Juniper® Validated Design

JVD Test Report Brief: Service Provider SRv6 Core and Edge

test-report-brief-JVD-SP-CORE-EDGE-SRV6-01-01

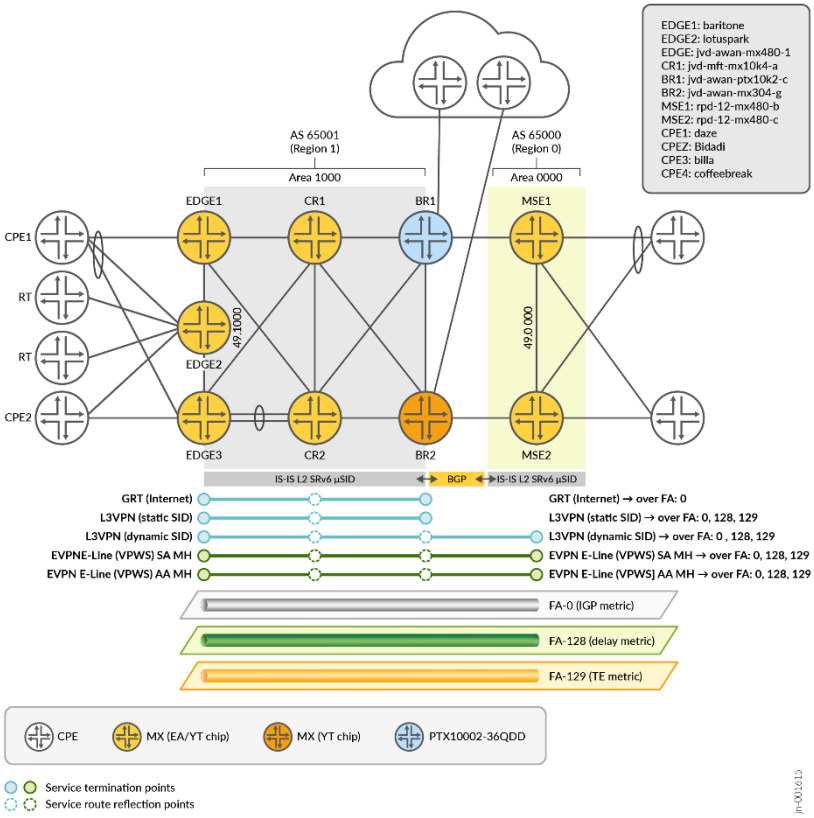
Introduction

This test report brief contains qualification test report data for the **Service Provider SRv6 Core and Edge** Juniper Validated Design (JVD). The qualification includes testing a multi-domain network transport with multiple transport planes realized through SRv6 Flex-Algo (without traffic engineering) and service-level only. The qualification focuses on L3VPN (both traditional L3VPN with SAFI=128, as well as EVPN Type 5 based L3VPN with SAFI=70) along with L2 Services (EVPN E-Line -VPWS).

Test Topology

The modern service provider networks has two main segments referred as core and edge (**Figure 1**). The solution uses a reference design that implements core and edge segments in one flat IS-IS Level 2 domain, using the default IS-IS instance. Additionally, the Multi Service Edge (MSE) service complex is placed in a separate domain, with BGP only reachability.

Figure 1: Test Topology



Appropriate redistribution policies, with or without summarization, between an IS-IS and a BGP domain are provisioned to provide an end-to-end IPv6 connectivity between loopbacks and locators.

The reference architecture deploys an infrastructure designed to support traditional service provider topologies with edge services termination.

Platforms Tested

Table 1 lists the platforms tested for this JVD during initial qualification.

Table 1: Devices Under Test

Devices Under Test		
Role	**Platform**	**Junos OS Release**
EDGE1 (DUT)	MX480	24.4R2 JUNOS OS RELEASE
EDGE2 (DUT)	MX480	24.4R2 JUNOS OS RELEASE
EDGE3 (DUT)	MX480	24.4R2 JUNOS OS RELEASE
CR1 (DUT)	MX10004	24.4R2 JUNOS OS RELEASE
CR2 (DUT)	MX2010	24.4R2 JUNOS OS RELEASE
BR1 (DUT)	PTX10002-36QDD	24.4R2 JUNOS-EVO RELEASE
BR2 (DUT)	MX304	24.4R2 JUNOS OS RELEASE
MSE1 (DUT)	MX480	24.4R2 JUNOS OS RELEASE
MSE2 (DUT)	MX304	24.4R2 JUNOS OS RELEASE
CPE1	MX240	24.4R2 JUNOS OS RELEASE
CPE2	MX240	24.4R2 JUNOS OS RELEASE
CPE3	MX240	24.4R2 JUNOS OS RELEASE
CPE4	MX240	24.4R2 JUNOS OS RELEASE
T GEN	IXIA	Ix Network 9.30

Version Qualification History

This JVD has been qualified in Junos OS Release 24.4R2 and Junos OS Evolved Release 24.4R2.

Scale and Performance Data

The scale and performance details are as follows:

Table 2: Scale and Performance Data

Feature	Configured Scale
Node SID (uN)	3k
Adjacency SIDs (uA)	9k
SRv6 Locators	3k

Feature	Configured Scale
EVPN VPWS instance	3.3K
SRV6-L3VPN (µDT4/µDT6/µDT46)	9k

Traffic Profile

The traffic profile details are follows:

Table 3: Traffic Profile Details

Stream Block	Load	Packet Size
L3VPN-DYN-FA129-1	50000.0 fps	128
L3VPN-DYN-FA128-1	50000.0 fps	128
L3VPN-DYN-FA001-1-1500 Copy (1)	50000.0 fps	128
L3VPN-DYN-FA001-1-1500	50000.0 fps	128
L3VPN-DYN-FA000-1	275914.0 fps	128
EVPN-VPWS-SA-STATIC-FA129-1-3350 EDGE1 MSE	5000.0 fps	128
EVPN-VPWS-SA-STATIC-FA128-1-350 EDGE1_MSE	5000.0 fps	128
EVPN-VPWS-SA-STATIC-FA000-1-300 EDGE1_MSE	5000.0 fps	128
EVPN-VPWS-SA-DYN-FA000-1-300 EDGE1_MSE	50000.0 fps	128
EVPN-VPWS-AA-STATIC-FA129-1-350	50000.0 fps	128
EVPN-VPWS-AA-STATIC-FA128-1-350	50000.0 fps	128
EVPN-VPWS-AA-STATIC-FA000-1-300	50000.0 fps	128
EVPN-VPWS-AA-DYN-FA129-1-3350	50000.0 fps	128
EVPN-VPWS-AA-DYN-FA128-1-350	50000.0 fps	128
EVPN-VPWS-AA-DYN-FA000-1-300	50000.0 fps	128

Convergence Test Results

The convergence test results are as follows:

Table 4: Convergence Test Results

Event	EVPN-VPWS Single-Active Multihoming convergence in ms			EVPN-VPWS Active-Active multihoming convergence in ms			L3VPN convergence in ms			GRT (over default Flex-Algo) convergence in ms
	Flex Algo 0	Flex Algo 128	Flex Algo 129	Flex Algo 0	Flex Algo 128	Flex Algo 129	Flex Algo 0	Flex Algo 128	Flex Algo 129	
EDGE3-CR2 link disable	3.6	3.7	2.75	3.3	3.3	2.4	0	0	0	0
EDGE3-CR2 link enable	0	0	0	0	0	0	0	0	0	0
EDGE3-CR1 link disable	0	0	0	0.1	0.1	0.1	0	0	0	0
EDGE3-CR1 link enable	0.2	0.2	0.2	0.1	0.1	0.1	0	0.1	0.1	0
BR1-CR1 link disable	0.4	0.4	0.1	0.22	11.75	0.37	0.1	0	0.1	0.5
BR1-CR1 link enable	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.09	0.1	0
BR1-CR2 link disable	0.8	0.7	0.8	1.4	0.94	0.88	1.7	1.74	1.73	0
BR1-CR2 link enable	1.1	0.9	1.2	2.1	1.9	2.2	1.9	2.1	1.8	5.1

High Level Features Tested

The following high level features are tested:

- SRv6 uSID IS-IS
- Flex-Algo (with dynamically measured delay metrics) IS-IS
- TI-LFA (link/node) IS-IS
- MLA (micro-loop avoidance) IS-IS
- SRv6 uSID locator summarization IS-IS
- L3VPN (uDT4, uDT6, uDT46)
- EVPN-VPWS (uDX2)

- BGP
- BFD
- Community-based Routing Policy
- Route Reflection
- IPv4 / IPv6
- LACP
- AE
- VLAN (802.1q)

Event Testing:

The following events are tested:

- Device offboarding and Onboarding
- Restart Daemons
- Deactivate and Activate Interfaces
- Deactivate and Activate Protocol
- Disable and Enable Interfaces
- Disable and Enable Protocol
- Device reboot
- Software upgrade and downgrade
- Configuration backup and restore

Known Limitations

The following are the known limitations:

- “RT : rttToken" is an error message that is observed during steady state.

  Impact: No functional impact,

  Issue resolved in: evo:25.2R2-EVO evo:25.4R1-EVO

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