

Juniper® Validated Design

JVD Solution Overview: 5-Stage EVPN-VXLAN Data Center



JVD-DCFABRIC-5STAGE-01-01

Executive Summary

Data center operators must deliver and maintain a reliable network infrastructure while managing complexity and meeting scalability needs. Data centers are hosting increasingly varied workloads with a growing diversity of networking requirements. Meeting these needs with bespoke network designs introduces a unique troubleshooting burden on networking teams. The 5-Stage Data Center Design with Juniper Apstra is a Juniper Validated Design (JVD) that provides organizations with a data center network that is fast, adaptable to change, scalable, and reliable.

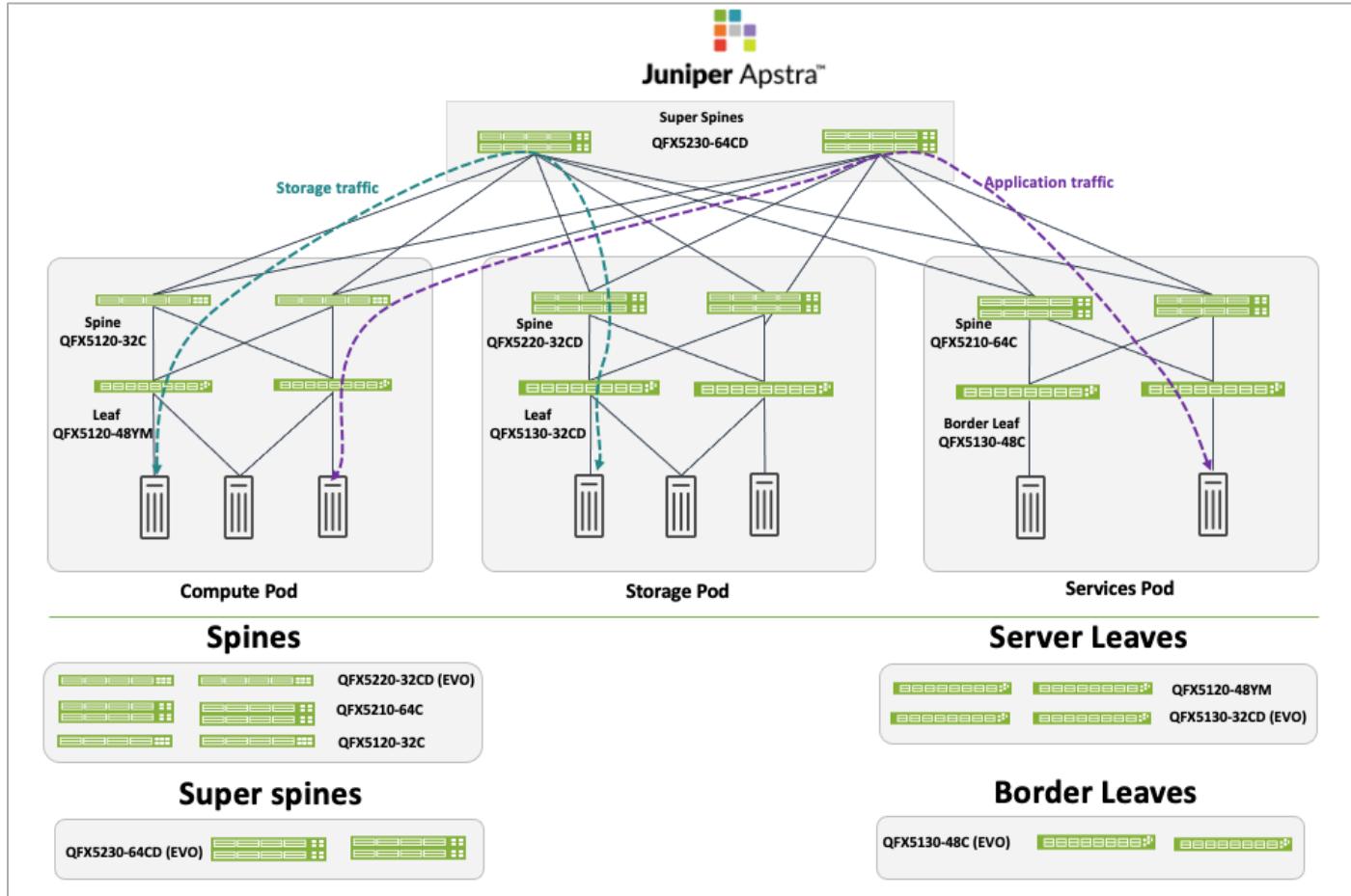
Solution Overview

The 5-stage fabric with Juniper Apstra is an EVPN-VXLAN based validated design based on ERB network architecture. It consists of a superspine connecting to Pods, the superspine only perform IP forwarding and relaying of routes just as the spines in the Pods do. Hence the superspines and spines in 5-stage Fabric are called Lean superspines and lean spines.

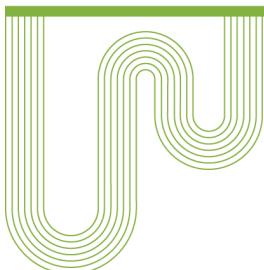
The 5-stage fabric is adopted for large scale data center design especially where there is a requirement for large datastores and compute nodes that need to connect to this storage. Therefore, this JVD validates key features such as RoCEv2, Multicast along with base features for deploying the 5-stage fabric.

Juniper Apstra automation and network management fully support this design. 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 is the result of extensive consultation and testing to find the balance between capability, performance, and cost efficiency to meet the needs of scalable data center deployments. Figure 1 diagrams the recommended setup.

Figure 1 : 5-Stage Data Center Design with Juniper Apstra



Juniper has extensively tested the design, with customers deploying it across the globe. Advanced JVD testing combined with widespread adoption simplify troubleshooting and shorten the support cycle, leading to a more stable data center fabric and reduced operational costs. This JVD 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 simulated and real-world traffic.



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