OpenDaylight OpenStack Integration

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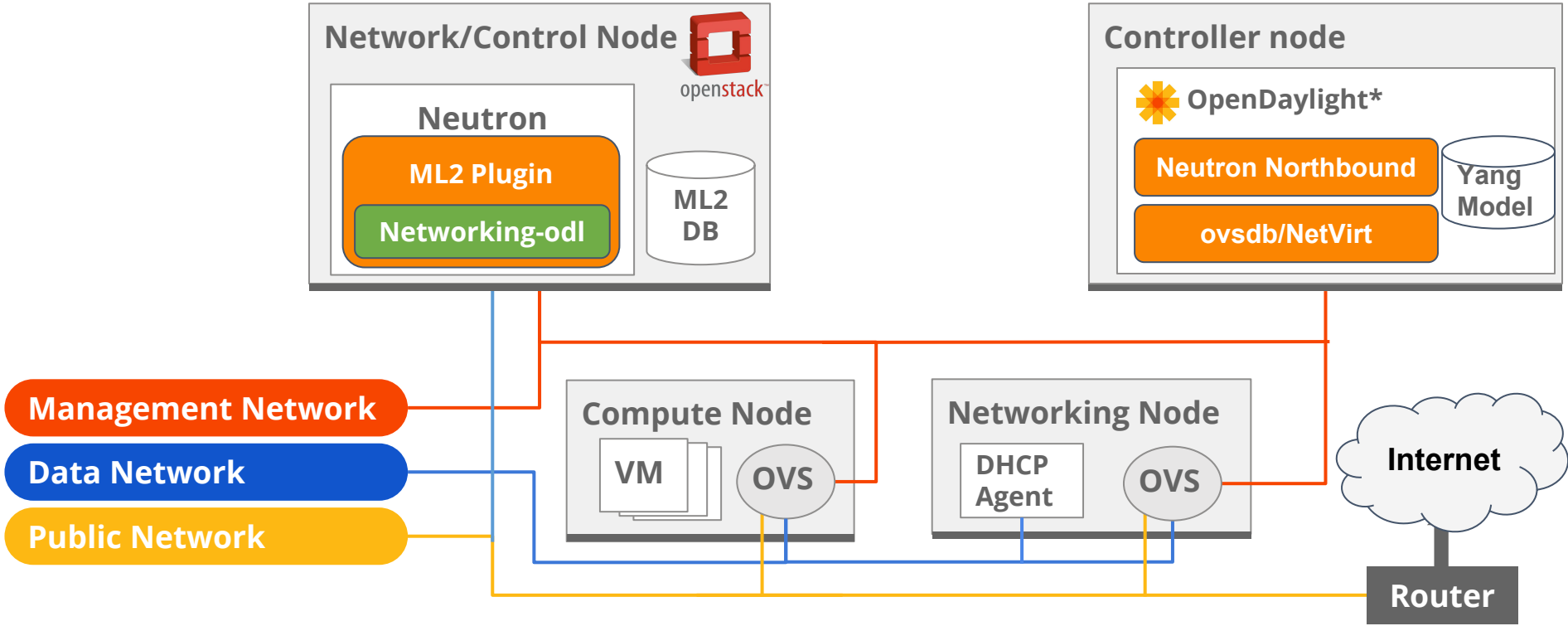
OpenStack Neutron Stadium

Neutron Stadium

- Advanced Services
- Third party Solutions
- Neutron-lib

https://governance.openstack.org/tc/reference/projects/neutron.html

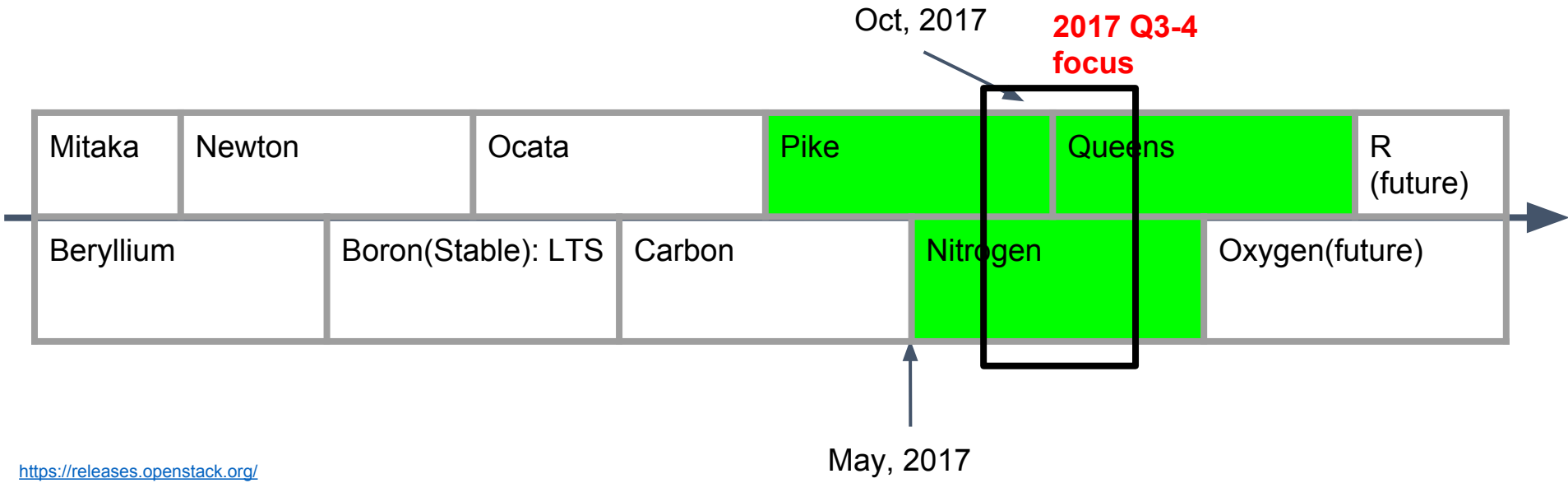
OpenStack and OpenDaylight Integration



Networking-ODL and ODL Neutron Northbound

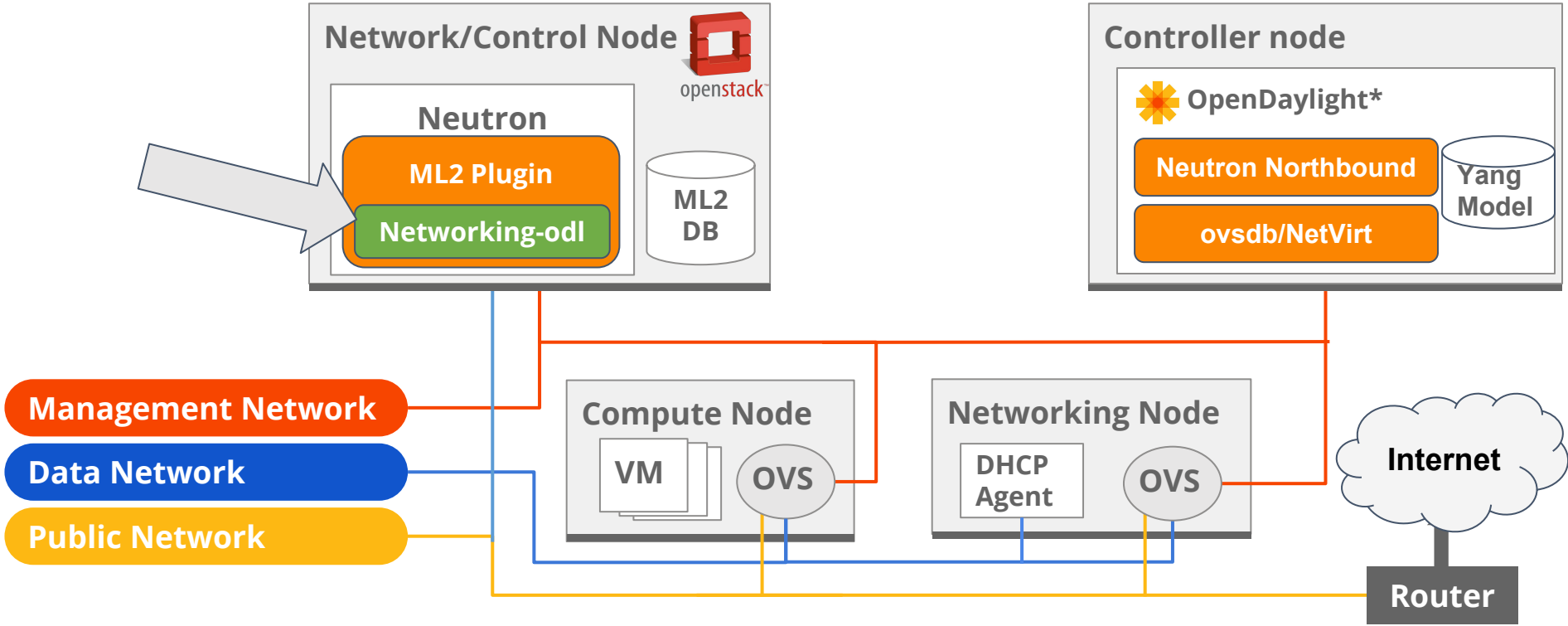
- Key components of the integration
- OpenStack networking-odl
  - https://launchpad.net/networking-odl
  - OpenStack Neutron Stadium Project
  - Basically follows openstack rule, but a bit more flexible
- ODL Neutron Northbound
  - https://wiki.opendaylight.org/view/NeutronNorthbound:Main
- **Work in tandem**
- **Each has its own project governance**

Release: OpenStack vs OpenDaylight

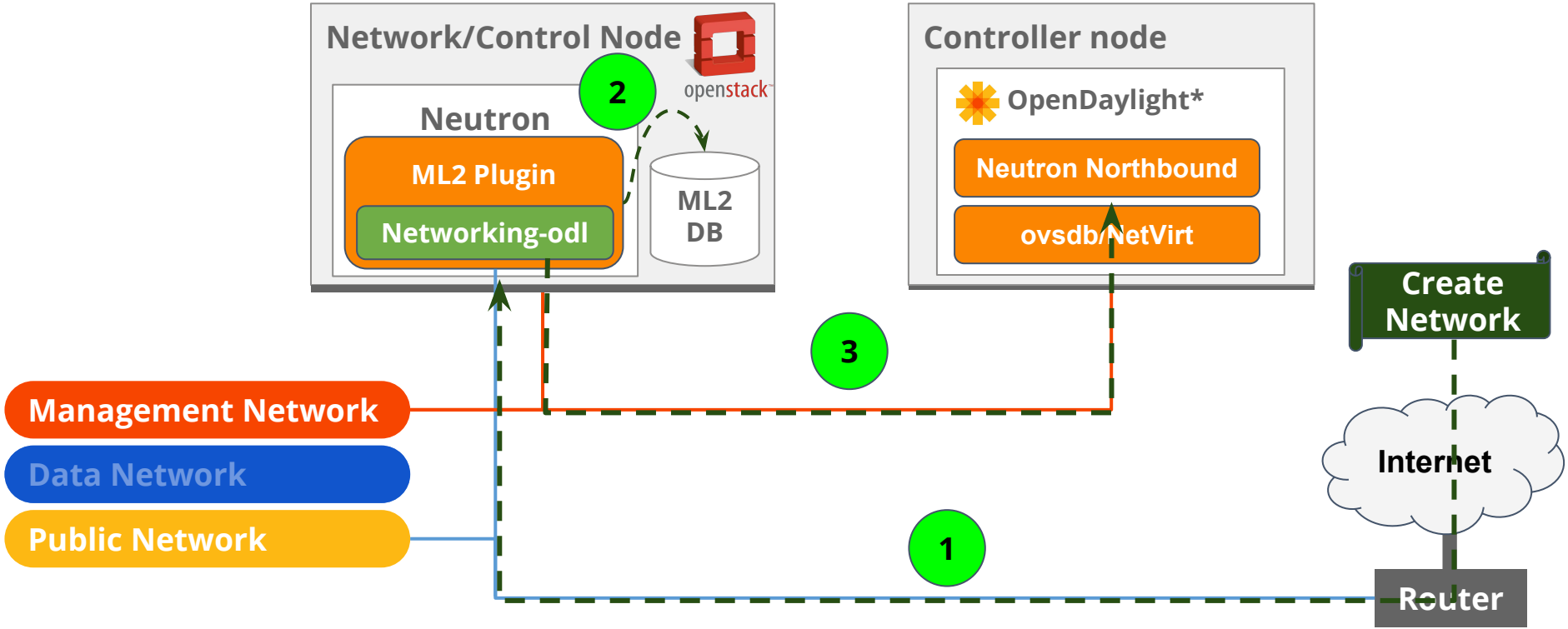


https://releases.openstack.org/
https://wiki.opendaylight.org/view/Release_Plan

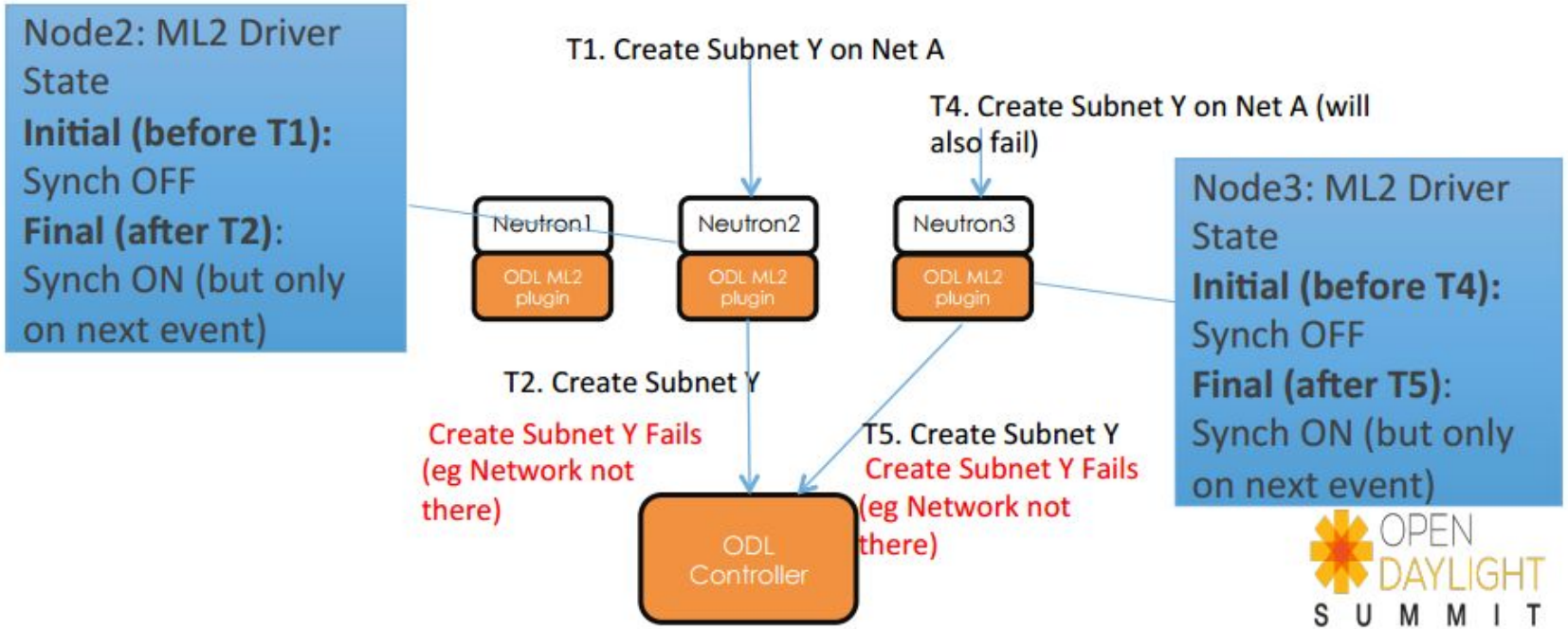
New Driver Framework in Networking-odl



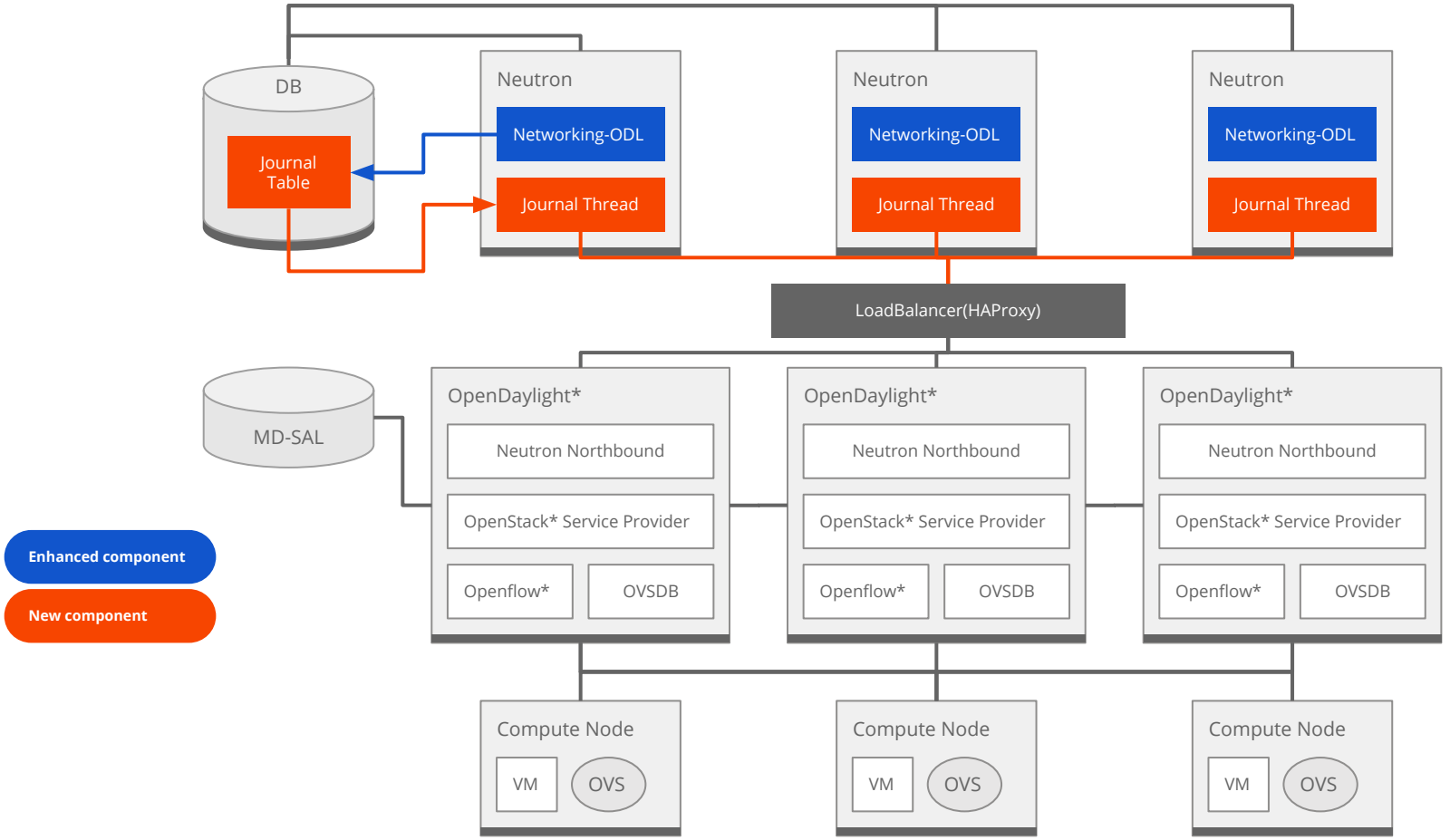
V1 Driver Recap



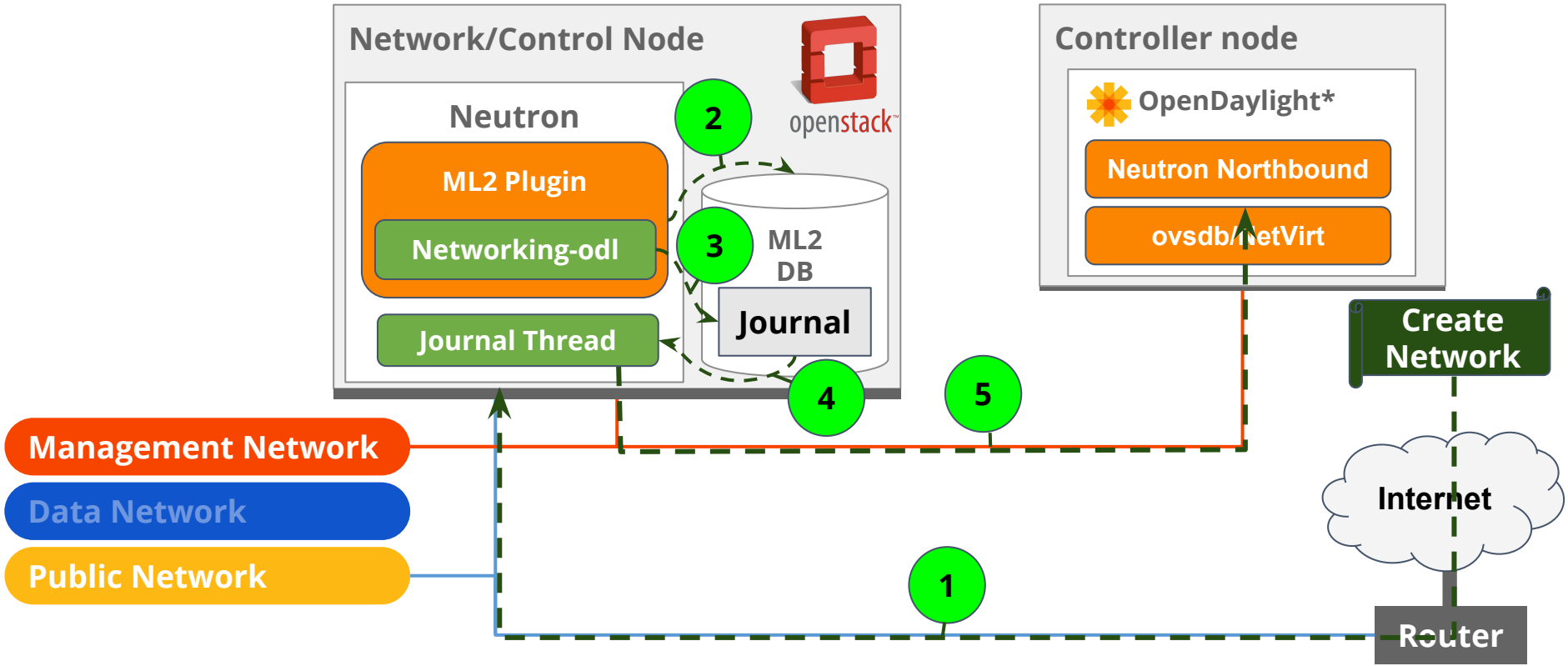
Synch on next Neutron Event - Repeat Errors



Courtesy: https://wiki.opendaylight.org/images/8/8d/Experiences_with_Neutron.pdf


DB
Journal Table
Neutron
Networking-ODL
Journal Thread
Neutron
Networking-ODL
Journal Thread
Neutron
Networking-ODL
Journal Thread
LoadBalancer(HAProxy)
MD-SAL
OpenDaylight*
Neutron Northbound
OpenStack* Service Provider
Openflow*
OVSDB
OpenDaylight*
Neutron Northbound
OpenStack* Service Provider
Openflow*
OVSDB
OpenDaylight*
Neutron Northbound
OpenStack* Service Provider
Openflow*
OVSDB
Compute Node
VM
OVS
Compute Node
VM
OVS
Compute Node
VM
OVS
Enhanced component
New component

V2 Driver @ Work



V2 Driver Details

- Journal based
  - Ordered queue of operations
  - “Dependency graphs”
  - A-synchronous from the API
- DB level locking
- Journal thread
- Maintenance thread
  - Full sync
  - Recovery
  - Cleanups

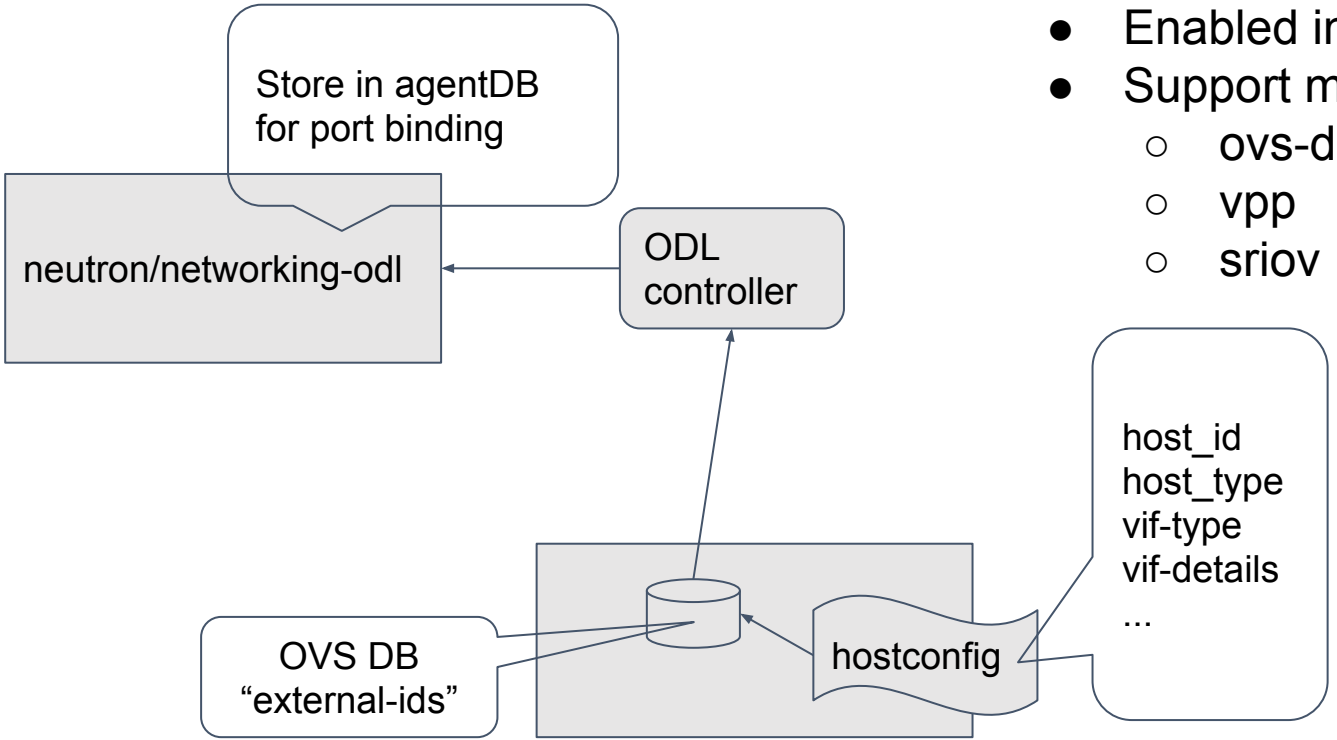
V2 Driver Benefits

- A-synchronous
  - Free up Neutron faster
  - Fits ODL design paradigm
- Ordered & Dependency checked
  - Same resource won’t hit race conditions
  - Dependant resources won’t hit race conditions
- DB level locking
  - Supports HA deployment of Neutron
  - Scale out

V2 Driver Shortcomings & Possible Improvement

- A-synchronous
  - No way to know resource state in ODL
  - However.. ODL is actually a-sync, so need to tackle somehow
- Becomes a bottleneck on scale
  - Consider allowing journal thread to scale on single server
  - Move dependency calculations to row creation
- Complexity is bug prone
  - Need to simplify as much as possible

Pseudo agent port binding



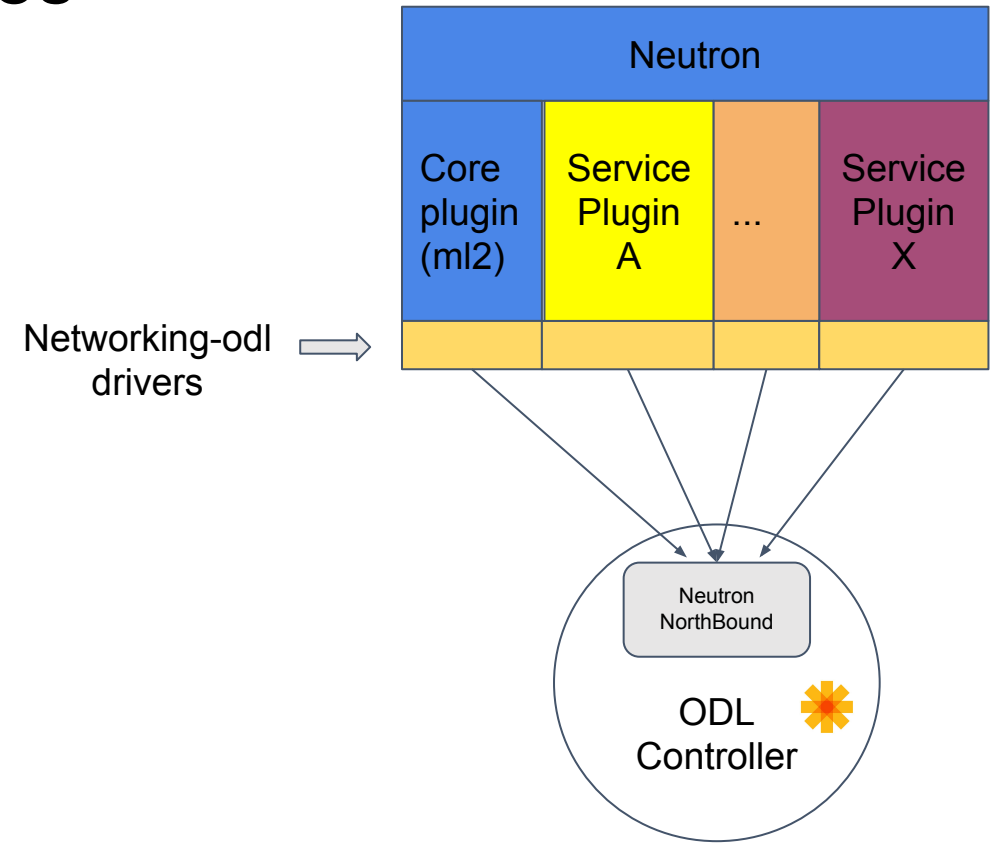
- Enabled in Ocata
- Support multiple vif types
  - ovs-dpdk
  - vpp
  - sriov

Pike/Nitrogen focus

- Resource status report
  - ODL websocket + netconf
  - Port status Active <--> Down
- OpenStack RPC
  - RPC from ODL (client) to Neutron/networking-odl (server)
  - Use case: dhcp port IP address
- L3Flavor
  - ODL L3 router co-exists with other type of routers

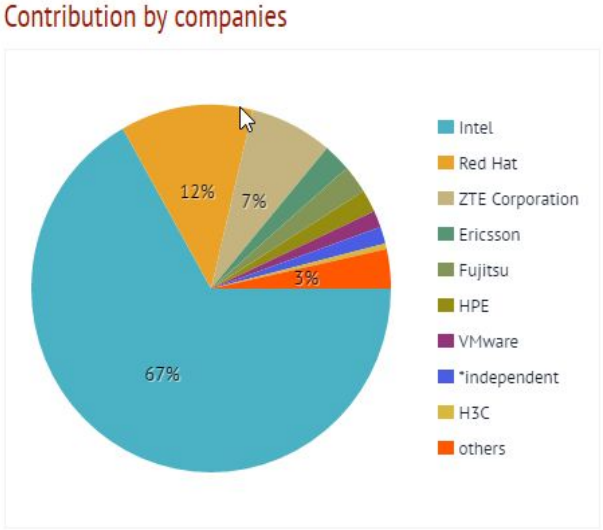
Advanced Services

L3
L2gateway
Networking-sfc
LBaaS
BGPVPN
Trunk
QoS

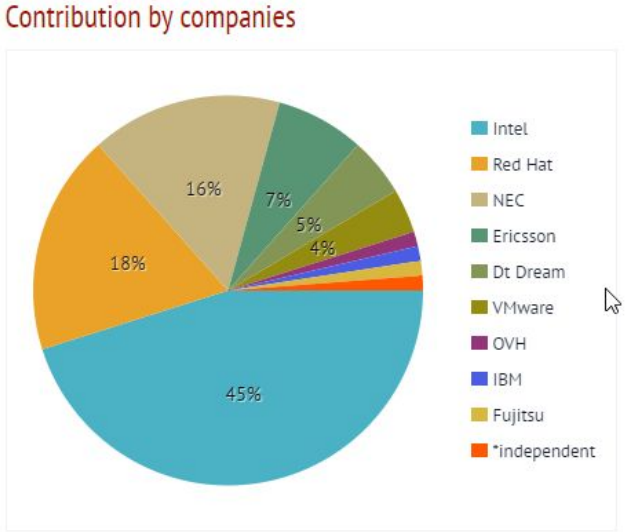


Contributions

Ocata



Pike (as of May 2017)



Summary:

- Networking-odl and odl neutron northbound are key components for the integration
- They are actively developed
- Call To Action
  - Give it a try, Feedback and Contribute
    - https://launchpad.net/networking-odl
    - https://wiki.opendaylight.org/view/NeutronNorthbound:Main
    - https://lists.opendaylight.org/mailman/listinfo/neutron-dev
    - IRC: #opendaylight-neutron on freenode