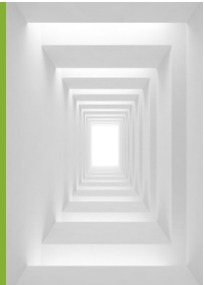


Juniper® Validated Design JVD Test Report Brief: Distributed Enterprise Branch EX Series



Introduction

This test report brief contains qualification test report data for the Distributed Enterprise Branch EX Series Juniper Validated Design (JVD). This qualification includes deploying and managing Juniper Networks® EX Series Switches at the branch using the Juniper Mist™ cloud.

At the branch, EX Series Switches can be used as traditional standalone switches or as a Virtual Chassis managing multiple switches as a single device. For higher scale deployments at the branch, topologies include distribution switches between access switches and WAN devices. The above deployment scenarios along with integration of other typical elements at the branch, such as access points and WAN routers are tested as part of this JVD.

Network designs tested as part of the JVD:

- Standalone switches connected to a WAN router. Access points are then connected to the switch using PoE. The WAN router is connected via a single non-redundant uplink to save costs.
- Two or more switches that form a Virtual Chassis connected to a WAN router. Access points are then connected to the Virtual Chassis using PoE.
- Virtual Chassis switches at access layer connecting to a Virtual Chassis at distribution layer .

Test Topology

Figure 1: Distributed Branch EX Lab

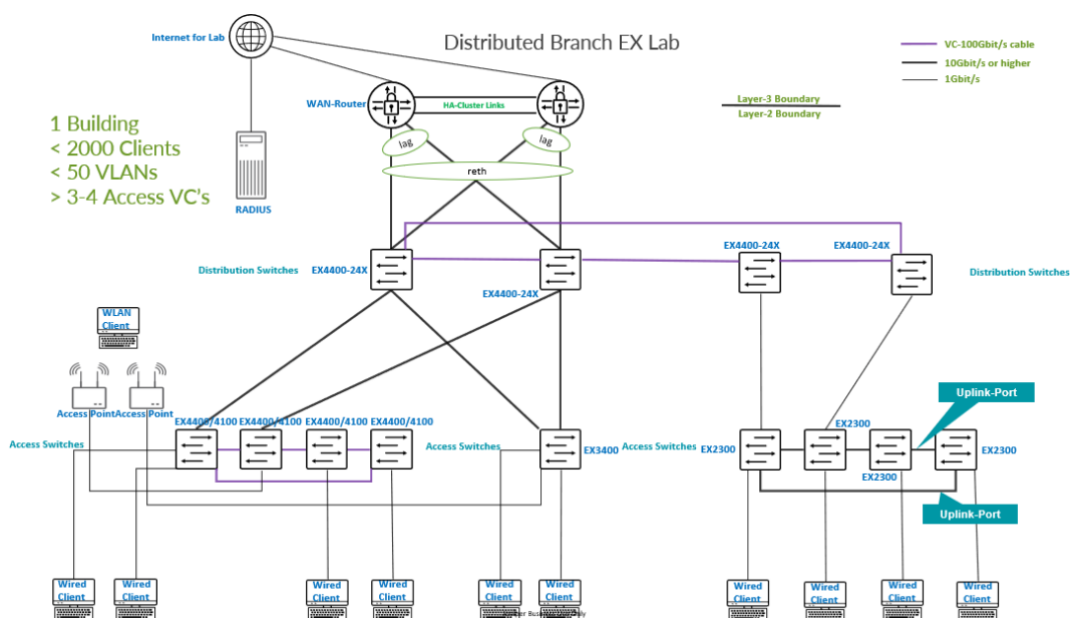
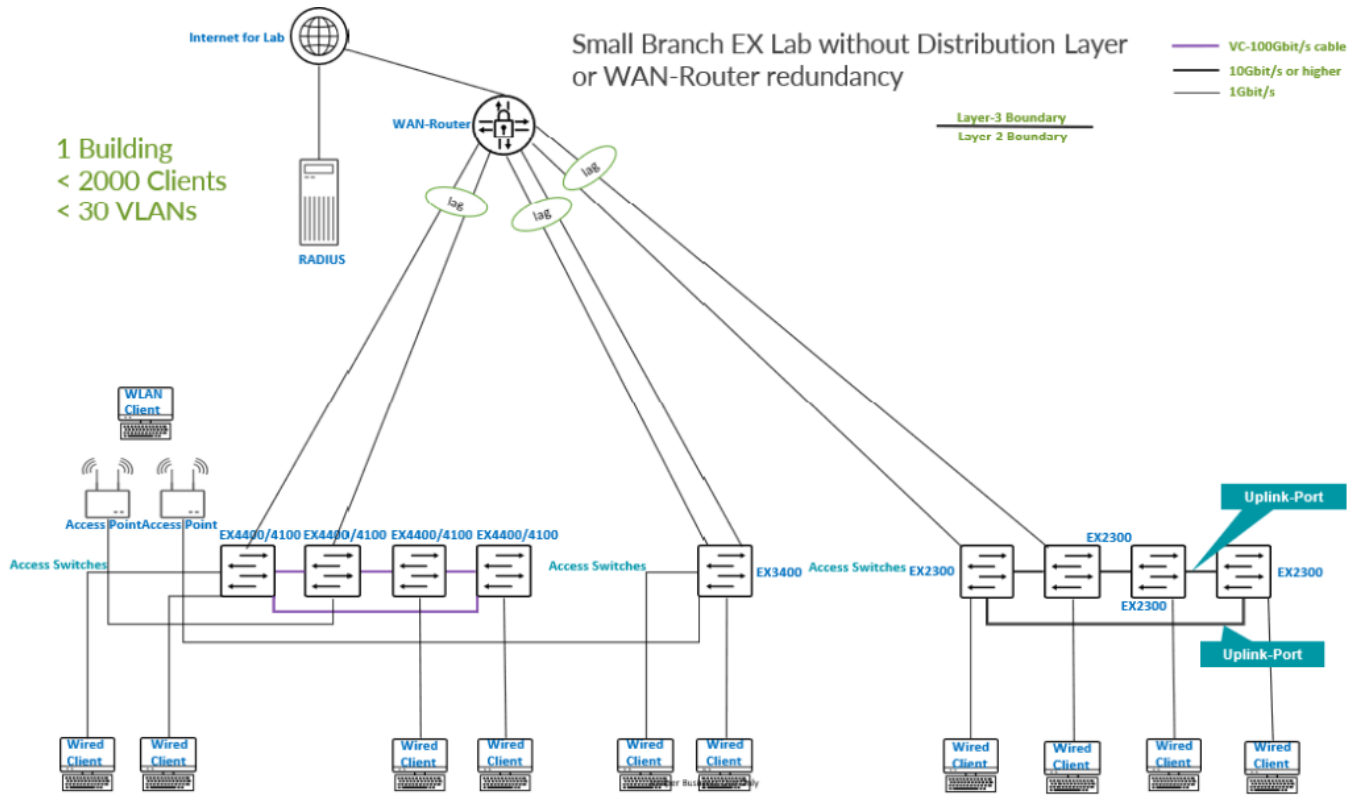


Figure 2: Small Branch EX Lab Without Distribution Layer or WAN Router Redundancy



Platforms Tested

Table 1: Devices Under Test

Devices Under Test		
Role	Platform	Junos Release
ACCESS-4400VC Switch	EX4400-48MP	Junos 22.4R3-S2
ACCESS-4400VC Switch	EX4100-24MP	Junos 22.4R3-S2
ACCESS-2300VC Switch	EX2300-24MP	Junos 21.4R3-S5
ACCESS-3400SA Switch	EX3400-48P	Junos 21.4R3-S5
DISTRIBUTION-VC Switch	EX4400-24X	Junos 23.2R1-S2
WAN Router	SRX345	Junos 21.2R3-S7
WAN Router Cluster	SRX1500	Junos 21.2R3-S7
RADIUS Server VM	Linux	Ubuntu 16.04.3 LTS

Scale and Performance Data

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 representatives.

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

Description	Value
VC Scale at DISTRIBUTION	4 Member VC: EX4400-24X
VC Scale at ACCESS	4 Member VC : EX2300, EX4100, EX4400
Wired Clients	2000
VLANs	50

High Level Features Tested

- WAN Router:
 - WAN Router as DHCP Server
 - WAN Router a Layer 3 Gateway
 - Redundant WAN router design

- Access Features:
 - Protect RE-filter
 - DHCP snooping
 - Dynamic ARP Inspection
 - IP Source Guard
 - Dot1x
 - Mac Based Authentication
 - Mist NAC
 - Storm control
 - MAC address limit with aging
 - Voice VLAN
 - QoS profile
 - RADIUS-based assignments of single VLAN, multiple VLANs and Filter-ID
 - Dynamic Port Configuration
 - SNMP
 - Syslog
 - Port mirroring

- DNS & NTP
- Virtual Chassis:
 - Firmware upgrades of all Virtual Chassis.
 - Swapping an existing VC member with a new switch
 - Adding a new Virtual Chassis member.
 - Deleting a Virtual Chassis member
- Monitoring:
 - Switch insights.
 - Wired Assurance alerts (via e-mail).
 - Wired SLE monitoring.
 - Marvis Virtual Network Assistant.

Event Testing

- Link Failures:
 - Interface flap for interfaces connected between Access and Distribution Switch.
 - Interface flap for interfaces connected between Distribution and WAN Router.
 - PoE Interface flap on Access Devices
- Virtual-chassis events:
 - Renumbering Distribution and Access Virtual-Chassis members.
 - Master Change for Distribution and Access Virtual-Chassis.
 - Existing virtual chassis member swap with a new switch
 - Distribution and Access Virtual-chassis member Addition and Replacement
 - Distribution and Access Virtual-chassis Routing Engine Reboot
 - Reboot across roles—Node reboot across WAN, distribution, and access layer devices.
- Reboot across roles—Node reboot across WAN, distribution, and access layer devices.

Tested Traffic Profiles

- Traffic tested between all clients on the same VLAN on the same switch.
- Traffic tested between all clients on the same VLAN on a different switch.
- Traffic tested between all clients on different VLANs on the same switch.
- Traffic tested between all clients on different VLANs on a different switch.

Known Limitations

- Member 0 of virtual chassis cannot be renumbered using Mist UI

- For a new member addition or swap of an existing member to a virtual chassis via MIST UI, SW version of the new member should be the same as the existing Virtual Chassis stack before it is added to the Virtual chassis

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