Nutanix Cluster Networking with Pluribus ONVL for Dell Open Networking

Nutanix Acropolis

Storage demands Fast Networking

Companies in the web-scale datacenter space have found that the complexity and latency inherent in the traditional server and storage area network (SAN) environment was an impediment to their ongoing effort to scale the user base and the infrastructure size. After exploring alternative approaches, enterprise datacenters eliminated the SAN altogether, by replacing the storage infrastructure with direct attach storage (DAS) and a powerful layer of software capable to aggregate the storage resources of each individual server, and present them as a homogenous resource pool to the rest of the environment.

Since most companies cannot justify the investment into developing a home-grown converged infrastructure, Nutanix has applied the same concepts to deliver a simple, scalable computing infrastructure to the enterprise. Nutanix's "hyperconverged" computing is ready to support virtual machine deployment via integration with industry standard hypervisors. Scalability is achieved through the use of pluggable building blocks and a clustered design that provides linear growth of performance with hardware resources.

To address the need of a large virtualized workload, Pluribus Open Netvisor® Linux (ONVL) has developed a fabric architecture based on server cluster technologies. Without the need for an external controller, the Dell Open Networking (ON) Ethernet Switches powered by Pluribus ONVL federate into a fabric, offering fabric-wide management and visibility, optimization and control of virtual loads.

Pluribus Open Netvisor® Linux (ONVL)

Pluribus Networks advances software-defined networking (SDN) through Open Netvisor Linux (ONVL), the industry's most programmable, open source-based network operating system. ONVL is based on a highly available, scalable, controller-less architecture to provide visibility, telemetry, security and dramatic operational simplification.

Pluribus ONVL combines the benefits of Linux with a controller-less fabric. The traditional CLI (Command Line Interface) is paired with fabric-wide programmability (C, RESTful API) and DevOps tools (e.g. Ansible) for agility and automation via a single point of management. Granular visibility and control is through a fabric-wide directory that contains endpoint information (vPorts) as well as allows for granular flow filtering and control (vFlow).

In combination with the Dell Open Networking (ON) switching portfolio, ONVL provides best-in-class switching economics. The deployment flexibility is guaranteed by Pluribus ONVL full L2/L3 stack providing complete interoperability with the legacy networking infrastructure, allowing for easy insertion into brownfield deployments.

Factors that affect Nutanix Cluster performance:

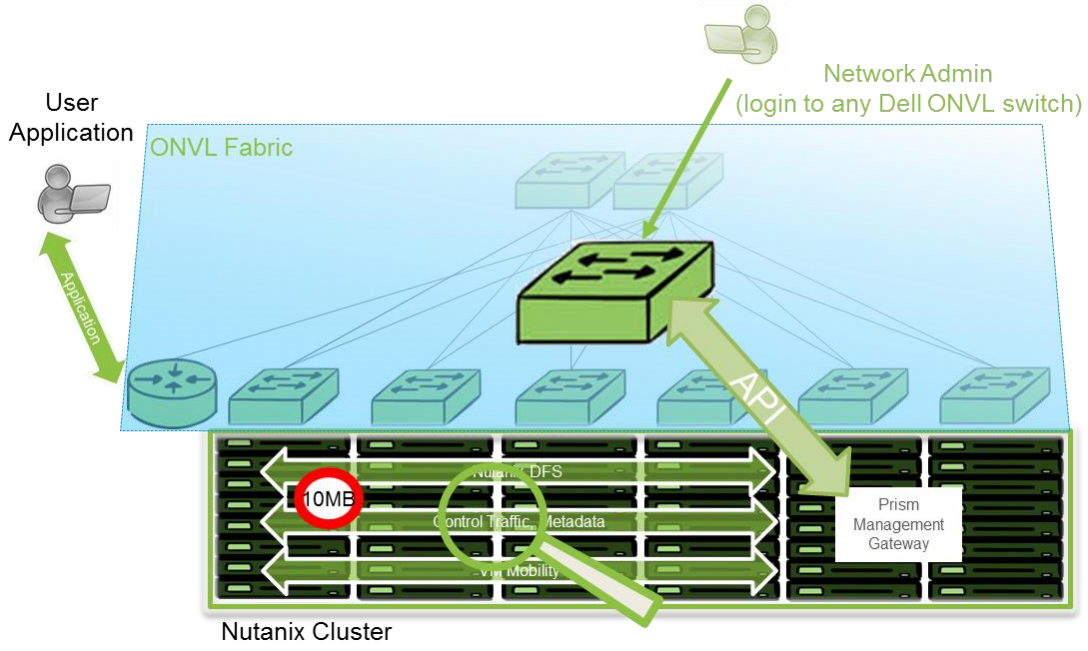
- Block composition
- Locality
- Secondary traffic
- Location of active/master cluster services
- Network hotspots

Benefits

- Assured interoperability with legacy devices to offer flexible design options when deploying a new Nutanix Cluster.
- Automated integration with Nutanix services due to infrastructure change independence.
- Improved troubleshooting via indicators on file system operations and virtual machine performance.
- Simplified troubleshooting and anchor policies via fabric-wide consolidated view of end-points and VMs.
- Rapid administration of QoS and security policies fabric-wide by identifying individual flows or classes of flow to apply them to.

Features

- Feature-rich L2/L3 and multicast enable flexible deployment options.
- Dell switches running ONVL can join into a controller-less fabric and be managed as a single switch via CLI and/or API.
- Integrated tap-less telemetry for data capture and post-analysis.
- vPort table, a fabric-wide endpoint "directory" accessible from any node for comprehensive endpoint and VM lifecycle tracking across the fabric.
- vFlow for granular visibility and control of every flow across the fabric.



Nutanix cluster deployed on Pluribus Open Netvisor® Linux (ONVL) for Dell Open Networking fabric

Nutanix Infrastructure	Network Admin Challenge	Pluribus ONVL for Dell solution
How healthy?	Network Admin dilemma: did this happen before? It is a healthy balanced traffic or an early warning?	Network Admin gains visibility into application performance such as application level latency versus network latency
Hyperconverged, distributed cluster	East/west traffic contains cluster control information, sensitive to network performance	Fabric wide visibility into metadata and application data for simpler troubleshooting (vFlow) Fabric-wide congestion monitoring application
Data follows VMs	Large secondary traffic (replicas) may contend for resources with applications	Monitor individual client-server connections to track data replication
Data locality block/rack	Inaccurate topology information can reduce availability and performance	Database to access endpoints information from a fabric-wide API (vPort)

About Pluribus Networks

Pluribus Networks provides the missing component for software defined data centers – virtualized networking.
Our open networking with fabric clustering solutions transform your existing, inflexible network infrastructure into a strategic asset that meets today's dynamic business challenges. Our easily deployable architecture virtualizes the network to make it more resilient and intelligent while improving visibility and automating its operation. Our customers leverage their existing IT network infrastructure, running more cost efficiently and bringing new business applications online faster.

Learn more at **www.pluribusnetworks.com/dell** and **@pluribusnet**.

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