Release Notes for Cisco OpenStack Integration for Nexus Dashboard 4.3

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Introduction

This document provides important information regarding the Cisco OpenStack Integration for Nexus Dashboard release 4.3. This integration enables OpenStack workflows to configure fabric networking through the Nexus Dashboard Fabric Controller component of Nexus Dashboard. It leverages the Nexus Dashboard Fabric Controller Modular Layer 2 (ML2) Mechanism Driver and Topology Agents to provide seamless connectivity between virtualized compute instances and network switches, allowing OpenStack to program fabric switches based on user-defined network resources.

Nexus Dashboard release 4.3 introduces hardware-accelerated Layer 3 forwarding through the new nd network type, address scope-to-VRF mapping for granular network isolation, and a network deploy-status extension for monitoring and retrying ND network deployments.

New features and enhancements

This release of the Cisco OpenStack Integration for Nexus Dashboard offers the following key features and benefits:

- **Hardware -accelerated Layer 3 forwarding through the new `nd` network type**: Introduces a new `nd` network type and corresponding type driver that enables hardware-accelerated Layer 3 forwarding through NDFC. The integration uses VXLAN overlay between leaf and spine switches and VLAN encapsulation between compute hosts and directly connected switches via Hierarchical Port Binding (HPB).
- **Hierarchical Port Binding (HPB):** Enables dynamic allocation of VLAN segments for nd type networks, allowing the OVN mechanism driver to complete port binding using VLAN encapsulation between compute hosts and connected fabric switches.
- **Network isolation using address scopes:** Maps OpenStack address scopes to specific VRFs in Nexus Dashboard with custom VRF names, enabling multiple VRFs per OpenStack project for granular per-project or per-address-scope network isolation.
- **Network deploy robustness with `nd-status`:** Adds a new network deploy-status extension that provides real-time deployment status (`SUCCESS`, `FAILED`, or `None`), automatic retry on failure, and a periodic poller that reconciles deploy state with NDFC. Administrators can also trigger a manual redeploy using `openstack network set --nd-status SYNC <network-name>`.
- **Configurable Layer 3 forwarding for VLAN networks:** Introduces the new `vlan_hardware_l3` parameter, allowing administrators to choose between hardware-accelerated Layer 3 forwarding through NDFC (default) and software-based Layer 3 forwarding through OVN on VLAN networks. This enables both hardware-accelerated nd networks and software-routed VLAN networks to coexist in the same OpenStack cloud.
- **Layer 3 forwarding on border leaf switches:** Adds the new `enable_l3_on_border` parameter, extending hardware-accelerated Layer 3 forwarding capabilities to border leaf switches in the fabric.

Install and upgrade

For detailed step-by-step instructions on installation and configuration, see Cisco OpenStack Integration for Nexus Dashboard 4.3 – Installation Guide.

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Supported networking-cisco tag

For this release, ensure you use the `networking-cisco` tag version 10.1.0. This tag corresponds to the OpenStack Epoxy(2025.1) release and is validated for compatibility with Nexus Dashboard 4.3. For detailed instructions on cloning the repository and checking out the appropriate tag, see "Creating and Installing OpenStack Packages for Nexus Dashboard" section in the Cisco OpenStack Integration for Nexus Dashboard 4.3 – Installation Guide.

Key configuration updates

The Cisco OpenStack Integration for Nexus Dashboard 4.3 – Installation Guide provides detailed steps for configuring the following:

- **Neutron core plugin:** Update `/etc/neutron/neutron.conf` to set `core_plugin = nd_ml2`, which enables support for the nd network type, address scope VRF extensions, and the `nd-status` network deploy extension.
- **Neutron ML2 configuration on the controller node:** Update `/etc/neutron/plugins/ml2/ml2_conf.ini` to add the `nd` type driver to `type_drivers` and `tenant_network_types`, add `nd_extension_driver` to `extension_drivers`, configure the `[ndfc]` mechanism driver, and define VLAN allocation ranges for each physnet.
- **Keystone configuration:** Update `/etc/keystone/keystone.conf` to configure the `oslo_messaging_notifications` section for the messaging bus used by the OpenStack cluster.
- **Topology agent on compute nodes:** Configure `/etc/neutron/plugins/ml2/lldp.ini` and update `/etc/neutron/neutron.conf` to enable and configure the topology agent service.

Upgrade process

Before performing an upgrade, ensure you back up your current configurations and database. Follow the same installation steps outlined in the Upgrading from ND 4.1 section of the Cisco OpenStack Integration for Nexus Dashboard 4.3 – Installation Guide, making sure to use the latest version of the Cisco networking package. After completing the upgrade, conduct comprehensive testing to verify connectivity, ND network creation, address-scope VRF mapping, and nd-status reporting.

Open issues

To see additional information about the caveats, click the bug ID to access the Bug Search Tool (BST). The "Exists In" column of the table lists the specific patches in which the issue exists.

To search for a bug ID within Cisco's product documentation, enter the address bar of a web browser: `<bug_number> site:cisco.com`.

For example: `CSCwo61222 site:cisco.com`

There are no open issues for OpenStack integration for Nexus Dashboard release 4.3.

Related content

For additional information, see Cisco OpenStack Integration for Nexus Dashboard 4.3 – Installation Guide.

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Documentation feedback

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