NVIDIA
SOLUTION SHOWCASE

One-Click Simplicity & Automation

Key Benefits

- Transparent and always-on business operations
- Real-time network visibility at the virtual machine (VM) or container level
- Automated network provisioning for business continuity
- Reduced operational & support costs
- High availability and disaster recovery for business continuity
- Real-time visibility for extensible, intelligent, and automated IT Ops

Products Used

- NVIDIA® Mellanox® Ethernet Storage Fabric™
- NVIDIA Mellanox NEO®
- NVIDIA Mellanox Spectrum® SN2010
- NVIDIA Mellanox What Just Happened®
- Nutanix Prism

EXPANDING ENTERPRISE CLOUD SOLUTIONS TO REMOTE AND BRANCH OFFICES (ROBO)

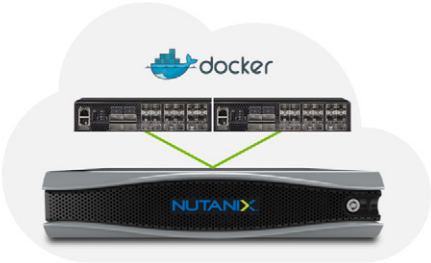
Unifying Enterprise Cloud Experiences

NVIDIA Mellanox Ethernet Storage Fabric (ESF) is the perfect complement to the Nutanix Enterprise Cloud. Addressing remote and branch office (ROBO) management challenges, the Nutanix Enterprise Cloud extends one-click simplicity and high availability to remote and branch offices. Enterprise IT staff can deploy and administer ROBO sites as if they were deployed to the public cloud, while maintaining control and security on their own terms.

ESF offers Zero Touch Provisioning (ZTP), automated operation, and real-time network visibility. ESF also provides a transparent, automated experience for application provisioning and mobility, data backup, and disaster recovery through its integration into the Nutanix enterprise cloud. What's more, through REST APIs, the NVIDIA Mellanox NEO network orchestration and management platform automates Nutanix Prism network provisioning—mitigating complex and expensive manual configuration for numerous network devices in multiple clouds.

Nutanix ROBO in a Box

With its web-scale efficiency and enterprise-level resilience and security, Nutanix offers hyperconverged clusters to ROBO environments. Providing options for one-node, two-node, and three-node clusters, the Nutanix solution for ROBO meets various requirements with respect to data protection, high availability, and cost-effectiveness.



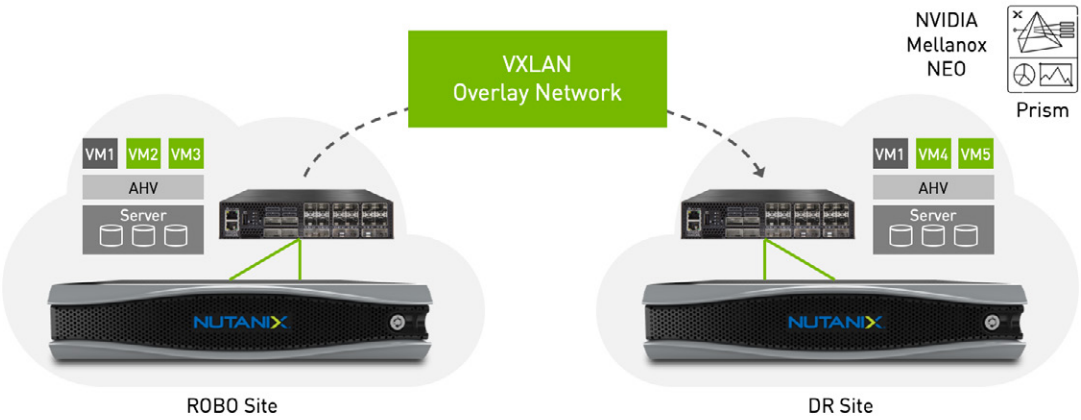
NVIDIA Mellanox half-width top-of-rack (TOR) SN2010 switches are a perfect fit for Nutanix ROBO, both in terms of connectivity and cost. Featuring 18 ports of 1/10/25G downlinks and 57 Watts of typical power consumption, two SN2010 switches can be installed side-by-side, along with a 2U Nutanix appliance, to build a ROBO data center in a 3U box. That's not all. The 1G management port on the Nutanix node can be connected to a SN2010 switch port, eliminating the need for a separate management switch. Providing additional value, the switch supports Docker containers, such as VPN and DHCP services, which further simplifies manageability and security and reduces costs.

Automated Provisioning for Business Continuity

The consumer–grade management in Prism™ streamlines data center operations and business continuity. Simplifying application mobility and load balancing, it reduces complex operations such as disaster recovery to a single click. The integration of Mellanox NEO with Nutanix Prism enables automated network provisioning that requires no manual operation.

Beyond data replication, networking is a key challenge in business continuity and disaster recovery. The joint Nutanix- Mellanox solution addresses this challenge by automating network provisioning as part of workload lifecycle management. Workloads can preserve their IP addresses and gateways during failover to the remote DR site, enabling uninterrupted business continuity during partial or full failover.

Delivery of these capabilities is made possible by integrating Mellanox NEO and Prism Central for automation, along with using Ethernet VPN (EVPN)-based virtual extensible LAN (VXLAN) overlays. The overlays extend the transparent stretching of networks from the ROBO site to the DR site or main datacenter. Nutanix offers synchronous, asynchronous, and near-synchronous replication options that can be granularly controlled to meet various RPO/RTO goals. In addition, Mellanox NEO provides one-click configuration for mLAG and switch software upgrade at scale.



Real-time Visibility for AIOps

NVDIA Mellanox Ethernet Switch Fabric (ESF) provides real-time visibility into network-related problems through an event-based, advanced telemetry technology called What Just Happened (WJH).

Traditional telemetry solutions try to extrapolate root causes of network issues by analyzing network counters and statistical packet sampling. WJH goes beyond that by providing actionable details on abnormal network behavior and eliminating the guess work from fast network troubleshooting.

In the event of a network anomaly, the WJH telemetry agent, running as a container on the NVIDIA Mellanox switch, streams out both the packet itself and related information in JSON or other streaming methods. The telemetry data can be streamed to a database repository or directly to the management software, such as Mellanox NEO, Nutanix Prism, and TIG (Telegraf-InfluxDB-Grafana).

Similarly, Nutanix offers real-time visibility in the cluster of applications running on the node and associated compute, storage and security metrics at the VM/container level. Such visibility is used for remote management, in a cloud-native way, for extensible, intelligent and automated IT Ops – forecast, planning, optimization, and anomaly detection and remediation.

Conclusion

The remote office/branch office (ROBO) paradigm is common in enterprise IT infrastructures. Deploying and managing ROBO sites efficiently as part of the enterprise cloud is a key imperative for business operations. NVIDIA Mellanox Ethernet Storage Fabric (ESF), with its purpose-built TOR switches and advanced telemetry technology, allows a ROBO solution in a box with integrated automation of the Nutanix platform for network provisioning, operation, and troubleshooting. The Nutanix and Mellanox solution brings ROBO into the unified enterprise cloud with efficiency and cost savings throughout the lifecycle of Day 0/1/2 operations.

About Nutanix www.nutanix.com

Nutanix is a global leader in cloud software and hyperconverged infrastructure solutions, making infrastructure invisible so that IT can focus on the applications and services that power their business. Companies around the world use Nutanix Enterprise Cloud OS software to bring one-click application management and mobility across public, private and distributed edge clouds so they can run any application at any scale with a dramatically lower total cost of ownership. The result is organizations that can rapidly deliver a high-performance IT environment on demand, giving application owners a true cloud-like experience.

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