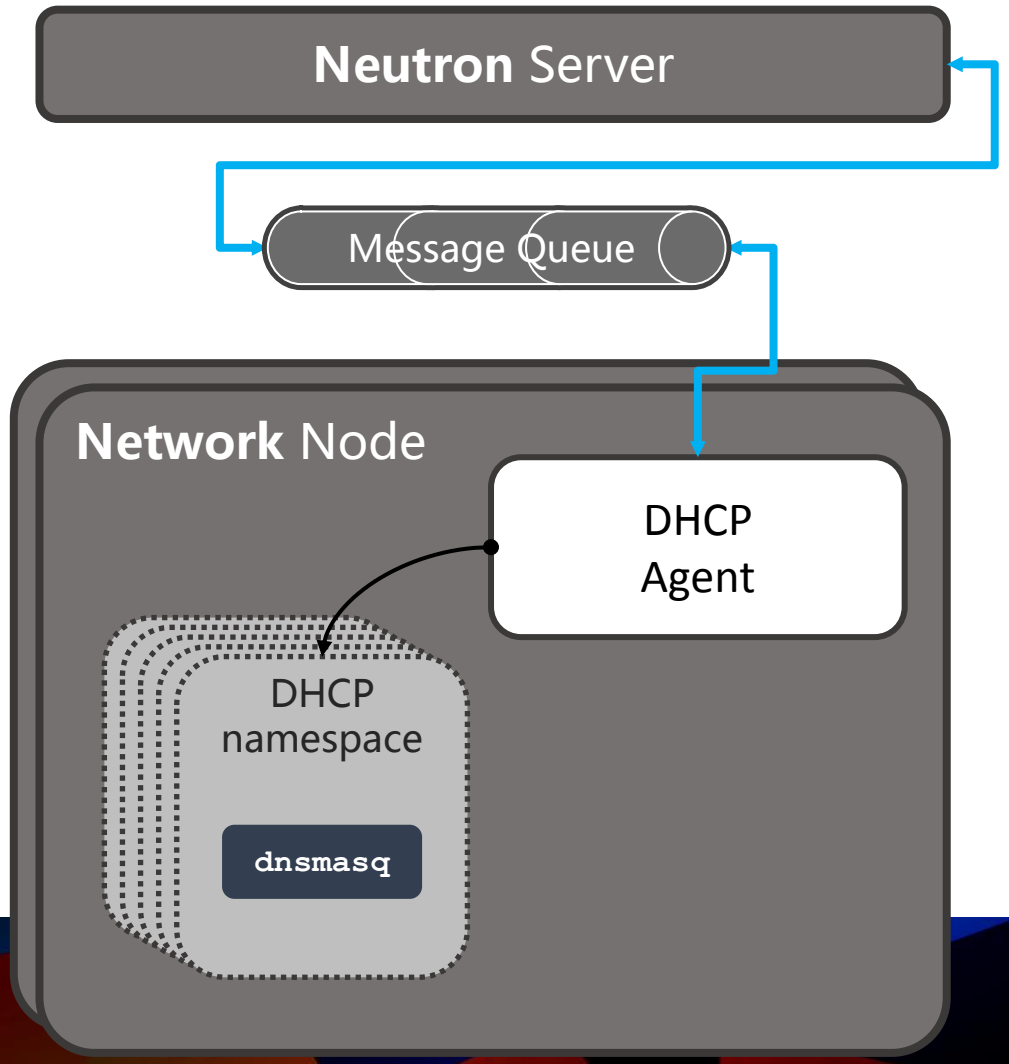
# Dragonflow VS Neutron legacy

- Eliminate neutron agents
- Use pub/sub Mechanism to notify compute node about the change
- Distribute the control plane to compute nodes



# DHCP

# **Neutron** DHCP Implementation

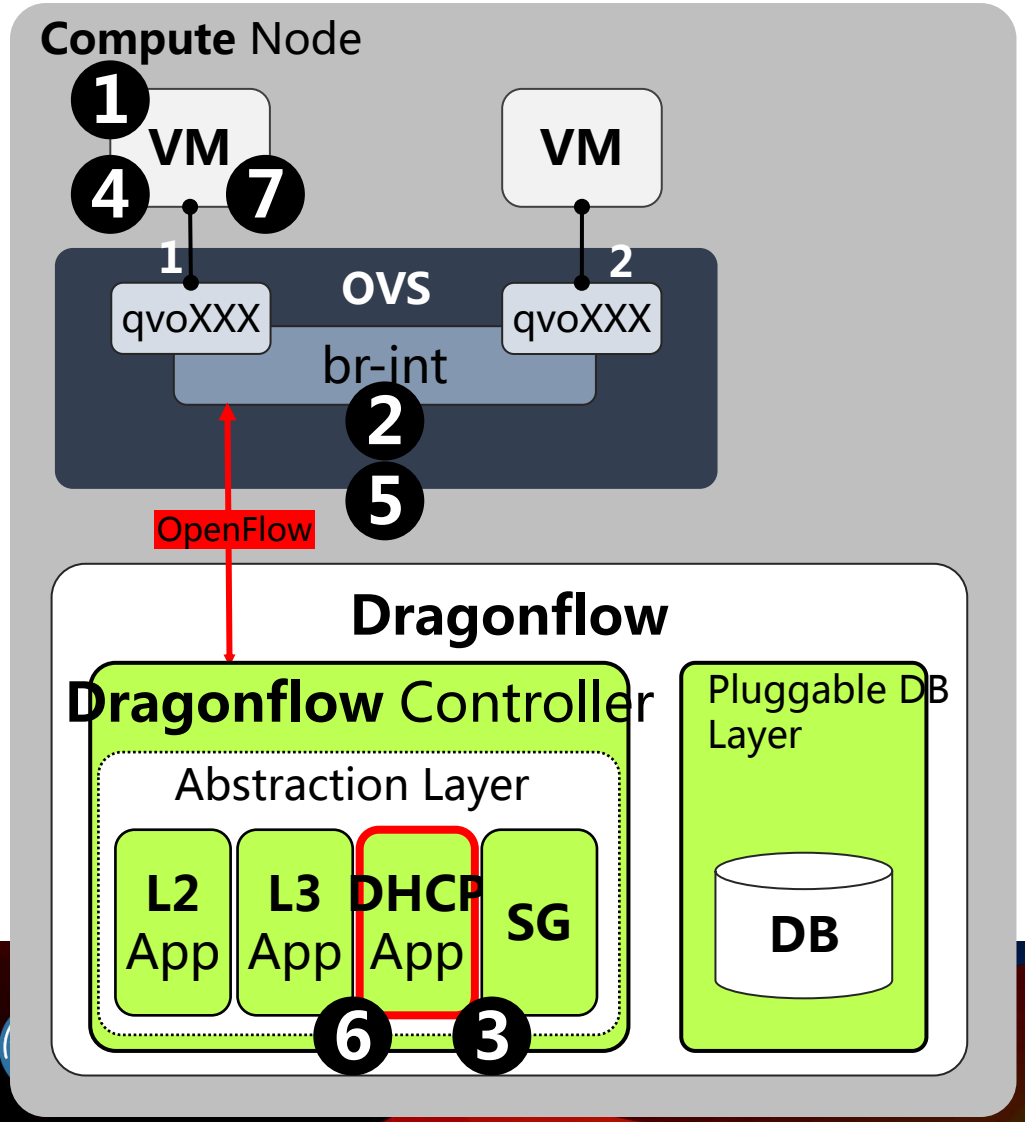


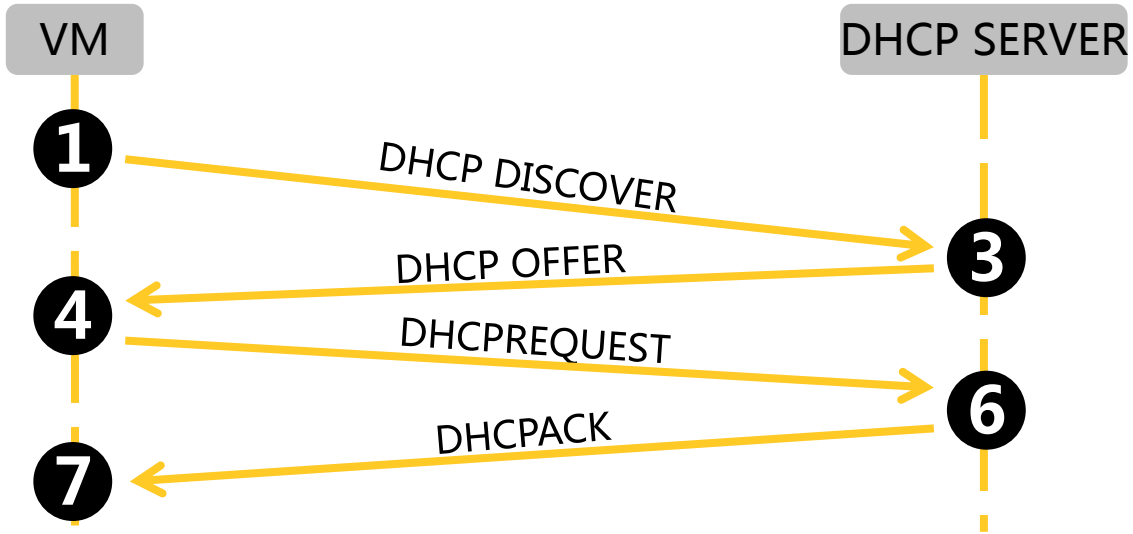

## Example

- 100 Tenants
- 3 vNet / tenant

= **300 DHCP Servers**

# **Dragonflow** Distributed DHCP



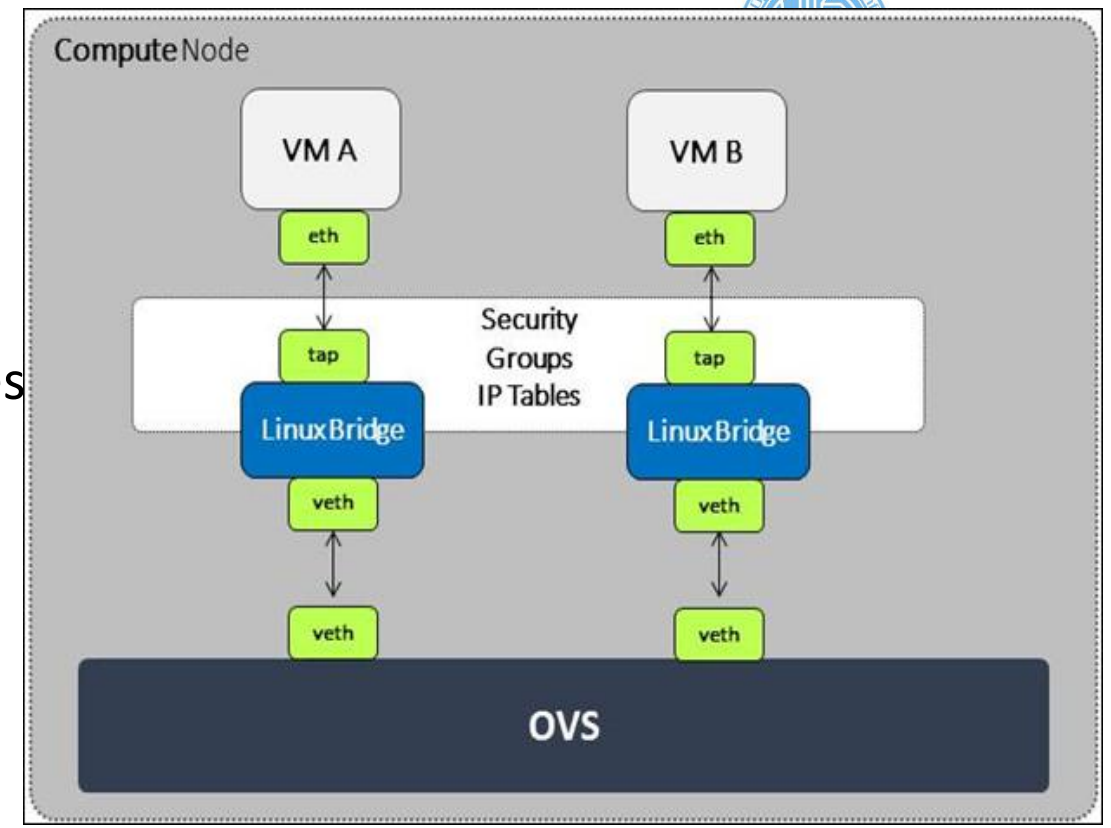

| | |
|---|---|
| 1 | VM Send DHCP_DISCOVER |
| 2 | Classify Flow as DHCP, Forward to Controller |
| 3 | DHCP App sends DHCP_OFFER back to VM |
| 4 | VM Send DHCP_REQUEST |
| 5 | Classify Flow as DHCP, Forward to Controller |
| 6 | DHCP App populates DHCP_OPTIONS from DB/CFG and send DHCP_ACK |

# Security Group

# Security Groups in Neutron

- **Data plane performance**
  - Additional **Linux Bridge** on the Path
  - **Iptables**

- **Control plane performance**
  - Rules needs to be re-compiled on port changes
    - Many rules due to security group capabilities
  - Iptable commands issued by CLI process
  - RPC bulks

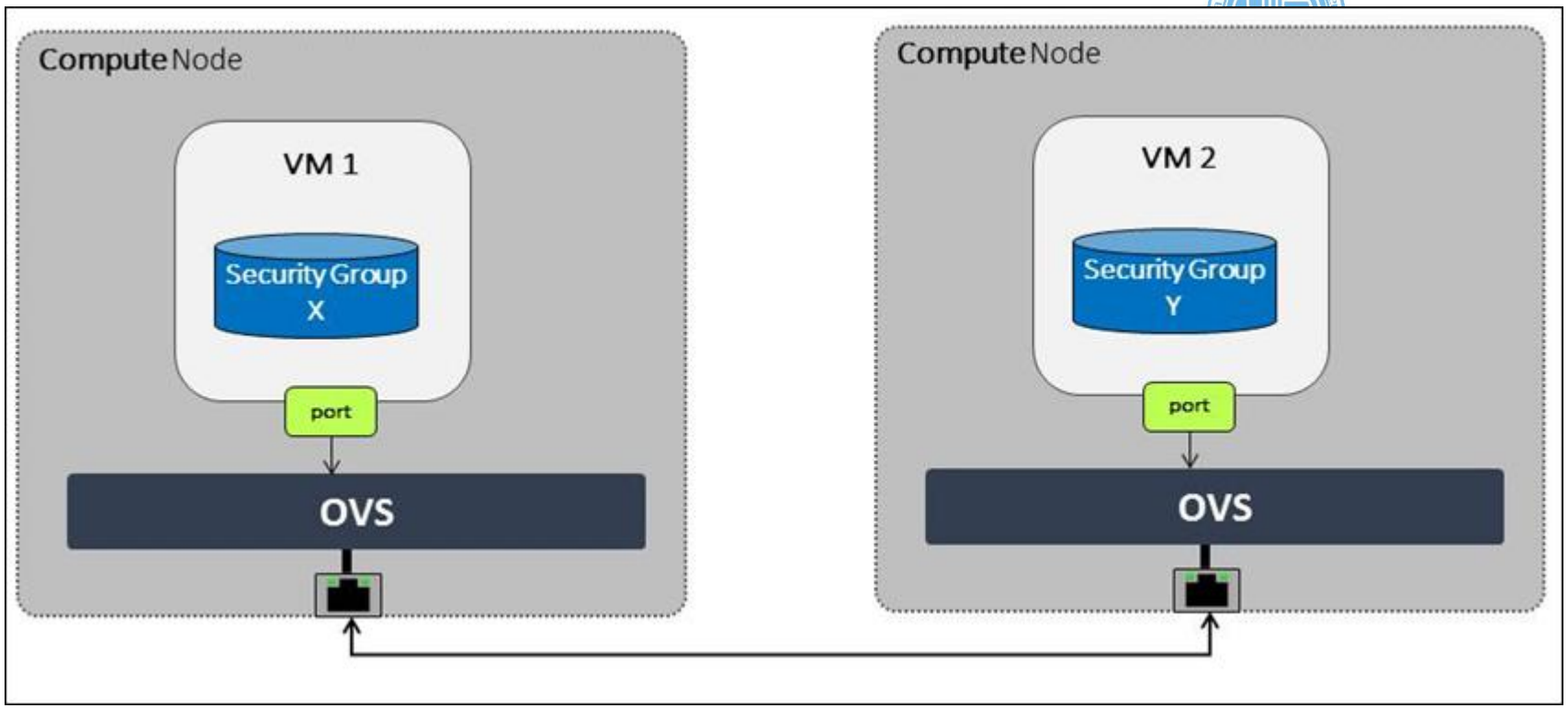


# Security Groups in Dragonflow

Linux Bridge

Iptables

Openflow



# Security Groups Translations

- **Direction:Egress**

  **Type:IPv4, IP Protocol:TCP, Port Range:Any, Remote IP Prefix:0.0.0.0/0**

  match:ct_state=+new+trk,tcp,reg6=X
  actions=ct(commit,zone=network),resubmit(,<next_table>)

- **Direction:Ingress**

  **Type:IPv4, IP Protocol:TCP, Port:22, Remote Security Group: Y**

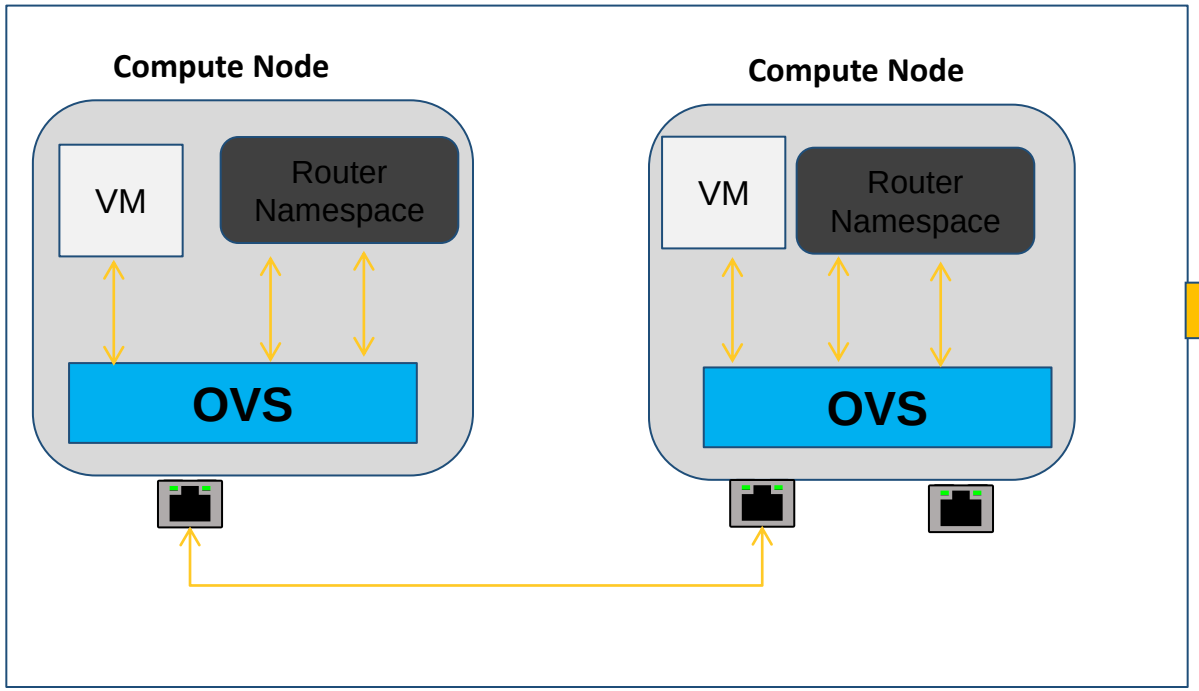
  match:ct_state=+new+trk,tcp,reg6=X,reg7=Y, tp_dst=22
  actions=ct(commit,zone=network),resubmit(,<next_table>)

*Openvswitch:*

# Distributed Virtual Router

# East to West

Neutron(DVR)

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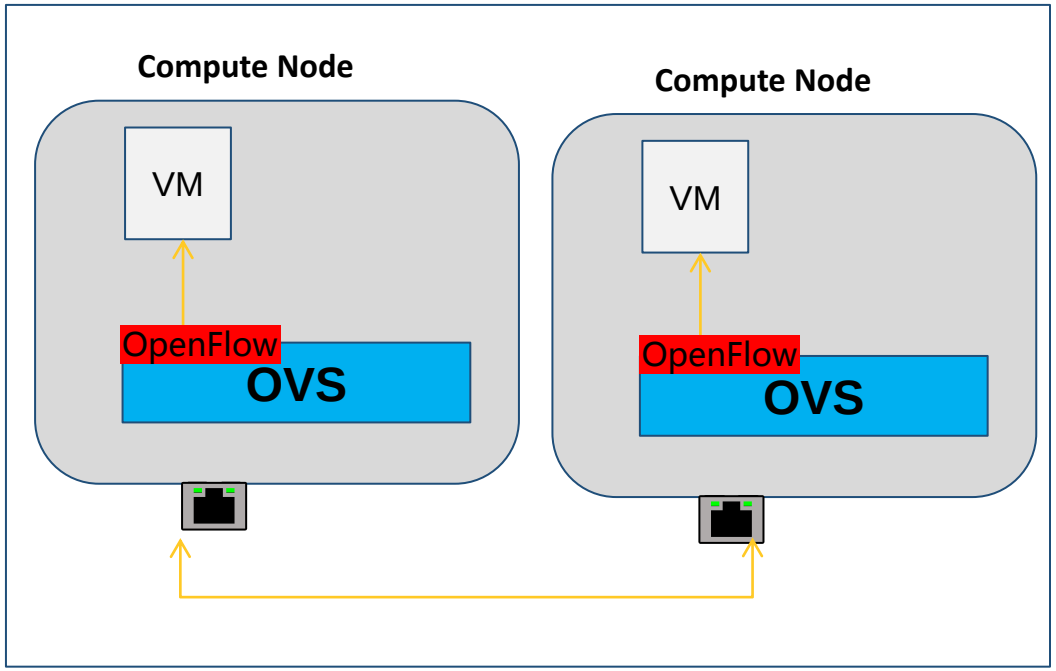
Dragonflow

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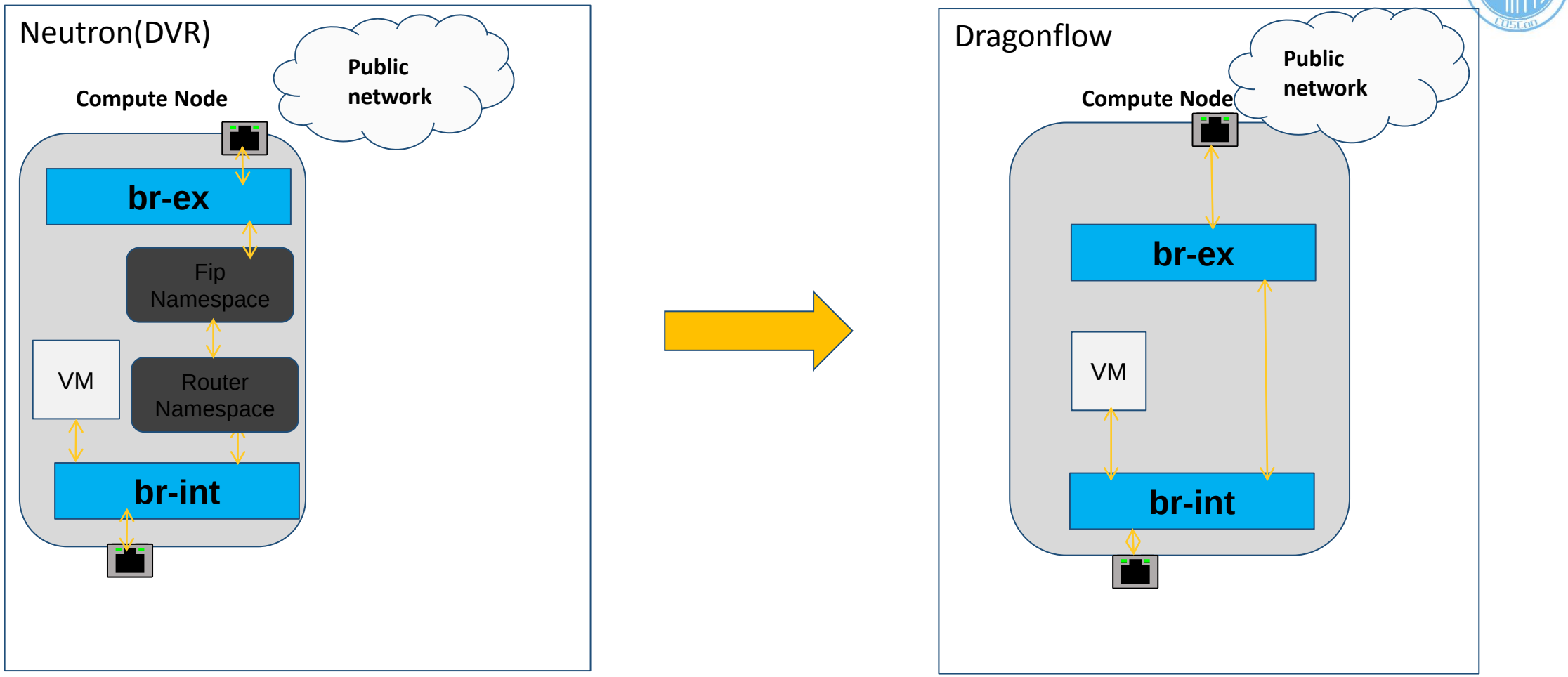
# Floating IP

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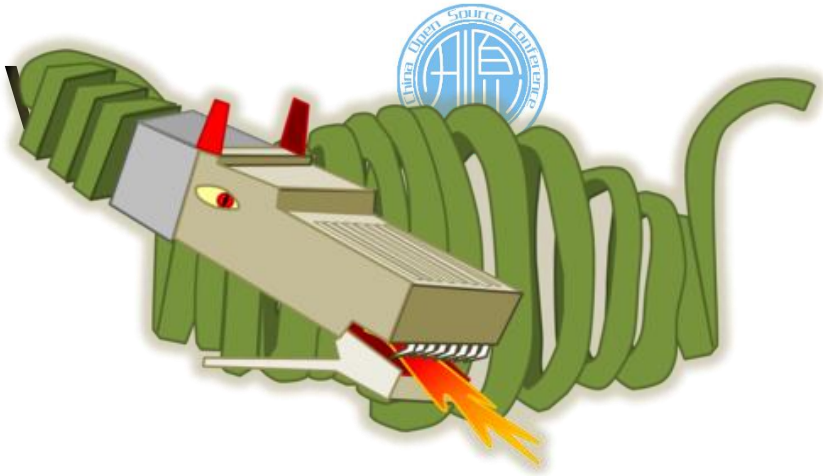
openflow

# Dragonflow Roadmap

- Additional DBs Drivers…
- Pluggable Pub/Sub Mechanism
- DB Consistency
- Multi-segments support
- Distributed SNAT
- Advanced services

# Join the project Dragonflow



- Documentation

https://wiki.openstack.org/wiki/Dragonflow

- Bugs & blueprints

https://launchpad.net/dragonflow

- DF IRC channel

#openstack-dragonflow

Weekly on Monday at 0900 UTC in #openstack-**meeting**-4 (**IRC**)