

Juniper® Validated Design

# JVD Solution Overview: 3-Stage Data Center Design with Juniper Apstra and VMware NSX-T

## Executive Summary

Today's data center networks combine physical networks with network virtualization. VMware NSX-T network virtualization is common in enterprise data centers, with many data center operators seeking guidance on how to integrate NSX-T with their physical networks. The *Data Center Design with Juniper Apstra and VMware NSX-T* is a Juniper Validated Design (JVD) Extension, which builds upon the *3-Stage Data Center Design with Juniper Apstra* JVD to provide validated guidance on integrating NSX-T.

## Solution Overview

The *Data Center Design with Juniper Apstra and VMware NSX-T* builds on a 3-stage fabric as the foundation for NSX-T integration. As with all Juniper data center JVDs, this solution follows best practices as determined by Juniper's subject matter experts, including Juniper support teams. This JVD extension describes the recommended NSX-T deployment and is tested for end-to-end functionality. Figure 1 diagrams the recommended setup.

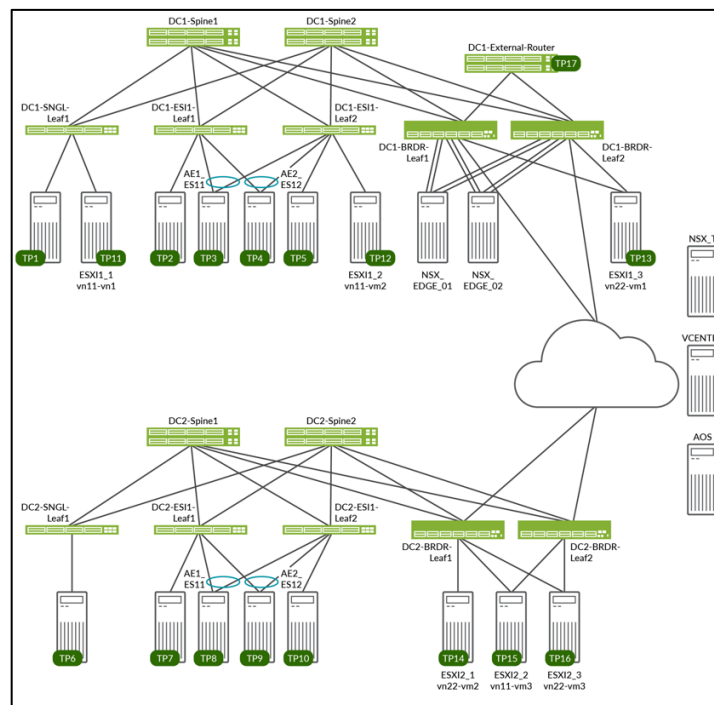


Figure 1: 3-Stage Data Center Design with Juniper Apstra and VMware NSX-T

This JVD provides customers with a well-characterized approach to integrating VMware NSX-T virtual networking with Juniper physical networking. Juniper Apstra automation and network management fully support this design. Advanced JVD testing combined with widespread adoption simplifies troubleshooting and shorten the support cycle, leading to a more stable data center fabric and reduced operational costs.

The underlying JVD, which this extension builds upon, consists of an ERB-based network architecture with spine, leaf, and border leaf switches in a high-availability configuration. All hardware components and software versions are tested extensively with both simulated and real-world traffic.

## Benefits

- Repeatability – prescriptive designs, where all JVD customers benefit from lessons from worldwide deployments.
- Reliability – integrated best practice designs tested with real-world traffic and described with measured results.
- Velocity – streamlined deployment with step-by-step guidance, automation, and prebuilt integrations.

## Solution Components

VMware Products	
VMware Products	Software or Image Version
NSX-T Edge	nsx-edge-3.2.1.0.0.19232403
NSX-Manager	Version: 3.2.0.1.0.19232396
vSphere Client	Version: 7.0.2
ESXi	VMware ESXi, 7.0.2, 17630552 or later

The *Data Center Design with Juniper Apstra and VMware NSX-T* combines the above VMware products with a Juniper data center JVD that has Juniper Apstra version 4.2.1 and Junos OS Release 22.2 R3-S3 as the software components and supports multiple Juniper switches in the fabric roles of spine switch, leaf switch, and border leaf switch.

## About Juniper Validated Designs

JVDs represent a cross-functional collaboration between Juniper's top subject matter experts, including product teams, solutions architects, support, development, and testing. The goal of the JVD program is to develop well-characterized, multidimensional solutions that reduce the complexity and support burden of networking teams. Network designs selected for validation are based on industry standards and target the most common use cases with practical, economical designs that are fully tested and supported.

Juniper data center JVDs are customer-driven. Network designs in frequent use by customers are identified and then undergo use case and best practice analysis based on end-to-end validation testing. Juniper fully characterizes and quantifies the design in the Juniper JVD Labs with extensive testing by multiple teams. Once Juniper builds the physical infrastructure required to support the JVD, the design undergoes rigorous validation to prove solution viability, with results provided in JVD test reports. Throughout the validation process, our engineers engage with software developers to quickly address any found issues, and ongoing regression testing confirms functionality, performance, reliability, and security in new software versions.



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