

Juniper® Validated Design

JVD Test Report Brief: Microsegmentation with VXLAN Group-Based Policies in IP Clos Fabric

test-report-brief-IPCLOS-GBP-01-01

Introduction

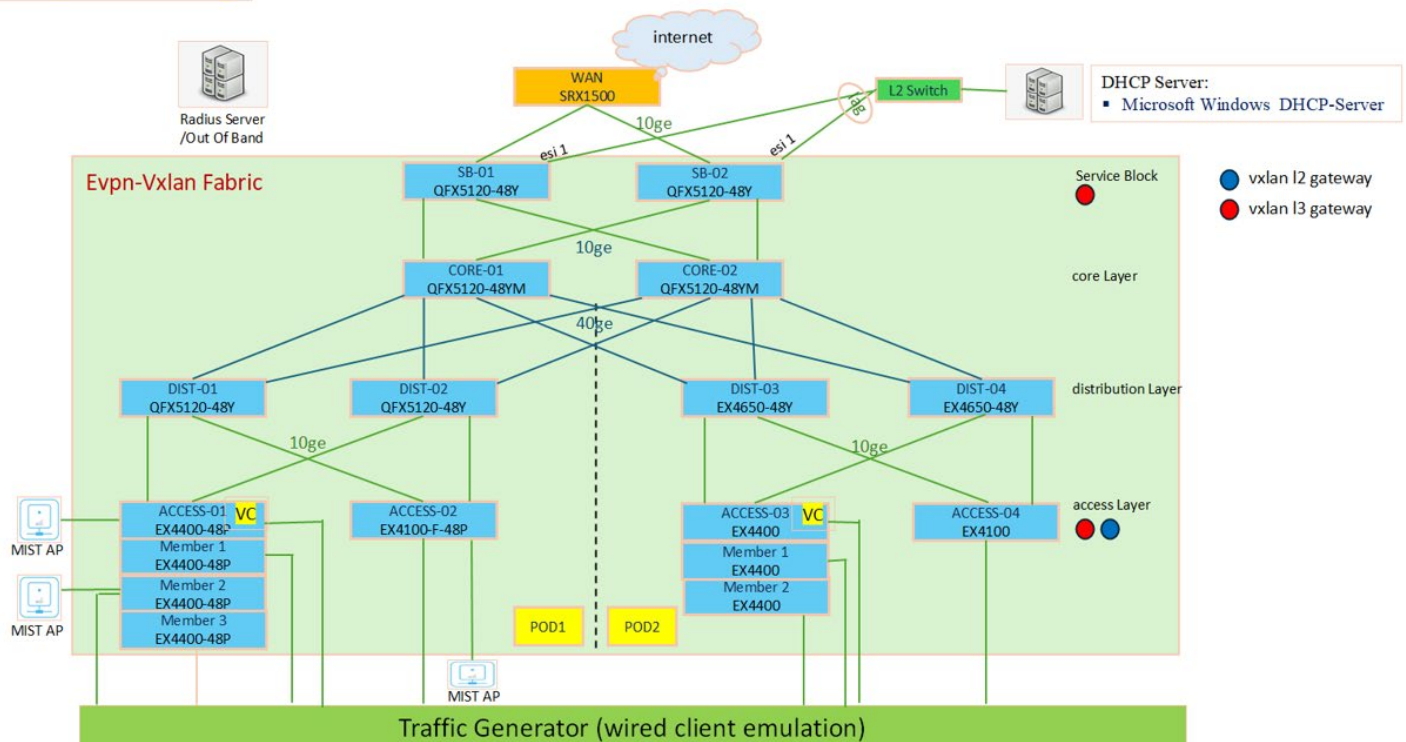
This test report brief contains qualification test report data for the Microsegmentation with VXLAN Group-Based Policies in IP Clos Fabric Juniper Validated Design (JVD). Enterprise networks are undergoing massive transitions to accommodate the growing demand for cloud-ready, scalable, and efficient networks. There's also demand for the plethora of Internet of Things (IoT) and mobile devices. As the number of devices grows, so does network complexity with an ever-greater need for microsegmentation and security. To meet these challenges, you need a network with Automation and Artificial Intelligence (AI) for operational simplification. A Juniper Networks Campus Fabric IP Clos supporting microsegmentation with group-based policies (GBP) is a highly scalable, standards-based architecture. This architecture delivers consistent and optimized enterprise security requirements managed through the Juniper Mist portal.

With GBP, you can enable microsegmentation at the access layer within a Campus Fabric IP Clos and leverage EVPN-VXLAN to provide traffic isolation within and between broadcast domains as well as simplify security policies across a campus fabric. If you have questions about this JVD, contact your Juniper representative.

Test Topology

Figure 1: Tested Topology

TOPOLOGY : IP CLOS TOPOLOGY



Platforms Tested

Table 1: Tested Platforms

Role	Platform	OS
Service Switch-1	QFX5120-48Y	Junos OS Release 24.2R2
Service Switch-2	QFX5120-48Y	Junos OS Release 24.2R2
Core Switch-1	QFX5120-48YM	Junos OS Release 24.2R2
Core Switch-2	QFX5120-48YM	Junos OS Release 24.2R2
Distribution Switch-1	QFX5120-48Y	Junos OS Release 24.2R2
Distribution Switch-2	QFX5120-48Y	Junos OS Release 24.2R2
Distribution Switch-3	EX4650-48Y	Junos OS Release 24.2R2
Distribution Switch-4	EX4650-48Y	Junos OS Release 24.2R2
Access Switch-1 (4 member VC)	EX4400-48P	Junos OS Release 24.2R2 (recommended)
Access Switch-2 (standalone)	EX4100-F-48P	Junos OS Release 24.2R2 (recommended)
Access Switch-3 (3 member VC)	EX4400-24P	Junos OS Release 24.2R2 (recommended)
Access Switch-4 (standalone)	EX4100-48P	Junos OS Release 24.2R2 (recommended)
RADIUS Server VM	Linux	Ubuntu 16.04.3 LTS
DHCP server	VM	Windows 2022
Mist Access Points	Mist OS	0.12.27139
WAN router	SRX1500	Junos OS Release 24.2R2

Version Qualification History

This JVD has been qualified in Junos OS Release 24.2R2.

Scale and Performance Data

Table 2: Services and Scale

Services	Scale
EVPN-VXLAN VTEP	5
EVPN-VXLAN L3 VRF	20
VLANs	500
MAC IP	16k local and 32k fabric wide
IRB	500

Performance

Traffic rate: 5k FPS per streamblock.

High Level Features Tested

The objective for this validation is to test ingress VXLAN GBP using a Campus Fabric IP Clos.

Scenarios tested:

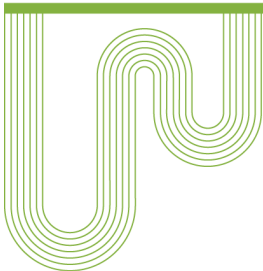
- GBP-testing dynamic third-party RADIUS and ingress enforcement
- GBP-testing dynamic Mist NAC and ingress enforcement
- GBP-testing static and ingress enforcement
- GBP-testing static and dynamic ingress enforcement

Event Testing

- Delete and add GBP policies
- Change GBP policies from static to dynamic
- Reboot access device
- Traffic recovery validation after all scenarios

Known limitations

- A GBP tag configuration may be pushed to devices that do not have a local VTEP configuration (like distribution or core switches). This will be removed in future versions. Customers can remove this unnecessary configuration through additional CLI if wanted.
- With GBP inter tagging configured, the static policy hierarchy is only local within the Layer 2 or Layer 3 identifiers and not global across the two layers.
- Per Switch Port up to 100 GBP clients are supported.
- With GBP configured, 256 global switch policies can be configured. Consider removing policies that do not block any traffic as they have an explicit allow if you reach this limit.



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