

# OpenStack Nova-Neutron Interviews Summary

## OpenStack UX Team

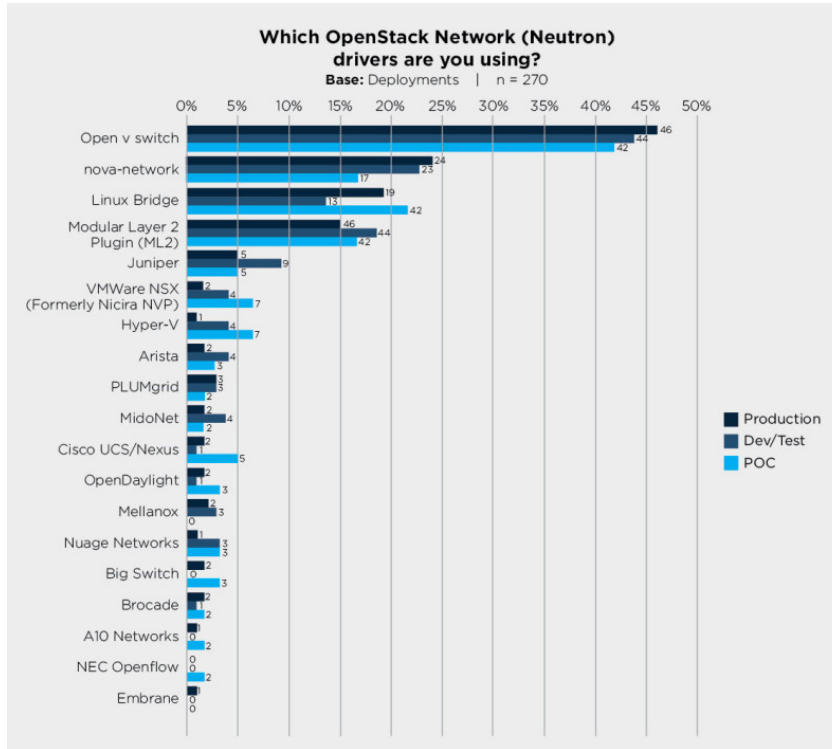
- Ju Lim, Red Hat
- Melissa Meingast, HP
- Piet Kruithof, HP

Last Updated: 10 Aug 2015

# Background

- Help the OpenStack community with trying to better understand what are the challenges with migrating from Nova network to Neutron, and why people are not migrating
  - Effort between HP, Red Hat, and OpenStack Foundation
- 5 OpenStack cloud operators interviewed in July-August 2015
- Interview findings would be used to inform a community survey that would be distributed to a larger group of OpenStack users to ensure valid representation by the larger community, as well as validate findings and gather additional feedback
  - OpenStack Networking community survey -- link to be shared ~Sept 2015
- This is a summary of what we learnt from the interviews

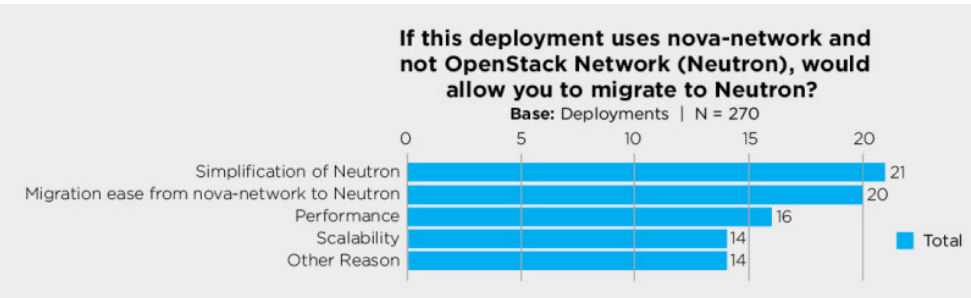
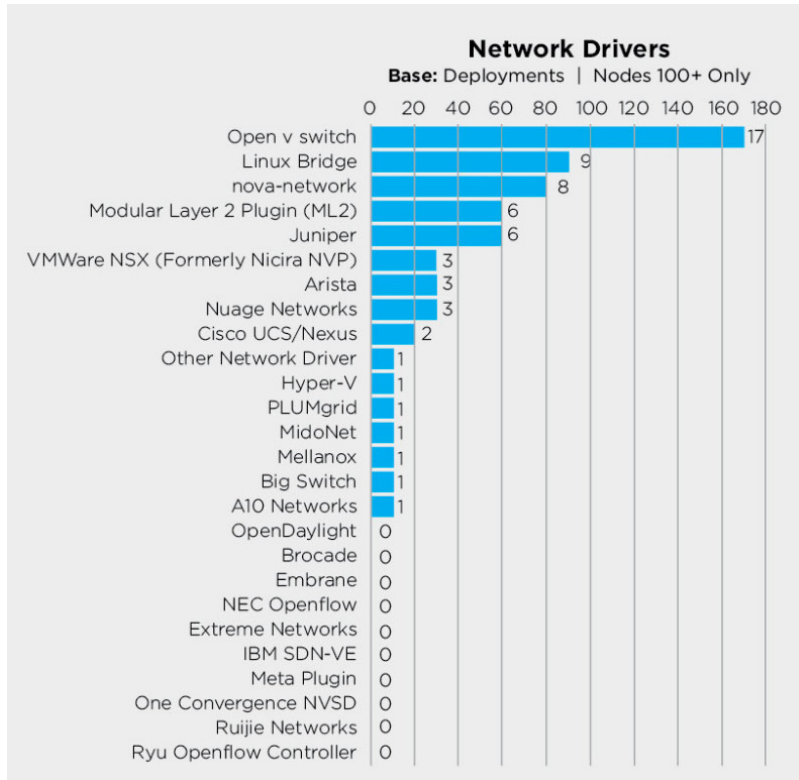
# May 15 2015 OpenStack User Survey Findings



- Open vSwitch (OVS) returns similar numbers as six months ago -- 46% of production deployments
- Nova-network still holding strong at 24% of all production deployments
- Linux bridge has gained 5%
- Increases seen in the use most vendor-sponsored drivers especially in regard to proof-of-concepts
- Cisco driver showed a decline across all deployment categories
- ~4% of respondents are on a driver not shown on this chart

Source: <http://superuser.openstack.org/articles/openstack-users-share-how-their-deployments-stack-up>

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# Interview Questions

Main questions asked of the interviewee included the following:

- Background and scope -- responsibilities, size, ownership, OpenStack release
- Upgrades, frequency, and upgrade driver
- Networking use cases
- Nova perceptions, challenges, and gaps
  - Type of network
  - Quality, stability, reliability, maturity, manageability, security
- Neutron perceptions, challenges, and gaps
  - Type of network
  - Plug-in used
  - Quality, stability, reliability, maturity, manageability, security

# Key Takeaways

- Reasons for staying with Nova (and not migrating to Neutron)
  - For simple networking needs (e.g. flat networking with DHCP), it is easier to go with Nova vs. Neutron
  - No need for Neutron features as they have simple networking needs (meets 95% majority of end-users' needs)
- Reasons for migrating to Neutron
  - Some customers switched to Neutron as they thought Nova was being deprecated
  - More support for Neutron (more development on Neutron) vs. Nova
  - Multi-tenancy (isolation)
  - Ability to have multiple networks (subnets)
- Selecting a Neutron plug-ins is very complex and can have huge drawbacks if you choose the “wrong” plug-in (as there’s no migration between plug-ins)
  - For simpler network needs (that are very Nova-like), go with Linux Bridge
  - Common choice is Open vSwitch (OVS) and a lot of documentation steers you down this page
  - Vendor plug-ins are for advanced networking needs or SDN
  - Plug-ins vary in terms of maturity

# Key Takeaways: Neutron Concerns

- Neutron and OVS are complex
  - LinuxBridge is simpler and easier to deploy vs. OVS, and it may perform better than OVS
    - LinuxBridge does not have full breadth of features to address tenant networking and overlay networks
- Requires end-user to setup virtual networks and security groups as part of Launch Instance workflow
  - Would prefer that end-user does not have to setup networking
  - Security groups often misconfigured by end-user
- DVR is bad about consuming IPs and is challenging for environments with limited IPv4 addresses
- Uses up more IP addresses vs. Nova
- Manageability -- specifically troubleshooting -- is very complex
  - Lack of tooling and documentation regarding Neutron troubleshooting
- Documentation still needs more improvements and has some gaps
- Neutron scalability and limitations not documented and perceived to be largely unknown except to Neutron Developers
- Stability has improved but still a concern
- Still has single points of failure

# Key Takeaways

- Perception that there is a fair bit of bias in terms of setup in Neutron on how things should be done
- Nova to Neutron migration considerations
  - Ability to keep the same floating IPs and fixed IPs assigned without having to reassign them (as part of the transition)
  - Minimize downtime and impact on instances (or rather end-users) during transition
- Would like at least a 2 releases window when Nova gets deprecated
- SDNs being considered
  - Pica8, Opendaylight, Ryu, BigSwitch



# Neutron Gaps

- No ability to map multiple floating IPs to an instance, as well as no ability to specify primary IP for a host
- Neutron troubleshooting tooling and/or documentation for it
- Eliminate any single points of failures
  - HA for L3 agents
  - HA for LBaaS
- Ability to share networks by subset of projects
- Ability to have some form of shared security groups for re-use across projects
- Scalability of security groups under Neutron
- Lack of partitioning mechanism for cells in Neutron
- Ability to have Layer 2 domain scoped to a certain group of hosts, and be able to define that in Neutron
- Better IPAM support
- Improved scale-out
- Feature parity and scalability with Nova
- A standard way of transitioning among networking plug-ins if you swapped 1 plug-in for another

# Other Gaps

- Improved Launch Instance workflow whereby the end-user does not have to know about setting up networks and security groups
- HA for MySQL
- Support for Infiniband (for HPC applications)

For more details about this study or if you would be interested in other OpenStack user research, please contact the OpenStack UX team on #openstack-ux on Freenode.