Network Provisioning with Nutanix AHV and Mellanox

HIGHLIGHTS

Integration of Mellanox NEO with Nutanix Prism

Network automation for Virtual Machine lifecycle management

Light touch network management with Mellanox <NEO>

Enhanced network security

Efficient enterprise cloud network

Networking as an invisible infrastructure element

Reduced total cost of ownership

Nutanix Enterprise Cloud Platform

In today's fast-paced, highly demanding environment, IT departments are being pushed to do more at lower cost and faster than ever. One of the best methods of reducing both cost and complexity is to turn to hyperconverged platforms that can add agility to infrastructure and drive down overall total cost of ownership.

Nutanix offers hyperconverged Enterprise Clouds that converges compute, storage, and virtualization in a single appliance. The Nutanix Enterprise Cloud Platform leverages hyperconverged infrastructure with off-the-shelf x86 servers to replace silos of servers, storage, and management tools with an integrated solution for scale-out clusters.

Nutanix Enterprise Cloud Platform's Prism management framework streamlines time-consuming IT tasks, simplifies upgrades for efficient cluster maintenance, and provides capacity trend analysis and planning, as well as troubleshooting. Prism offers an end-to-end view of all workflows for the various converged resources in the data center. Starting with the Acropolis 5.0 release of, Nutanix introduced a new set of APIs for one-click simplified network management.

Mellanox Neo™

Mellanox NEO is a powerful platform for data-center network orchestration, designed to simplify network provisioning, monitoring and operations of the modern data center. NEO offers enterprise-grade automation capabilities that extend existing tools, from network staging and bring-up, to day-to-day operations. NEO serves as a network API for Mellanox Ethernet solutions. NEO simplifies fabric management, automates configuration of devices, provides deep visibility into traffic and network health, and enables early detection and auto-recovery of errors and failures. NEO leverages REST APIs to simplify integration with 3rd-party orchestration and management platforms, and allows access to fabric-related data and provisioning operations.

Mellanox Spectrum™

Mellanox Spectrum Ethernet switch silicon provides leading performance, efficiency and throughput, low-latency, and scalability for data center networks. The Mellanox SN2100 is a Spectrum-based Ethernet switch system that is an ideal top-of-rack Ethernet solution, tested and validated for the Nutanix hyperconverged enterprise cloud platform.

The SN2100 offers a unique design to accommodate the highest rack performance. Its design allows side-by-side placement of two switches in a single 1U slot of a 19" rack, delivering high availably to the Nutanix cluster nodes. The SN2100 accommodates 16 ports running at 100GbE, with switch capacity of 1.6Tb/s and a 2.38Bpps processing capacity.

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Integrated Solution

Prism offers enhanced network capabilities, including a new set of APIs to notify the network of guest VM lifecycle events.

Mellanox recently made use of these new APIs to develop an integrated solution between Nutanix Enterprise Cloud Platforms running Nutanix AHV and Mellanox NEO that adds network automation for Nutanix Virtual Machine lifecycle management.
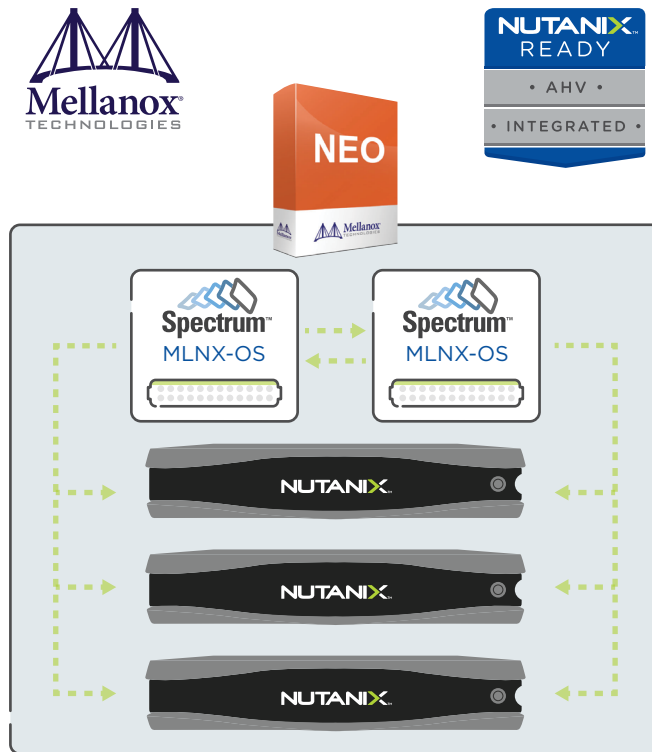
This integration addresses most common use cases of Enterprise Clouds:
• VLAN auto-provisioning for VM creation
• VLAN auto-provisioning for VM migration
• VLAN auto-provisioning for VM deletion

The integrated solution is currently suited for Mellanox Spectrum-based switches operated with the MLNX-OS® network operating-system, and will soon be available for Spectrum-based switches operated with Cumulus Linux as well.

VM Creation

When a Nutanix user creates a new VM instance from Prism, NEO will auto-matically configure the switch port that hosts the guest VM with its respective VLAN(s). For example, if a new VM "Web01" is created from Prism in network 99 (VLAN 99), NEO receives notification and automatically configures the switch port that hosts Web01 with VLAN 99. This configuration is fully trans-parent to the user, simplifying the configuration process openly and efficiently.

VM Migration

When a Nutanix user migrates a VM from one hypervisor to another or when a VM is migrated auto-matically from Prism, NEO automatically configures the switch port that hosts the guest VM with its respective VLAN(s). Where applicable, NEO also removes the respective VLAN(s) from the switch port that previously hosted the guest VM.

VM Deletion

When a Nutanix user deletes a VM instance from Prism, NEO automatically configures the switch port that hosts the guest VM to remove its respective VLAN(s), where applicable.

Conclusion

Hyperconverged-based Enterprise Cloud solutions bring significant advantages to data centers and clouds in today's fast-paced cost-conscious IT environments. By integrating compute, storage, virtualization, and management into a single web-scale platform with cloud-like characteristics, Nutanix Enterprise Cloud Platform offer flexibility and cost savings to IT managers.

With the integration of Mellanox NEO to Nutanix Prism, customers can benefit from simplified network management, enhanced network security, and an efficient enterprise cloud network. This integration establishes networking as an invisible infrastructure element, further reduces the complexity of the cloud, and reduces the cluster's total cost of ownership.

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