

ARISTA CLOUDVISION & VMWARE NSX SOLUTION BRIEF

BEST IN CLASS UNDERLAY

Arista is an established leader in data center network architectures designed for consistent performance, deterministic latency, and easy troubleshooting regardless of workload and deployment sizes. Arista's data center class 10/40/100GbE networking portfolio with Arista EOS software and end-to-end VXLAN capability of EOS provides wide variety of choice to customers in building their underlay infrastructure with L2 gateways.

SINGLE POINT OF INTEGRATION

Arista's CloudVision platform provides a set of services that simplifies monitoring, management and integration in the NSX-enabled virtualized data center. It provides a network services abstraction layer that decouples NSX from the physical data center infrastructure thereby providing software and hardware version independency. This abstraction also improves controller scaling, using only one touch point to control all Arista switches in the data center

OPEN AND PROGRAMMABLE OS

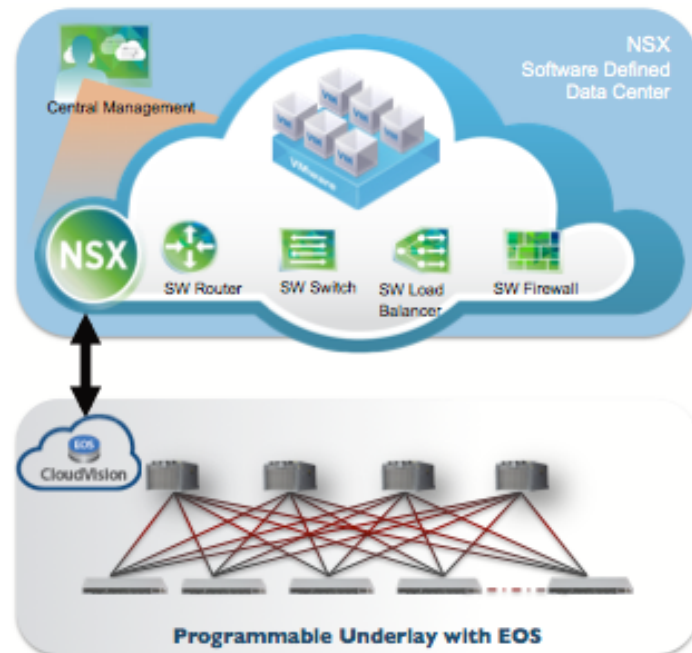
At the Core of this integrated solution is the Arista Extensible Operating System (EOS) providing the industry's most advanced network operating platform. EOS combines a modern-day software architecture, an open foundation for development with an unmodified Linux kernel, and a stateful publish/subscribe in-memory database model to provide a real-time, programmatic, and automated model for cloud networking

HIGH AVAILABILITY DESIGNS

Arista supports MLAG and VXLAN together on its wide variety of switches, which provides hardware L2 Gateways redundancy for NSX. MLAG with VXLAN on Arista switches provide non-blocking, active-active forwarding and redundancy with hitless failover in an event of switch failure.

EXECUTIVE SUMMARY

Arista and VMware are delivering the industry's first scalable best-of-breed solution for network virtualization in the Software Defined Data Center. VMware's Software Defined Data Center (SDDC) vision leverages core data center virtualization technologies to transform data center economics and business agility through automation and non-disruptive deployment that embraces and extends existing compute, network and storage infrastructure investments. NSX is the component providing the networking virtualization pillar of this vision. As a platform, NSX provides partners the capability of integrating their solution and build on the top of the existing functionalities. NSX enables an agile overlay infrastructure for Public and Private cloud environments. By leveraging Arista's robust and resilient underlay infrastructure and CloudVision platform, customers will be able to drastically speed business services, mitigate operational complexity, and reduce costs. All of this is available now from a fully automated and programmatic SDDC solution that bridges the virtual and physical infrastructure.



ARISTA CLOUDVISION AND VMWARE NSX INTEGRATION

NSX operates efficiently using a “network hypervisor” layer, distributed across all the hosts. However, in most cases, not all resources will be virtualized in the SDDC. This may be due to specific performance or latency-sensitive demands of specific applications, like databases or layer-4 to layer-7 services like load balancers or firewalls. In addition, during migration to the SDDC many existing storage and compute resources may need to be incorporated into the virtualization infrastructure. This is easily accomplished with Network virtualization gateways, which can provide VXLAN Tunnel Endpoint (VTEP) termination at a VLAN or physical port boundary. Gateways create an on-ramp for existing physical infrastructure components to tie into the virtualized NSX overlay network.

Arista's EOS based switches can support network virtualization gateways via hardware-based forwarding. Increasing bandwidth demands are driven as the SDDC implements more 10/40/100Gbps connectivity, will drive demand for scalable gateways that can provide terabits-per-second of aggregate bandwidth across many network segments. Arista and VMware have integrated EOS and NSX control models using the same set of industry standard protocol interfaces to allow both software-based and hardware-based gateways to operate seamlessly and in concert. This integration allows for seamless connectivity for virtual and physical workloads providing increased efficiency and agility to the entire SDDC.

Arista CloudVision platform provide network-wide visibility and single point of integration to NSX. Using CloudVision as the integration point allows for changes in the network topology to be abstracted away from NSX. In addition, CloudVision provides software and hardware version independency from joint certification. Since CloudVision runs same EOS as any other Arista switches, customers need to only certify the CloudVision version with NSX. CloudVision, in turn, provides the aggregate VXLAN state of the physical network to NSX for the most effective physical to virtual synchronization in today's data center. This abstraction improves controller scaling, using only one touch point to control all Arista switches in the data center. CloudVision also provides redundant hardware L2 Gateways for NSX with the MLAG with VXLAN functionality. MLAG with VXLAN on Arista switches provides non-blocking active-active forwarding and redundancy with hitless failover in an event of switch failure.

In operation, Arista CloudVision will register with the NSX controller and will use the OVSDB protocol to synchronize topology information, MAC to VXLAN Endpoints, and VXLAN ID bindings with NSX. CloudVision will appropriately program the Arista switch or switch pairs as the NSX hardware gateway. This hardware gateway integration allows for nearly instantaneous synchronization of state between physical and virtual VXLAN Tunnel Endpoints during any network change or workload modification event. The same mechanism enables provisioning of distributed QoS and security policies at the physical and virtual overlay edge.

VMware's NSX Manager front-ends the entire NSX network virtualization platform and acts as the single pane of glass for rolling out your SDDC network. In addition, NSX provides a northbound REST API to further integrate with OpenStack or other in-house orchestration platforms. Arista's CloudVision platform provides a set of services that simplifies monitoring, management and NSX integration Arista switches in the virtualized data center. Leveraging Arista's EOS and extensible APIs, the user can now provision Arista VTEPs as gateway nodes via the NSX Manager UI or through the cloud orchestration platform of choice. This speeds up service delivery and helps businesses better address their needs in a programmatic and automated way across data centers.

ARISTA

Santa Clara—Corporate Headquarters

5453 Great America Parkway

Santa Clara, CA 95054

Tel: 408-547-5500

www.arista.com

Ireland—International Headquarters

4130 Atlantic Avenue
Westpark Business Campus
Shannon
Co. Clare, Ireland

Singapore—APAC Administrative Office

9 Temasek Boulevard
#29-01, Suntec Tower Two
Singapore 038989

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