

Juniper® Validated Design

JVD Test Report Brief: Campus Fabric Core-Distribution ERB Using Juniper Mist Wired Assurance

Introduction

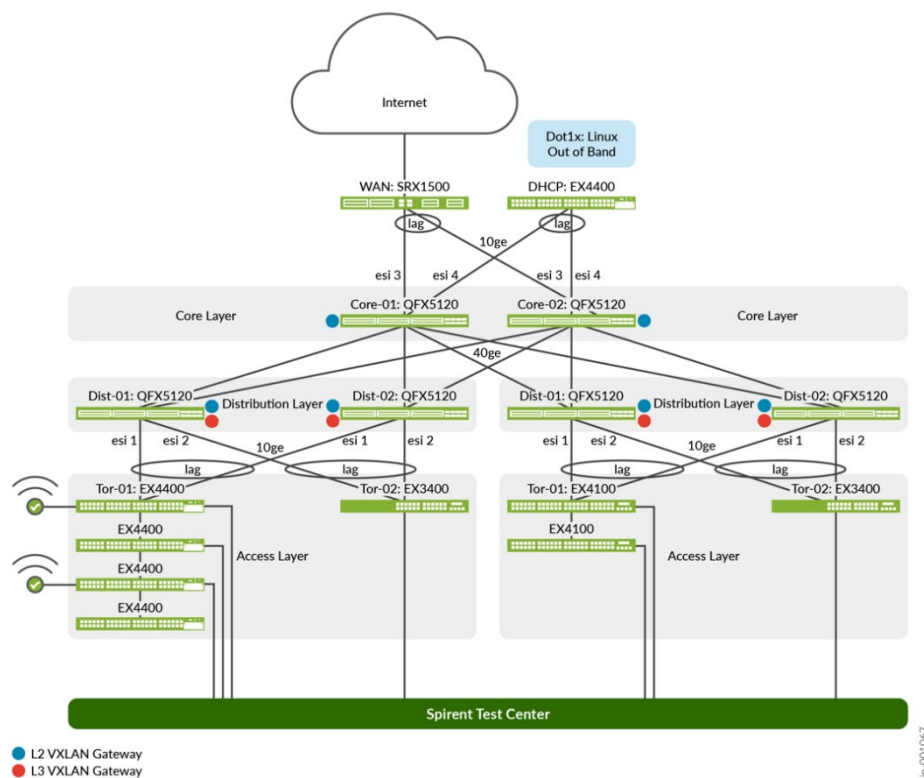
This test report contains qualification test report data for the Campus Fabric Core-Distribution ERB Juniper Mist Wired Assurance Juniper Validated Design (JVD).

The topology is a campus fabric design using EVPN in the control plane, VXLAN tunnels in the overlay network, and integrating Juniper Access Points (APs).

This topology uses eBGP as the underlay/overlay routing protocol. The distribution layer devices act as a Layer 2 Gateway (L2GW) and Layer 3 Gateway (L3GW). Access devices are multihomed (ESI link aggregation group (ESI-LAG)) to distribution devices. Distribution devices are connected to each other using an IP fabric through core devices.

Test Topology

Figure 1: Test Topology



Platforms Tested

Table 1: Devices Under Test

Devices Under Test		
Role	Platform	Release
Core switch	QFX5120	Junos OS Release 22.4R3-S2
Distribution switch	QFX5120	Junos OS Release 22.4R3-S2
Access switch	EX4400	Junos OS Release 22.4R3-S2
Access switch	EX3400	Junos OS Release 22.4R3-S2
Access switch	EX4100	Junos OS Release 22.4R3-S2
RADIUS server VM	Linux	CentOS Linux release 7.5.1804
DHCP server VM	Linux	Ubuntu 20.04.2 LTS
WAN router	SRX345	Junos OS Release 21.4R3-S3

Scale Testing

This document may contain key performance indexes (KPIs) used in solution validation. Validated KPIs are multi-dimensional and reflect our observations in customer networks or reasonably represent solution capabilities. These numbers do not indicate the maximum scale and performance of individual tested devices. For uni-dimensional data on individual SKUs, kindly contact your Juniper Networks representative.

The Juniper JVD team continuously strives to enhance solution capabilities. Consequently, solution KPIs may change without prior notice. Always refer to the latest JVD test report for up-to-date solution KPIs. For the latest comprehensive test report, please reach out to your Juniper Networks representative.

Table 2: Scale

Features	Scale Number	Role
Number of CORE switches tested	2	CORE
Number of DISTRIBUTION switches tested	4	DISTRIBUTION
Number of ACCESS switches tested	4	ACCESS (4-member EX4400 VC)
Max BGP adjacency	8	CORE
ARP entries	45000	DISTRIBUTION
MAC addresses learnt	45000	DISTRIBUTION
DHCP RELAY IRBs	32	DISTRIBUTION
EVPN Type 5 VRFs	20	DISTRIBUTION
Dot1x Clients	100	ACCESS
VLANs	500	DISTRIBUTION
IRBs	500	DISTRIBUTION
Remote VTEPs	5	CORE AND DISTRIBUTION

Version Qualification History

This JVD has been qualified in Junos OS Release 22.4R3-S2.

High Level Features Tested

- All the distribution layer switches act as Layer 3 VxLAN gateways. The distribution layer switches have client VLANs/VNIs configured.
- Each client VLAN has an IRB configured on each distribution switch.
- Access layer switches are connected to wired simulated clients as well as Juniper APs on PoE-enabled interfaces.
- Stateless DHCP relay configured at the distribution layer enables the Juniper APs and the clients to get IP addresses from the DHCP server across the IP fabric.
- The 802.1x authentication of clients is provided by an out-of-band RADIUS server.
- The DHCP server and the Juniper SRX WAN router are multi-homed into all of the core layer switches using ESI-LAGs. Core routers act as a service block.
- BFD has been configured at the underlay and overlay to provide faster convergence for eBGP adjacencies.
- Access features configured: Protect RE-Filter, DHCP snooping, storm control, MAC address limit with aging, voice VLAN, QoS profile, PoE and Virtual Chassis.

Event Testing

- Reboot across roles—Node reboot across access, core, and distribution layers. Traffic recovery, control and forwarding plane restoration post node reboot is validated.
- Junos OS image upgrade—image upgrade performed via Juniper Mist on the core and access layers.
- Modification to Virtual Chassis—Testing of existing member swap with a new switch. Protocol and traffic convergence validation after Virtual Chassis changes is validated.
- Link failures—Interface flap for interfaces connected between the access, distribution, and core layers. Flap of PoE interfaces powering Juniper APs. Traffic and protocol convergence validation before and after the events are monitored.
- Process restarts of various Junos OS processes—Traffic and protocol convergence validation before and after process restart is validated.
- Mist Dynamic Port Configuration is used to automatically assign configurations to the interfaces based on the assigned port profile configurations. on the assigned port profile configurations

Tested Traffic Profiles

- Intra VNI Traffic between users across the access switches.
- Intra-VNI traffic between users within the access switch.
- Intra-VNI traffic between users across different PODs.
- Inter-VNI (same VRF) traffic between users across the access switches.
- Inter-VNI (same VRF) traffic between users within the access switch.
- Inter-VNI (same VRF) traffic between users across different PODs.
- Inter-VRF traffic between users across the access switches.

- Inter-VRF traffic between users within the access switch.
- Inter-VRF traffic between users across different PODs.

Known Limitations

- For a new member addition or swap of an existing member to a virtual chassis via MIST UI, the software version of the new member should be the same as the existing virtual chassis stack before it is added to the virtual chassis.
- On EX series platforms, if a VoIP network is added to an existing MIST port profile that is already dot1x-enabled and the user is authenticated, the user may not be re-authenticated. To resolve this issue, reconfigure the dot1x interface as a workaround.
- On EX4100 and EX3400, while enabling the RE-Protection Filters, we recommend that you include the following additional CLI command: `set system mgmt-intf-loopback-filter`

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