Juniper® Validated Design

# JVD Test Report Brief: WAN Edge for SRX Series Firewall

Introduction

Juniper Mist WAN Assurance is a cloud service that brings automated operations and service levels to the enterprise access layer at the WAN edge. Juniper WAN Assurance is a key component of the overall Juniper SD-WAN solution using Juniper SRX Series Firewalls.

This test report brief contains qualification test report data for Mist WAN Assurance deployment. If you have questions about this Juniper Validated Design (JVD), contact your Juniper representative.

Test Topology

Figure 1: Tested Topology
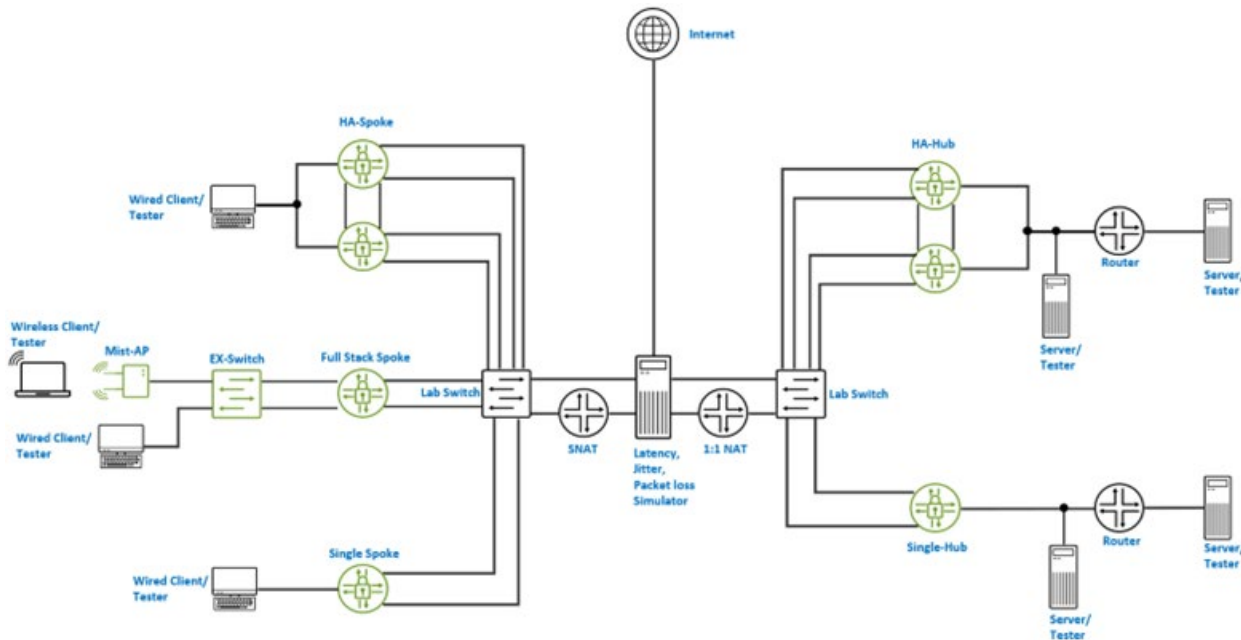
Platforms Tested

Role	Platform	OS
Hub 1	SRX4600 HA	Junos OS Release 21.2R3-S7
Hub 2	SRX1500	Junos OS Release 21.2R3-S7
Spoke 1	SRX320 HA	Junos OS Release 21.2R3-S7
Spoke 2	SRX300	Junos OS Release 21.2R3-S7

Role	Platform	OS
Spoke 3	SRX345	Junos OS Release 21.2R3-S7
Spoke 3 Switch	EX4100-48P	Junos OS Release 22.4R2-S2
Spoke 3 Mist AP	AP12	0.8.21022

Version Qualification History

This JVD has been qualified in Junos OS Release 21.2R3-S7.

Performance Data

Table 1: SRX345 Performance Data – CPS Method [SIGPACK:3679]

Test Case	Platform	Parameter	CPS	Throughput
LBO HTTP Performance	SRX345	HTTP 44KB	820 CPS	320 Mbps
LBO HTTP Performance with security features (IDP)	SRX345	HTTP 44KB	150 CPS	60 Mbps
Overlay HTTP Performance	SRX345	HTTP 44KB	410 CPS	155 Mbps
Overlay HTTP Performance with security features enabled (IDP)	SRX345	HTTP 44KB	110 CPS	43 Mbps
Spoke-to-Spoke HTTP Performance with Hub Mesh	SRX345	HTTP 44KB	400 CPS	150 Mbps
LBO HTTP Performance	SRX345	HTTP 44KB	820 CPS	320 Mbps
LBO HTTP Performance with security features (IDP)	SRX345	HTTP 44KB	150 CPS	60 Mbps

Table 2: SRX300 Performance Data – CPS Method [SIGPACK:3659]

Test Case	Platform	Parameter	CPS	Throughput
LBO HTTP Performance	SRX300	HTTP 44KB	400 CPS	150 Mbps
LBO HTTP Performance with security features (IDP)	SRX300	HTTP 44KB	52 CPS	20 Mbps
Overlay HTTP Performance	SRX300	HTTP 44KB	175 CPS	70 Mbps
Overlay HTTP Performance with security features enabled (IDP)	SRX300	HTTP 44KB	32 CPS	12 Mbps
Spoke-to-Spoke HTTP Performance with Hub Mesh	SRX300	HTTP 44KB	160 CPS	64 Mbps
LBO HTTP Performance	SRX300	HTTP 44KB	400 CPS	150 Mbps
LBO HTTP Performance with security features (IDP)	SRX300	HTTP 44KB	52 CPS	20 Mbps

High Level Features Tested

- Onboarding and provisioning:
  - Standalone and high availability.
- WAN configuration and management:
  - Interfaces (GE, XE, L0, IRB, ST0)
  - DNS, NTP, OOB Mgt IP
  - Up to 2 WAN links (Broadband, MPLS)
  - MTU
  - Auto negotiation
  - Interface static IP
  - Interface DHCP IP
  - WAN source NAT interface
- LAN configuration:
  - LANs—tagged/untagged
  - DHCP server
  - Multiple interfaces on LAN network
  - Multiple IRB interfaces on LAN network
  - IEEE 802.3ad LAG with active LACP (Force-up Option)
- VPN overlay features:
  - Spoke-to-hub overlay
  - Hub-to-spoke overlay
  - Spoke-to-spoke overlay (through hub)
  - Hub-to-hub overlays through hub-mesh
- Traffic steering and forwarding features:
  - Central breakout at hub
  - Local breakout at spoke
  - Static route at spoke
  - Static route at hub
  - BGP route at hub
  - Failover when WAN-links broken (IPsec DPD)
  - Secure Edge Connector (SEC)

- Application policy features:
  - Source attached LAN
  - Source non-attached user
  - Various applications as defined in the applications parameter section
  - IDP-enabled
  - Imported organization application policies
- Applications defined by the following parameters:
  - Applications defined by IP prefixes
  - Applications defined by protocol/port
  - Applications defined by DNS-FQDN
  - Applications defined by predefined-app
  - Applications defined by app-categories
  - Six Applications - through Learned Applications selection
- Redundancy and high availability options:
  - Two/more independent hubs with failover at spoke
  - Clustered high-available hub
  - Clustered high-available spoke
  - Hub redundancy through hub-mesh
- Security features:
  - Stateful firewalling
  - Application Tracking (AppTrack)
  - Web filtering
  - URL Subcategory
  - IDP
  - IDP bypass
  - IDP critical signature
  - Secure Edge Connector
  - General options and features:
  - EX switch behind SRX WAN router
  - Mist AP behind EX Series Switch
  - Site variables
  - Application path visibility
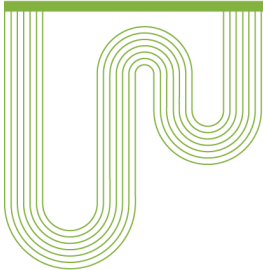 - WAN edge insights

Event Testing

- Failover Events:
  - Hub failover—primary to secondary hub
  - Hub cluster node failover—Node0 to Node1
  - Control plane failover
  - Data plane failover

- Spoke-to-spoke traffic with hub failover
- WAN failover

Traffic recovery was validated after all failure scenarios.

Tested Traffic Profiles

Traffic	Path	Protocol	Load
Spoke-to-Hub	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions
Spoke-to-Hub Dynamic LAN	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions
Spoke Local Breakout	Underlay	DNS; HTTP	DNS; MS-TEAMS; ESPN
Spoke-to-Hub Breakout	Mist Overlay	HTTPS	URL Category - Search Engines; Social Media
Spoke JSEC Breakout	JSec Overlay	HTTPS	Any App - Skype; Google; Facebook
Spoke1 to Spoke2 via Hub	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions
Spoke1 to Spoke3 (Full stack)	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions
Spoke3 Full stack Local Breakout	Wireless Users > AP > EX switch > Spoke Underlay	HTTPS	Junos Apps - CNN; MS-TEAMS; ESPN
Hub-to-Spoke	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions
Hub-to-Hub (Full Mesh)	Mist Overlay	HTTP (Spirent- CyberFlood)	Custom App - 100 sessions