Juniper® Validated Design

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

Introduction

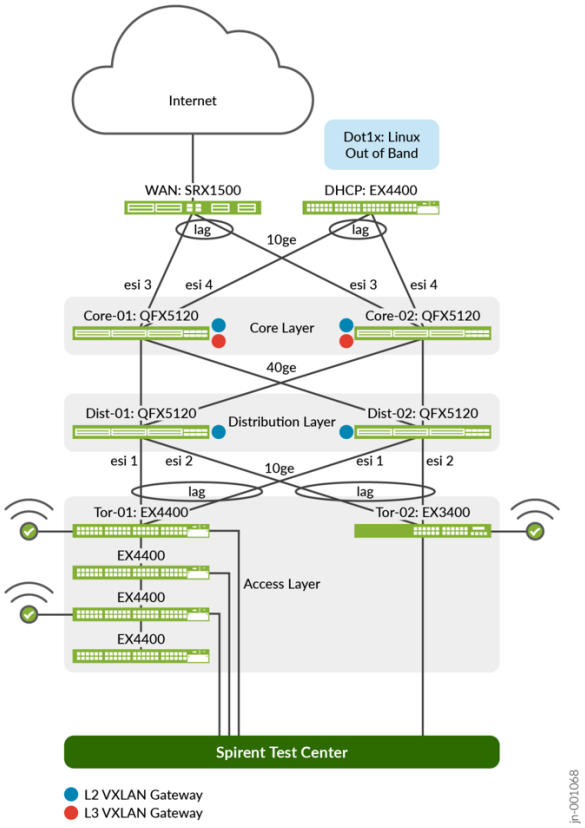
This test report brief contains qualification test report data for the Campus Fabric Core-Distribution CRB Using Juniper Mist Wired Assurance Juniper Validated Design (JVD).

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

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

Test Topology

Figure 1: Test Topology



Platforms Tested

Table 1: Devices Under Test

Devices Under Test		
Role	**Platform**	**Junos OS Release**
Core switch	QFX5120	22.4R3-S2
Distribution switch	QFX5120	22.4R3-S2
Access switch	EX4400	22.4R3-S2
Access switch	EX3400	22.4R3-S2
DHCP server	EX4300	23.2R2
WAN router	SRX1500	22.4R3

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.

We continuously strive 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	2	DISTRIBUTION
Number of ACCESS switches tested	2	ACCESS
Max BGP adjacency	4	CORE
ARP entries	45000	CORE
MAC addresses learnt	45000	CORE
DHCP RELAY IRBs	20	CORE
EVPN Type 5 VRFs	15	CORE
Remote VTEPs	3	CORE AND DISTRIBUTION
Dot1x Clients	100	ACCESS
VLANs	500	CORE AND DISTRIBUTION
IRBs	500	CORE

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 2 and the core layer switches act as Layer 3 VxLAN gateways.
- Client VLANs and VNIs are configured at distribution layer switches. The core layer switches are configured with client VLANs distributed across EVPN Type 5 VRFs.
- Each client VLAN has an IRB configured on each core switch. Access layer switches are connected to wired simulated clients as well as Juniper APs on PoE-enabled interfaces.
- Stateless DHCP relay helps the Juniper APs and the clients get IP addresses from 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 SRX WAN router are multi-homed into all the core layer switches, using ESI-LAGs with core router 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 monitored.
- Junos OS 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 post Virtual Chassis changes monitored.
- 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 monitored.
- Mist Dynamic Port Configuration used to automatically assign configurations to the interfaces based 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.
- Inter-VNI (same VRF) traffic between users across the access switches.
- Inter-VNI (same VRF) traffic between users within the access switch.
- Inter-VRF (inter-VNI) traffic between users across the access switches.
- Inter-VRF (inter-VNI) traffic between users within the access switch.

Known Limitations

- For a new member addition or swap of an existing member to a Virtual Chassis via the Juniper Mist portal, 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 Juniper 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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