VMware NSX Advanced Load Balancer and NSX Integration

Automated L2-L7 Network and Application Services for NSX

INTEGRATION HIGHLIGHTS

- Avi is VMware's flagship load balancing solution
- Provides with flexibility to deploy load balancer directly through Avi UI or through NSX Manager
- Offers Avi load balancer consumption via Avi APIs and NSX policy APIs
- Supports migration of NSX native load balancer configuration to Avi

KEY BENEFITS

- Full-featured, enterprise-ready load balancer with automation and elasticity
- 100% REST APIs for policy-driven self-service for developers and automation for IT administrators
- Predictive autoscaling of load-balancing and application resources based on real-time traffic
- Real-time insights into application performance, security, and end user interactions
- Support for VMware NSX APIs for network and app automation

VMware NSX is the leading network virtualization and security platform that enables the virtual cloud network, a software-defined approach to networking that extends across data centers, clouds, and application frameworks. VMware NSX provides better visibility into the virtual environment than has ever been possible with any hardware-based network visibility offering. NSX also allows enterprises to incrementally adopt network virtualization solutions without requiring large upfront capital investments like other SDN solutions in the market.

Avi Networks, now part of VMware, is rebranded to VMware NSX® Advanced Load Balancer™. Avi is the app delivery solution from VMware that provides *multi-cloud* load balancing, web *application firewall*, *application analytics* and *container ingress* services from the data center to the cloud.

Network Automation and Elastic Application Services with NSX Advanced Load Balancer (Avi Networks) and NSX

Problem Statement Enterprises invest in NSX to achieve network automation and deploy an SDN that they can program. However, the native NSX LB was not intended to be a full-fledged load balancing solution and does not let them fully automate or scale elastically. Enterprises deploying NSX have historically used either the native NSX LB or legacy LBs. Neither solution is adequate for the type of automation or the enterprise-grade load balancing functions that enterprises hope to achieve with NSX.

Some of the challenges of deploying legacy and native NSX load balancers in NSX environment are:

LEGACY LBS	NATIVE NSX LBS
Legacy appliance-based hardware	Limited LB features
Lacks native integration with NSX	Limited to NSX
Managed device-by-device	Manual configuration
Hard to automate/operate	Lower performance
No elasticity with capacity silos	Difficult to troubleshoot
Limited visibility for troubleshooting	Limited scalability

Value Proposition VMware NSX and Avi Networks enable enterprises to deliver flexibility, agility, speed, automation, elastic scale, and cost effectiveness – for both the network layer (L2-3) as well as networks services layers (L4-7).

Avi's integration enables customers with following four key benefits:

- Autoscaling and provisioning of networks and application services
- Automated and real time reconfiguration of application services with changes in applications or networks
- Real-time application analytics to track application response times, analyze connection logs, and monitor end user experience for applications
- Unlock full application delivery and next-gen security capabilities like WAF (Web Application Firewall), application security, GSLB (Global Server Load Balancing), and container ingress in one single platform.

Solution Avi has a software-defined architecture built on cloud principles. It is an enterprise-grade platform agnostic to the underlying environment with full flexibility to deploy applications on-prem, in a VMware cloud, or in a public cloud. Avi and NSX integration ensures that the elastic application services fabric synchronizes in real time with NSX to provide automated provisioning of elastic load balancing and analytics for applications deployed on top of an NSX environment. Avi also monitors, scales, and reconfigures app services in real time in response to changing performance requirements.

Avi Networks and VMware NSX

The combination of Avi Networks and NSX enables Avi Controller to be the single point of management via REST APIs. As developers and network admins configure app and load balancing instances, Avi Controller automatically spins up the distributed load balancers (Avi Service Engines), places the virtual IPs (VIPs) on the Service Engines, and places the network interfaces in the right overlay or underlay network, without manual intervention. Avi also publishes rules by invoking NSX APIs and dynamically manages security for the load balanced resources. As application traffic increases, Avi Controller scales out the resources by creating additional Service Engines and scale-in when traffic recedes. The following diagram demonstrates Avi and NSX interaction:

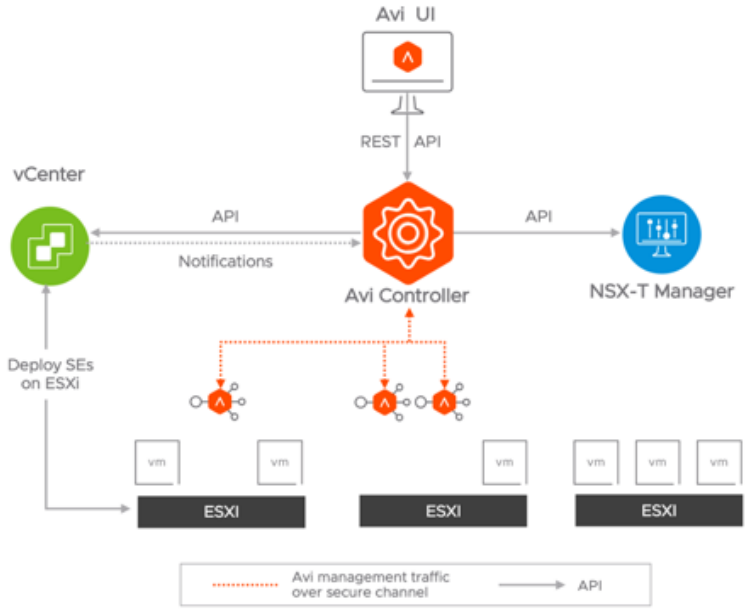

Figure 1: Avi Networks with VMware NSX for automated network and application services

RECOMMENDED MIGRATION PATHS

- Use a standalone tool to migrate from SX-T LB to Avi using UI or API
- Use Migration Coordinator to migrate from NSX-v LB to Avi using UI or API
- Use vRA to migrate from NSX-T or NSX-v LB to Avi
- Use Avi Migration Tool to convert iRules from F5 or other legacy LBs

For more information on how to migrate to advanced load balancing, please contact your VMware representative or visit *https://www.vmware.com/products/nsx/migrate-to-advanced-load-balancing.html*

Looking Ahead

Avi is the VMware's flagship load balancing solution. With Avi and NSX integration, VMware delivers on the promise of network automation: agility, cost-effectiveness, and scale, from the network layers (L2-3) all the way up to the application layers (L4-7), for enterprises and service providers alike. Avi Networks syncs with NSX security groups to allow developers to scale the backend dynamically without reconfiguring load balancing. The architectural alignment enables interoperability of Avi and NSX solutions for intelligent application services that go beyond load balancing. Networks and application services can be provisioned and scaled quickly and automatically, to match application and infrastructure automation that is possible in cloud and web-scale environments

Avi and NSX-T Integration Overview:

Starting with NSX-T version 3.2.0, the following capabilities have been incorporated to help customers deploy Avi for all (existing NSX LB as well as greenfield deployments) use cases including NSX-T environments (see Figure 2):

- **NSX Advanced Load Balancer (Avi) Installation through NSX** - Avi Controllers can now be deployed through NSX-T Manager UI providing customers a single pane for installation of all NSX components.
- **Cross-Launch NSX Advanced Load Balancer (Avi) UI from NSX-T UI** - Launch Avi UI from NSX-T Manager for advanced features like analytics, monitoring, troubleshooting.
- **NSX Advanced Load Balancer (Avi) User Interfaces Displayed within NSX** – Configure and consume Avi from within NSX Manager.
- **Migrate Load Balancing from NSX native LB to NSX Advanced Load Balancer (Avi)** – Migrate Load Balancers to Avi when using the 'Bring your own Topology' model using the Migration Coordinator.

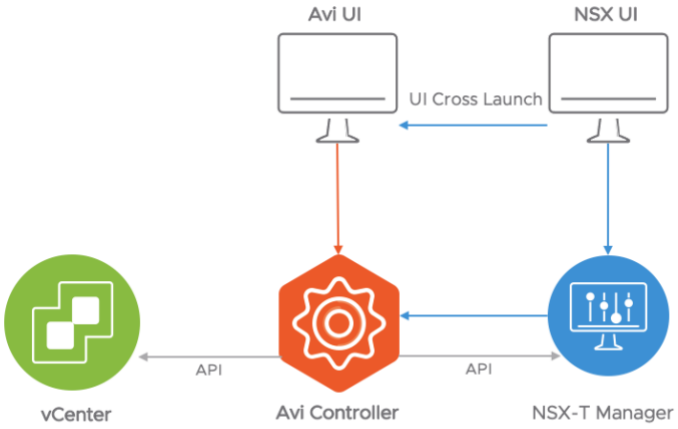

Figure 2: Avi Integrations with NSX in Avi Controller and NSX-T Manager