




The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at wvOASIS.gov. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at WVPurchasing.gov with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 1

[List View](#)**General Information** | Contact | Default Values | Discount | Document Information | Clarification Request**Procurement Folder:** 807402**Procurement Type:** Central Contract - Fixed Amt**Vendor ID:** VS0000035609 **Legal Name:** Vodanet Systems LLC**Alias/DBA:** Network Devices Inc**Total Bid:** \$320,329.35**Response Date:** 12/09/2020 **Response Time:** 16:48**Responded By User ID:** frankvodanet **First Name:** Frank**SO Doc Code:** CRFQ**SO Dept:** 0803**SO Doc ID:** DOT2100000062**Published Date:** 12/7/20**Close Date:** 12/10/20**Close Time:** 13:30**Status:** Closed**Solicitation Description:** ADDENDUM NO_1 CISCO
ROUTERS & SWITCHES OR EQUAL**Total of Header Attachments:** 1**Total of All Attachments:** 1



Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

**State of West Virginia
 Solicitation Response**

Proc Folder: 807402
Solicitation Description: ADDENDUM NO_1 CISCO ROUTERS & SWITCHES OR EQUAL
Proc Type: Central Contract - Fixed Amt

Solicitation Closes	Solicitation Response	Version
2020-12-10 13:30	SR 0803 ESR12092000000004145	1

VENDOR
 VS0000035609
 Vodanet Systems LLC

Solicitation Number: CRFQ 0803 DOT2100000062
Total Bid: 320329.3499999999767169356346 **Response Date:** 2020-12-09 **Response Time:** 16:48:48
Comments: Free Shipping

FOR INFORMATION CONTACT THE BUYER
 John W Estep
 304-558-2566
 john.w.estep@wv.gov

Vendor Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 1	11.00000	EA	503.190000	5535.09

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX320JB-1YR

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 1 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 2	11.00000	EA	594.770000	6542.47

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX320JB-2YR

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 2 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 3	11.00000	EA	646.210000	7108.31

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX320JB-3YR

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 3 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 4	11.00000	EA	716.630000	7882.93

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX320JB-4YR

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 4 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 1	7.00000	EA	503.190000	3522.33

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX320JB-1YR

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 1 Smart Net Coverage.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 2	7.00000	EA	594.770000	4163.39

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX320JB-2YR

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 2 Smart Net Coverage.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 3	7.00000	EA	646.210000	4523.47

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX320JB-3YR

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 3 Smart Net coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 4	7.00000	EA	716.630000	5016.41

Comm Code	Manufacturer	Specification	Model #
43222612			

Commodity Line Comments: Juniper Networks SRX320-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX320JB-4YR

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 4 Smart Net coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 1	60.00000	EA	424.090000	25445.40

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX300JB-1YR

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 1 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
10	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 2	60.00000	EA	493.860000	29631.60

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX300JB-2YR

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 2 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
11	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 3	60.00000	EA	533.060000	31983.60

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX300JB-3YR

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 3 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
12	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 4	60.00000	EA	586.710000	35202.60

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks SRX300-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX300JB-4YR

Extended Description:

3.1.3 Cisco ISR 1101 4 port router or equal with Year 4 Smart Net Coverage

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
13	3.1.4 Extreme Networks 12 Port Switch or Equal	95.00000	EA	511.650000	48606.75

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks EX2300-C-12P Switch

Extended Description:

3.1.4 Extreme Networks 12 Port Switch or Equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
14	3.1.5 Extreme Networks 48 Port Switch or Equal	75.00000	EA	1215.000000	91125.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks EX2300-48P Switch

Extended Description:

3.1.5 Extreme Networks 48 Port Switch or Equal

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
15	3.1.6 Extreme Networks 24 Port Switch or Equal	20.00000	EA	702.000000	14040.00

Comm Code	Manufacturer	Specification	Model #
43222609			

Commodity Line Comments: Juniper Networks EX2300-24P Switch

Extended Description:

3.1.6 Extreme Networks 24 Port Switch or Equal



Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Centralized Request for Quote
 Info Technology

Proc Folder: 807402		Reason for Modification:	
Doc Description: ADDENDUM NO_1		Vendor Questions and responses	
CISCO ROUTERS & SWITCHES OR EQUAL			
Proc Type: Central Contract - Fixed Amt			
Date Issued	Solicitation Closes	Solicitation No	Version
2020-12-07	2020-12-10 13:30	CRFQ 0803 DOT2100000062	2

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

VENDOR

Vendor Customer Code: VS0000035609
Vendor Name : VODANET SYSTEMS LLC
Address : 70 COMMERCIAL AVE, UNIT C
Street : 70 COMMERCIAL AVE, UNIT C
City : MOONACHIE
State : NJ **Country :** USA **Zip :** 07074
Principal Contact : FRANK DURUCAN
Vendor Contact Phone: 201-559-1474 **Extension:**

FOR INFORMATION CONTACT THE BUYER

John W Estep
 304-558-2566
 john.w.estep@wv.gov

Vendor
 Signature X

FEIN# 46-4978786

DATE 12/09/2020

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

ADDENDUM NO.1

Addendum No.1 issued to publish and distribute the attached information to the Vendor Community

REQUEST FOR QUOTATION:

The West Virginia Department of Transportation (WVDOT) is soliciting bids to establish a contract for the one-time purchase of hardware, software, licensing and support equipment required for the WVDOT network infrastructure. Equipment will be located at WVDOT offices located throughout the state. This equipment is intended to provide data connectivity. Per the Bid Requirements, Specifications, Terms and Conditions attached to this Solicitation.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 1	11.00000	EA	503.19	5,535.09

Comm Code	Manufacturer	Specification	Model #
43222612	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX320JB-1YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 1 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 2	11.00000	EA	594.77	6,542.47

Comm Code	Manufacturer	Specification	Model #
43222612	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX320JB-2YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 2 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 3	11.00000	EA	646.21	7,108.31

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX320JB-3YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 3 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	3.1.1 Cisco ISR 4321 Series Chassis Bundle or Equal-Year 4	11.00000	EA	716.63	7,882.93

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX320JB-4YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.1 CISCO ISR 4321 Series Chassis Bundle or equal with Year 4 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 1	7.00000	EA	503.19	3,522.33

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX320JB-1YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 1 Smart Net Coverage.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 2	7.00000	EA	594.77	4,163.39

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX320JB-2YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or Equal with Year 2 Smart Net Coverage.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 3	7.00000	EA	646.21	4,523.47

Comm Code	Manufacturer	Specification	Model #
43222612	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX320JB-3YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 3 Smart Net coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
8	3.1.2 Cisco ISR 4331 Series Chassis Bundle or Equal-Year 4	7.00000	EA	716.63	5,016.41

Comm Code	Manufacturer	Specification	Model #
43222612	Juniper Networks	Juniper Networks SRX320-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX320JB-4YR	SRX320-SYS-JB & SVC-ND-SRX320JB

Extended Description:

3.1.2 CISCO ISR 4331 Series Chassis Bundle or equal with Year 4 Smart Net coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
9	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 1	60.00000	EA	424.09	25,445.40

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX300-SYS-JB Router with 1-year NBD Service contract SVC-ND-SRX300JB-1YR	SRX300-SYS-JB & SVC-ND-SRX300JB

Extended Description:
3.1.3 Cisco ISR 1101 4 port router or equal with Year 1 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
10	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 2	60.00000	EA	493.86	29,631.60

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX300-SYS-JB Router with 2-year NBD Service contract SVC-ND-SRX300JB-2YR	SRX300-SYS-JB & SVC-ND-SRX300JB

Extended Description:
3.1.3 Cisco ISR 1101 4 port router or equal with Year 2 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
11	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 3	60.00000	EA	533.06	31,983.60

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX300-SYS-JB Router with 3-year NBD Service contract SVC-ND-SRX300JB-3YR	SRX300-SYS-JB & SVC-ND-SRX300JB

Extended Description:
3.1.3 Cisco ISR 1101 4 port router or equal with Year 3 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
12	3.1.3 Cisco ISR 1101 Series Port Router or Equal-Year 4	60.00000	EA	586.71	35,202.60

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks SRX300-SYS-JB Router with 4-year NBD Service contract SVC-ND-SRX300JB-4YR	SRX300-SYS-JB & SVC-ND-SRX300JB

Extended Description:
3.1.3 Cisco ISR 1101 4 port router or equal with Year 4 Smart Net Coverage

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
13	3.1.4 Extreme Networks 12 Port Switch or Equal	95.00000	EA	511.65	48,606.75

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks EX2300-C-12P Switch	EX2300-C-12P

Extended Description:

3.1.4 Extreme Networks 12 Port Switch or Equal

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
14	3.1.5 Extreme Networks 48 Port Switch or Equal	75.00000	EA	1,215.00	91,125.00

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks EX2300-48P Switch	EX2300-48P

Extended Description:

3.1.5 Extreme Networks 48 Port Switch or Equal

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
15	3.1.6 Extreme Networks 24 Port Switch or Equal	20.00000	EA	702.00	14,040.00

Comm Code	Manufacturer	Specification	Model #
43222609	Juniper Networks	Juniper Networks EX2300-24P Switch	EX2300-24P

Extended Description:
3.1.6 Extreme Networks 24 Port Switch or Equal

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	Tech Questions Due by 10:00am	2020-12-03

	Document Phase	Document Description	Page 10
DOT2100000062	Final	ADDENDUM NO_1 CISCO ROUTERS & SWITCHES OR EQUAL	

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or "Agencies" means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or "Vendors" means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

Term Contract

Initial Contract Term: **Initial Contract Term:** This Contract becomes effective on _____ and extends for a period of _____ year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Alternate Renewal Term – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

Fixed Period Contract: This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

Fixed Period Contract with Renewals: This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ year(s) thereafter.

One Time Purchase: The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

Other: See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

Open End Contract: Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

Service: The scope of the service to be provided will be more clearly defined in the specifications included herewith.

Combined Service and Goods: The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

One Time Purchase: This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute a breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

BID BOND (Construction Only): Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

PERFORMANCE BOND: The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

LABOR/MATERIAL PAYMENT BOND: The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

MAINTENANCE BOND: The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

LICENSE(S) / CERTIFICATIONS / PERMITS: In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

Commercial General Liability Insurance in at least an amount of: 1,000,000.00 per occurrence.

Automobile Liability Insurance in at least an amount of: _____ per occurrence.

Professional/Malpractice/Errors and Omission Insurance in at least an amount of: _____ per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.

Commercial Crime and Third Party Fidelity Insurance in an amount of: _____ per occurrence.

Cyber Liability Insurance in an amount of: _____ per occurrence.

Builders Risk Insurance in an amount equal to 100% of the amount of the Contract.

Pollution Insurance in an amount of: _____ per occurrence.

Aircraft Liability in an amount of: _____ per occurrence.

**** State of West Virginia must be listed as additional insured on insurance certificate ****

**** Certificate Holder Should Read as follows ****
State of WV
1900 Kanawha Blvd. E., Bldg. 5
Charleston, WV 25305

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. [Reserved]

11. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

_____ for _____

Liquidated Damages Contained in the Specifications

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts (“Other Government Entities”), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

39. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

40. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

41. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider’s employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Revised 01/09/2020

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

42. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
- c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a

“substantial labor surplus area”, as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

45. PROHIBITION AGAINST USED OR REFURBISHED: Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

FRANK DURUCAN, PROJECT MANAGER

(Name, Title)
FRANK DURUCAN, PROJECT MANAGER

(Printed Name and Title)
70 COMMERCIAL AVE, UNIT C, MOONACHIE, NJ 07074

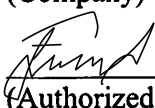
(Address)
201-559-1474

(Phone Number) / (Fax Number)
frank@vodanetsystems.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

VODANET SYSTEMS LLC

(Company)
 FRANK DURUCAN, PROJECT MANAGER

(Authorized Signature) (Representative Name, Title)
FRANK DURUCAN, PROJECT MANAGER

(Printed Name and Title of Authorized Representative)
12/09/2020

(Date)
201-559-1474

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DOT2100000062

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

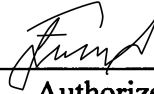
(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

VODANET SYSTEMS LLC

Company



Authorized Signature

12/09/2020

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

Vodanet Systems LLC.

70 Commercial Ave
 Unit C
 Moonachie, NJ 07074

Estimate

Date	Estimate #
12/9/2020	19546

Name / Address
State of WV Division of Highways INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430

				Project
Item	Description	Qty	Cost	Total
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 1-Year NBD Service	11	503.19	5,535.09
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 2-Year NBD Service	11	594.77	6,542.47
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 3-Year NBD Service	11	646.21	7,108.31
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 4-Year NBD Service	11	716.63	7,882.93
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 1-Year NBD Service	7	503.19	3,522.33
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 2-Year NBD Service	7	594.77	4,163.39
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 3-Year NBD Service	7	646.21	4,523.47
SRX320-SYS-JB-NEW	SRX320 Services Gateway includes hardware (8GE, 2x MPIM slots, 4G RAM, 8G Flash with 4-Year NBD Service	7	716.63	5,016.41
SRX300-SYS-JB-NEW	SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash) with 1-Year NBD Service	60	424.09	25,445.40
SRX300-SYS-JB-NEW	SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash) with 2-Year NBD Service	60	493.86	29,631.60
SRX300-SYS-JB-NEW	SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash) with 3-Year NBD Service	60	533.06	31,983.60
			Total	

Customer Signature

Vodanet Systems LLC.

70 Commercial Ave
 Unit C
 Moonachie, NJ 07074

Estimate

Date	Estimate #
12/9/2020	19546

Name / Address
State of WV Division of Highways INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430

				Project
Item	Description	Qty	Cost	Total
SRX300-SYS-JB-NEW	SRX300 Services Gateway includes hardware (8GE, 4G RAM, 8G Flash) with 4-Year NBD Service	60	586.71	35,202.60
EX2300-C-12P-NEW	Juniper EX Series EX2300-C-12P - Switch - L3 - managed - 12 x 10/100/1000 (PoE+) + 2 x Gigabit SFP / 10 Gigabit SFP+ - rack-mountable - PoE+ (124 W)	95	511.65	48,606.75
EX2300-48P-NEW	JUNIPER EX2300 48PT 10/100 4X1G POE+	75	1,215.00	91,125.00
EX2300-24P-NEW	Juniper EX2300 24 PORT 10/100/1000BASE-TPOE,4X1/10GB SFP	20	702.00	14,040.00
			Total	\$320,329.35

Customer Signature _____

JUNIPER EQUIVALENT SKU MAP

Cisco/Extreme Networks SKU	Juniper Networks Equivalent SKU
ISR4321/K9	SRX320-SYS-JB
ISR4331/K9	SRX320-SYS-JB
C1101-4P	SRX300-SYS-JB
X440-G2-12P-10GE4	EX2300-C-12P
X440-G2-48P-10GE4	EX2300-48P
X440-G2-24P-10GE4	EX2300-24P



SRX300 LINE OF SERVICES GATEWAYS FOR THE BRANCH

Product Overview

The SRX300 line of services gateways combines security, SD-WAN, routing, switching, and WAN interfaces with next-generation firewall and advanced threat mitigation capabilities for cost-effective, secure connectivity across distributed enterprise locations. By consolidating fast, highly available switching, routing, security, and next-generation firewall capabilities in a single device, enterprises can remove network complexity, protect and prioritize their resources, and improve user and application experience while lowering total cost of ownership (TCO).

Product Description

Juniper Networks® SRX300 line of services gateways delivers a next-generation secure SD-WAN and security solution that supports the changing needs of cloud-enabled enterprise networks. Whether rolling out new services and applications across locations, connecting to the cloud, or trying to achieve operational efficiency, the SRX300 line helps organizations realize their business objectives while providing scalable, easy to manage, secure connectivity and advanced threat mitigation capabilities. Next-generation firewall and unified threat management (UTM) capabilities also make it easier to detect and proactively mitigate threats to improve the user and application experience.

The SRX300 line consists of five models:

- **SRX300:** Securing small branch or retail offices, the SRX300 Services Gateway consolidates security, routing, switching, and WAN connectivity in a small desktop device. The SRX300 supports up to 1 Gbps firewall and 300 Mbps IPsec VPN in a single, cost-effective networking and security platform.
- **SRX320:** Securely connecting small distributed enterprise branch offices, the SRX320 Services Gateway consolidates security, routing, switching, and WAN connectivity in a small desktop device. The SRX320 supports up to 1 Gbps firewall and 300 Mbps IPsec VPN in a single, consolidated, cost-effective networking and security platform.
- **SRX340:** Securely connecting midsize distributed enterprise branch offices, the SRX340 Services Gateway consolidates security, routing, switching, and WAN connectivity in a 1 U form factor. The SRX340 supports up to 3 Gbps firewall and 600 Mbps IPsec VPN in a single, cost-effective networking and security platform.
- **SRX345:** Best suited for midsize to large distributed enterprise branch offices, the SRX345 Services Gateway consolidates security, routing, switching, and WAN connectivity in a 1 U form factor. The SRX345 supports up to 5 Gbps firewall and 800 Mbps IPsec VPN in a single, consolidated, cost-effective networking and security platform.
- **SRX380:** A high-performance and secure SD-WAN gateway, the SRX380 offers superior and reliable WAN connectivity while consolidating security, routing, and switching for distributed enterprise offices. The SRX380 features greater port density than other SRX300 models, with 16x1GbE PoE+ and 4x10GbE ports, and includes redundant dual power supplies, all in a 1 U form factor.

SRX300 Highlights

The SRX300 line of services gateways consists of secure SD-WAN routers that bring high performance and proven deployment capabilities to enterprises that need to build a worldwide network of thousands of remote sites. WAN or Internet connectivity and Wi-Fi module options include:

- Ethernet, serial, T1/E1, ADSL2/2+, and VDSL
- 3G/4G LTE wireless
- 802.11ac Wave 2 Wi-Fi

Best-in-Class Secure Connectivity

Industry best, high-performance IPsec VPN solutions provide comprehensive encryption and authentication capabilities to secure intersite communications. Multiple form factors with Ethernet switching support on native Gigabit Ethernet ports allow cost-effective choices for mission-critical deployments. Juniper Networks Junos® automation and scripting capabilities and Junos Space Security Director reduce operational complexity and simplify the provisioning of new sites.

Application Steering and Control

The SRX300 line of devices recognizes more than 3,500 Layer 3-7 applications, including Web 2.0 and evasive peer-to-peer (P2P) applications like Skype, torrents, and others. Correlating application information with user contextual information, the SRX300 line can generate bandwidth usage reports, enforce access control policies, prioritize and rate-limit traffic going out of WAN interfaces, and proactively secure remote sites. This optimizes resources in the branch office and improves the application and user experience.

Secure SD-WAN

Along with Juniper Contrail Service Orchestration, the SRX300 line delivers fully automated SD-WAN to both enterprises and service providers. A Zero-Touch Provisioning (ZTP) feature simplifies branch network connectivity for initial deployment and ongoing management. The SRX300 firewalls efficiently utilize multiple links and load-balance traffic across the enterprise WAN, blending traditional MPLS with other connectivity options such as broadband internet, leased lines, 4G/LTE, and more. Policy- and application-based forwarding capabilities enforce business rules created by the enterprise to steer application traffic towards a preferred path.

WAN Assurance

Mist WAN Assurance is a cloud service that brings AI-powered automation and service levels to Juniper SRX Series Services Gateways, complementing the Juniper Secure SD-WAN solution. It transforms IT operations from reactive troubleshooting to proactive remediation, turning insights into actions, delivering operational simplicity with seamless integration into existing deployments.

- SRX Series firewalls, deployed as secure SD-WAN edge devices, provide the rich Junos streaming telemetry that provides the insights needed for WAN health metrics and anomaly detection.
- This data is leveraged within the Mist Cloud and AI engine, driving simpler operations, reducing mean time to repair, and providing better visibility into end-user experiences.
- Insights derived from SRX Series SD-WAN gateway telemetry data allows WAN Assurance to compute unique “User Minutes” that indicate whether users are having a good experience.

Comprehensive Security Suite

For the perimeter, the SRX300 line offers a comprehensive suite of application security services, threat defenses, and intelligence services. The services consist of intrusion prevention system (IPS), application security user role-based firewall controls and cloud-based antivirus, anti-spam, and enhanced Web filtering, protecting networks from the latest content-borne threats. Integrated threat intelligence via Juniper Networks SecIntel offers adaptive threat protection against Command and Control (C&C)-related botnets and policy enforcement based on GeoIP. Customers can also leverage their own custom and third-party feeds for protection from advanced malware and other threats. Integrating the Juniper Networks Advanced Threat Protection solution, the SRX300 line detects and enforces automated protection against known malware and zero-day threats with a very high degree of accuracy.

Agile SecOps

The SRX300 line enables agile SecOps through automation capabilities that support Zero Touch Deployment, Python scripts for orchestration, and event scripting for operational management.

Industry-Certified Junos Operating System

SRX300 services gateways run the Junos operating system, a proven, carrier-hardened OS that powers the top 100 service provider networks in the world. The rigorously tested, carrier-class, rich routing features such as IPv4/IPv6, OSPF, BGP, and multicast have been proven over 15 years of worldwide deployments.

Features and Benefits

Business Requirement	Feature/Solution	SRX300 Advantages
High performance	Up to 5 Gbps of routing and firewall performance	<ul style="list-style-type: none"> Best suited for small, medium and large branch office deployments Addresses future needs for scale and feature capacity
Business continuity	Stateful high availability (HA), IP monitoring	<ul style="list-style-type: none"> Uses stateful HA to synchronize configuration and firewall sessions Supports multiple WAN interface with dial-on-demand backup Route/link failover based on real-time link performance
SD-WAN	Better end-user application and cloud experience and lower operational costs	<ul style="list-style-type: none"> ZTP simplifies remote device provisioning Advanced Policy-Based Routing (APBR) orchestrates business intent policies across the enterprise WAN Application quality of experience (AppQoE) measures application SLAs and improves end-user experience Controls and prioritizes traffic based on application and user role
End-user experience	WAN assurance	<ul style="list-style-type: none"> Complements the Juniper Secure SD-WAN solution with AI-powered automation and service levels Provides visibility and insights into users, applications, WAN links, control and data plane, and CPU for proactive remediation
Highly secure	IPsec VPN, Remote Access/SSL VPN, Media Access Control Security (MACsec)	<ul style="list-style-type: none"> Creates secure, reliable, and fast overlay link over public internet Employs anti-counterfeit features to protect from unauthorized hardware spares Includes high-performance CPU with built-in hardware to assist IPsec acceleration Provides TPM-based protection of device secrets such as passwords and certificates Offers secure and flexible remote access SSL VPN with Juniper Secure Connect
Threat protection	IPS, antivirus, anti-spam, enhanced web filtering, Juniper Advanced Threat Prevention Cloud, Encrypted Traffic Insights, and Threat Intelligence Feeds	<ul style="list-style-type: none"> Provides real-time updates to IPS signatures and protects against exploits Protects from zero-day attacks Implements industry-leading antivirus and URL filtering Integrates open threat intelligence platform with third-party feeds Restores visibility that was lost due to encryption without the heavy burden of full TLS/SSL decryption
Application visibility	On-box GUI, Security Director	<ul style="list-style-type: none"> Detects 3500+ Layer 3-7 applications, including Web 2.0 Inspects and detects applications inside the SSL encrypted traffic
Easy to manage and scale	On-box GUI, Security Director	<ul style="list-style-type: none"> Includes centralized management for auto-provisioning, firewall policy management, Network Address Translation (NAT), and IPsec VPN deployments, or simple, easy-to-use on-box GUI for local management
Minimize TCO	Junos OS	<ul style="list-style-type: none"> Integrates routing, switching, and security in a single device Reduces operation expense with Junos automation capabilities



SRX300



SRX320



SRX340



SRX345



SRX380

SRX300 Specifications

Software Specifications

Routing Protocols

- IPv4, IPv6, ISO, Connectionless Network Service (CLNS)
- Static routes
- RIP v1/v2
- OSPF/OSPF v3
- BGP with Route Reflector
- IS-IS
- Multicast: Internet Group Management Protocol (IGMP) v1/v2, Protocol Independent Multicast (PIM) sparse mode (SM)/dense mode (DM)/source-specific multicast (SSM), Session Description Protocol (SDP), Distance Vector Multicast Routing Protocol (DVMRP), Multicast Source Discovery Protocol (MSDP), Reverse Path Forwarding (RPF)
- Encapsulation: VLAN, Point-to-Point Protocol (PPP), Frame Relay, High-Level Data Link Control (HDLC), serial, Multilink Point-to-Point Protocol (MLPPP), Multilink Frame Relay (MLFR), and Point-to-Point Protocol over Ethernet (PPPoE)
- Virtual routers
- Policy-based routing, source-based routing
- Equal-cost multipath (ECMP)

QoS Features

- Support for 802.1p, DiffServ code point (DSCP), EXP
- Classification based on VLAN, data-link connection identifier (DLCI), interface, bundles, or multifield filters
- Marking, policing, and shaping
- Classification and scheduling
- Weighted random early detection (WRED)
- Guaranteed and maximum bandwidth
- Ingress traffic policing
- Virtual channels
- Hierarchical shaping and policing

Switching Features

- ASIC-based Layer 2 Forwarding
- MAC address learning
- VLAN addressing and integrated routing and bridging (IRB) support
- Link aggregation and LACP
- LLDP and LLDP-MED
- STP, RSTP, MSTP
- MVRP
- 802.1X authentication

Firewall Services

- Stateful and stateless firewall
- Zone-based firewall
- Screens and distributed denial of service (DDoS) protection
- Protection from protocol and traffic anomaly
- Integration with Pulse Unified Access Control (UAC)
- Integration with Aruba Clear Pass Policy Manager
- User role-based firewall
- SSL Inspection (Forward-proxy)

Network Address Translation (NAT)

- Source NAT with Port Address Translation (PAT)
- Bidirectional 1:1 static NAT
- Destination NAT with PAT
- Persistent NAT
- IPv6 address translation

VPN Features

- Tunnels: Site-to-Site, Hub and Spoke, Dynamic Endpoint, AutoVPN, ADVPN, Group VPN (IPv4/ IPv6/ Dual Stack)
- Juniper Secure Connect: Remote access / SSL VPN
- Configuration payload: Yes
- IKE Encryption algorithms: Prime, DES-CBC, 3DES-CBC, AEC-CBC, AES-GCM, SuiteB
- IKE authentication algorithms: MD5, SHA-1, SHA-128, SHA-256, SHA-384
- Authentication: Pre-shared key and public key infrastructure (PKI) (X.509)
- IPsec (Internet Protocol Security): Authentication Header (AH) / Encapsulating Security Payload (ESP) protocol
- IPsec Authentication Algorithms: hmac-md5, hmac-sha-196, hmac-sha-256
- IPsec Encryption Algorithms: Prime, DES-CBC, 3DES-CBC, AEC-CBC, AES-GCM, SuiteB
- Perfect forward secrecy, anti-reply
- Internet Key Exchange: IKEv1, IKEv2
- Monitoring: Standard-based dead peer detection (DPD) support, VPN monitoring
- VPNs GRE, IP-in-IP, and MPLS

Network Services

- Dynamic Host Configuration Protocol (DHCP) client/server/relay
- Domain Name System (DNS) proxy, dynamic DNS (DDNS)
- Juniper real-time performance monitoring (RPM) and IP-monitoring
- Juniper flow monitoring (J-Flow)¹
- Bidirectional Forwarding Detection (BFD)
- Two-Way Active Measurement Protocol (TWAMP)
- IEEE 802.3ah Link Fault Management (LFM)
- IEEE 802.1ag Connectivity Fault Management (CFM)

High Availability Features

- Virtual Router Redundancy Protocol (VRRP)
- Stateful high availability
- Dual box clustering
- Active/passive
- Active/active
- Configuration synchronization
- Firewall session synchronization
- Device/link detection
- In-Band Cluster Upgrade (ICU)
- Dial on-demand backup interfaces
- IP monitoring with route and interface failover

Management, Automation, Logging, and Reporting

- SSH, Telnet, SNMP
- Smart image download
- Juniper CLI and Web UI
- Junos Space and Security Director
- Python
- Junos OS event, commit, and OP script
- Application and bandwidth usage reporting
- Auto installation
- Debug and troubleshooting tools
- Zero-Touch Provisioning with Contrail Service Orchestration

Advanced Routing Services

- Packet mode
- MPLS (RSVP, LDP)
- Circuit cross-connect (CCC), translational cross-connect (TCC)
- L2/L3 MPLS VPN, pseudowires
- Virtual private LAN service (VPLS), next-generation multicast VPN (NG-MVPN)
- MPLS traffic engineering and MPLS fast reroute

Application Security Services¹

- Application visibility and control
- Application-based firewall
- Application QoS
- Application-based advanced policy-based routing
- Application quality of experience (AppQoE)

Enhanced SD-WAN Services

- Application-based advanced policy-based routing (APBR)
- Application-based link monitoring and switchover with Application quality of experience (AppQoE)

Threat Defense and Intelligence Services¹

- Intrusion prevention
- Antivirus
- Antispam
- Category/reputation-based URL filtering
- Protection from botnets (command and control)
- Adaptive enforcement based on GeoIP
- Juniper Advanced Threat Prevention to detect and block zero-day attacks
- Adaptive Threat Profiling
- Encrypted Traffic Insights
- SecIntel to provide threat intelligence

¹Offered as advanced security services subscription licenses.

Hardware Specifications

Specification	SRX300	SRX320	SRX340	SRX345	SRX380
Connectivity					
Total onboard ports	8x1GbE	8x1GbE	16x1GbE	16x1GbE	20 (16x1GbE, 4x10GbE)
Onboard RJ-45 ports	6x1GbE	6x1GbE	8x1GbE	8x1GbE	16x1GbE
Onboard small form-factor pluggable (SFP) transceiver ports	2x1GbE	2x1GbE	8x1GbE	8x1GbE	4x10GbE SFP+
MACsec-capable ports	2x1GbE	2x1GbE	16x1GbE	16x1GbE	16x1GbE 4x10GbE
Out-of-band (OOB) management ports	0	0	1x1GbE	1x1GbE	1x1GbE
Mini PIM (WAN) slots	0	2	4	4	4
Console (RJ-45 + miniUSB)	1	1	1	1	1
USB 3.0 ports (type A)	1	1	1	1	1
PoE+ ports	N/A	6 ²	0	0	16
Memory and Storage					
System memory (RAM)	4 GB	4 GB	4 GB	4 GB	4GB
Storage	8 GB	8 GB	8 GB	8 GB	100GB SSD
SSD slots	0	0	1	1	1
Dimensions and Power					
Form factor	Desktop	Desktop	1 U	1 U	1U
Size (WxHxD)	12.63 x 1.37 x 7.52 in. (32.08 x 3.47 x 19.10 cm)	11.81 x 1.73 x 7.52 in. (29.99 x 4.39 x 19.10 cm)	17.36 x 1.72 x 14.57 in. (44.09 x 4.36 x 37.01 cm)	17.36 x 1.72 x 14.57 in. (44.09 x 4.36 x 37.01 cm) / 17.36 x 1.72 x 18.7 in. (44.09 x 4.36 x 47.5 cm) ³	17.36 x 1.72 x 18.7 in. (44.09 x 4.37 x 47.5 cm) / 17.36 x 1.72 x 20.47 in. (44.09 x 4.37 x 52 cm)
Weight (device and PSU)	4.38 lb (1.98 kg)	3.28 lb (1.51 kg) ⁴ / 3.4 lb (1.55 kg) ⁵	10.80 lb (4.90 kg)	10.80 lb (4.90 kg) / 11.02 lb (5 kg) ⁶	15 lb (6.8 kg) with 1xPSU / 16.76 lb (7.6 kg) with 2xPSU
Redundant PSU	No	No	No	Yes	Yes
Power supply	AC (external)	AC (external)	AC (internal)	AC (internal) / DC (internal) ⁶	1+1 hot-swappable AC PSU
DC Input	N/A	N/A	N/A	-40.8 VDC to -72 VDC ⁶	N/A
Maximum PoE power	N/A	180 W ⁵	N/A	N/A	480W
Average power consumption	24.9 W	46 W ⁴ /221 W ⁵	122 W	122 W	150 W (without PoE) 510 W (with PoE)
Average heat dissipation	85 BTU/h	157 BTU/h ⁴ /755 BTU/h ⁵	420 BTU/h	420 BTU/h	511.5 BTU/hr (without PoE)
Maximum current consumption	0.346 A	0.634 A ⁴ /2.755 A ⁵	1.496 A	1.496 A / 6A @ -48 VDC ⁶	1.79A/7.32A
Acoustic noise level	0dB (fanless)	37 dBA ⁴ /40 dBA ⁵	45.5 dBA	45.5 dBA	< 50dBA @ room temperature 27C
Airflow/cooling	Fanless	Front to back	Front to back	Front to back	Front to back

Specification	SRX300	SRX320	SRX340	SRX345	SRX380
Environmental, Compliance, and Safety Certification					
Operational temperature	-4° to 140° F (-20° to 60° C) ⁷	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C) with MPIMs 32° to 122° F (0° to 50° C) without MPIMs
Nonoperational temperature	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)	-4° to 158° F (-20° to 70° C)
Operating humidity	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing	10% to 90% noncondensing
Nonoperating humidity	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing	5% to 95% noncondensing
Meantime between failures (MTBF)	44.5 years	32.5 years ¹ / 26 years ¹	27 years	27.4 years	28.1 years
FCC classification	Class A	Class A	Class A	Class A	Class A
RoHS compliance	RoHS 2	RoHS 2	RoHS 2	RoHS 2	RoHS 2
FIPS 140-2	Level 2 (Junos 15.1X49-D60)	Level 1 (Junos 15.1X49-D60)	Level 2 (Junos 15.1X49-D60)	Level 2 (Junos 15.1X49-D60)	N/A
Common Criteria certification	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	NDPP, VPNEP, FWEP, IPSEP (based on Junos 15.1X49-D60)	N/A

¹SRX320 with PoE+ ports available as a separate SKU: SRX320-POE.

²SRX345 with dual AC PSU model.

³SRX320 non PoE model.

⁴SRX320-POE with 6 ports PoE+ model.

⁵SRX345 with DC power supply (operating temperature as per GR-63 Issue 4 2012 test criteria).

⁷As per GR63 Issue 4 (2012) test criteria.

Performance and Scale

Parameter	SRX300	SRX320	SRX340	SRX345	SRX380
Routing with packet mode (64 B packet size) in Kpps ⁸	300	300	550	750	1700
Routing with packet mode (IMIX packet size) in Mbps ⁸	800	800	1,600	2,300	5000
Routing with packet mode (1,518 B packet size) in Mbps ⁸	1,500	1,500	3,000	5,500	10,000
Stateful firewall (64 B packet size) in Kpps ⁸	200	200	350	550	1700
Stateful firewall (IMIX packet size) in Mbps ⁸	500	500	1,100	1,700	4,000
Stateful firewall (1,518 B packet size) in Mbps ⁸	1,000	1,000	3,000	5,000	10,000
IPsec VPN (IMIX packet size) in Mbps ⁸	100	100	200	300	1,000
IPsec VPN (1,400 B packet size) in Mbps ⁸	300	300	600	800	3,500
Application visibility and control in Mbps ⁹	500	500	1,000	1,700	6,000
Recommended IPS in Mbps ⁹	200	200	400	600	2,000
Next-generation firewall in Mbps ⁹	100	100	200	300	1,000
Route table size (RIB/FIB) (IPv4 or IPv6)	256,000/256,000	256,000/256,000	1 million/600,000 ¹⁰	1 million/600,000 ¹⁰	1 million/600,000 ¹⁰
Maximum concurrent sessions (IPv4 or IPv6)	64,000	64,000	256,000	375,000	380,000
Maximum security policies	1,000	1,000	2,000	4,000	4,000
Connections per second	5,000	5,000	10,000	15,000	50,000
NAT rules	1,000	1,000	2,000	2,000	3,000
MAC table size	15,000	15,000	15,000	15,000	16,000
IPsec VPN tunnels	256	256	1,024	2,048	2,048
Number of remote access/SSL VPN (concurrent) users	25	50	150	250	500
GRE tunnels	256	256	512	1,024	2,048
Maximum number of security zones	16	16	64	64	128
Maximum number of virtual routers	32	32	64	128	128
Maximum number of VLANs	1,000	1,000	2,000	3,000	3,000
AppID sessions	16,000	16,000	64,000	64,000	64,000
IPS sessions	16,000	16,000	64,000	64,000	64,000
URLF sessions	16,000	16,000	64,000	64,000	64,000

⁸Throughput numbers based on UDP packets and RFC2544 test methodology.

⁹Throughput numbers based on HTTP traffic with 44 KB transaction size.

¹⁰Route scaling numbers are with enhanced route-scale features turned on.

WAN and Wi-Fi Interface Support Matrix

WAN and Wi-Fi Interface	SRX300	SRX320	SRX340	SRX345	SRX380
1 port T1/E1 MPIM (SRX-MP-1T1E1-R)	No	Yes	Yes	Yes	Yes
1 port VDSL2 Annex A/M MPIM (SRX-MP-1VDSL2-R)	No	Yes	Yes	Yes	Yes
1 port serial MPIM (SRX-MP-1SERIAL-R)	No	Yes	Yes	Yes	Yes
4G / LTE MPIM (SRX-MP-LTE-AA and SRX-MP-LTE-AE)	No	Yes	Yes	Yes	Yes
802.11ac Wave 2 Wi-Fi MPIM	No	Yes	Yes	Yes	Yes

WAN and Wi-Fi Interface Module Performance Data

Interface Module	Description	Performance
4G/LTE	Dual SIM 4G/LTE-A CAT 6	Up to 300 Mbps download and 50 Mbps upload
Wi-Fi MPIM	Dual band 802.11 a/b/g/n/ac Wave 2 (2x2 MIMO)	Up to 866 Mbps at 5GHz / 300 Mbps at 2.4GHz

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

To order Juniper Networks SRX Series Services Gateways, and to access software licensing information, please visit the How to Buy page at <https://www.juniper.net/us/en/how-to-buy/>

	SRXnnn-SYS-JB
Hardware	Included
Management (CLI, JWEB, SNMP, Telnet, SSH)	Included
Ethernet switching (L2 Forwarding, IRB, LACP etc)	Included
L2 Transparent, Secure Wire	Included
Routing (RIP, OSPF, BGP, Virtual router)	Included
Multicast (IGMP, PIM, SSDP, DMVRP)	Included
Packet Mode	Included
Overlay (GRE, IP-IP)	Included
Network Services (J-Flow, DHCP, QOS, BFD)	Included
Stateful Firewall, Screens, ALGs	Included
NAT (static, SNAT, DNAT)	Included
IPSec VPN (Site-to-Site VPN, Auto VPN, Group VPN)	Included
Firewall policy enforcement (UAC, Aruba CPPM)	Included
Remote Access/SSL VPN (concurrent users) ¹¹	Optional
Chassis Cluster, VRRP, ISSU/ICU	Included
Automation (Junos scripting, auto-installation)	Included
MPLS, LDP, RSVP, L3 VPN, pseudo-wires, VPLS	Included

¹¹ Based on concurrent users; two free licenses included

Base System Model Numbers

Product Number	Description
SRX300-SYS-JB	SRX300 Services Gateway includes hardware (8GbE, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX320-SYS-JB	SRX320 Services Gateway includes hardware (8GbE, 2x MPIM slots, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX320-SYS-JB-P	SRX320 Services Gateway includes hardware (8GbE, 6-port POE+, 2x MPIM slots, 4G RAM, 8G Flash, power adapter and cable) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching). RMK not included.
SRX340-SYS-JB	SRX340 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB-2AC	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, dual AC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX345-SYS-JB-DC	SRX345 Services Gateway includes hardware (16GbE, 4x MPIM slots, 4G RAM, 8G Flash, single DC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)
SRX380-P-SYS-JB-AC	SRX380 Services Gateway includes hardware (16GbE PoE+, 4x10GbE, 4x MPIM slots, 4GB RAM, 100GB SSD, single AC power supply, cable and RMK) and Junos Software Base (firewall, NAT, IPSec, routing, MPLS and switching)

Software Licenses

Product Number	Description
S-SRXnnn-A1-1	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 1-year subscription (example: S-SRX380-A1-1)
S-SRXnnn-A1-3	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 3-year subscription (example: S-SRX380-A1-3)
S-SRXnnn-A1-5	SRXnnn Advanced 1 - JSE/SD-WAN, includes SD-WAN features App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack) and IPS; 5-year subscription (example: S-SRX380-A1-5)
S-SRXnnn-P1-1	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 1-year subscription (example: S-SRX380-P1-1)
S-SRXnnn-P1-3	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 3-year subscription (example: S-SRX380-P1-3)
S-SRXnnn-P1-5	SRXnnn Premium 1, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Juniper ATP; 5-year subscription (example: S-SRX380-P1-5)
S-SRXnnn-A2-1	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 1-year subscription (example: S-SRX380-A2-1)
S-SRXnnn-A2-3	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 3-year subscription (example: S-SRX380-A2-3)
S-SRXnnn-A2-5	SRXnnn Advanced 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS and Content Security (UTM, Cloud AV, URLF and AS); 5-year subscription (example: S-SRX380-A2-5)
S-SRXnnn-P2-1 ¹²	SRXnnn Premium 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 1-year subscription (example: S-SRX380-P2-1)
S-SRXnnn-P2-3 ¹²	SRXnnn Premium 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 3-year subscription (example: S-SRX380-P2-3)
S-SRXnnn-P2-5 ¹²	SRXnnn Premium 2, includes App+ (AppID, AppFW, AppQoS, AppRoute, AppQoE, AppTrack), IPS, Content Security (UTM, Cloud AV, URLF and AS) and Juniper Sky ATP; 5-year subscription (example: S-SRX380-P2-5)

¹²The S-SRXnnn-P2-1/3/5 year SKUs are only available for the SRX340, SRX345, and SRX380 models.

Remote Access/Juniper Secure Connect VPN Licenses

Product Number	Description
S-RA3-SRX300-S-1	SW, Remote Access VPN - Juniper, 25 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-SRX320-S-1	SW, Remote Access VPN - Juniper, 50 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-SRX340-S-1	SW, Remote Access VPN - Juniper, 150 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-SRX345-S-1	SW, Remote Access VPN - Juniper, 250 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-SRX380-S-1	SW, Remote Access VPN - Juniper, 500 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-5CCU-S-1	SW, Remote Access VPN - Juniper, 5 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-25CCU-S-1	SW, Remote Access VPN - Juniper, 25 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-50CCU-S-1	SW, Remote Access VPN - Juniper, 50 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-100CCU-S-1	SW, Remote Access VPN - Juniper, 100 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-250CCU-S-1	SW, Remote Access VPN - Juniper, 250 Concurrent Users, Standard, with SW support, 1 Year
S-RA3-500CCU-S-1	SW, Remote Access VPN - Juniper, 500 Concurrent Users, Standard, with SW support, 1 Year

Product Number	Description
S-RA3-SRX300-S-3	SW, Remote Access VPN - Juniper, 25 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-SRX320-S-3	SW, Remote Access VPN - Juniper, 50 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-SRX340-S-3	SW, Remote Access VPN - Juniper, 150 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-SRX345-S-3	SW, Remote Access VPN - Juniper, 250 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-SRX380-S-3	SW, Remote Access VPN - Juniper, 500 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-5CCU-S-3	SW, Remote Access VPN - Juniper, 5 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-25CCU-S-3	SW, Remote Access VPN - Juniper, 25 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-50CCU-S-3	SW, Remote Access VPN - Juniper, 50 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-100CCU-S-3	SW, Remote Access VPN - Juniper, 100 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-250CCU-S-3	SW, Remote Access VPN - Juniper, 250 Concurrent Users, Standard, with SW support, 3 Year
S-RA3-500CCU-S-3	SW, Remote Access VPN - Juniper, 500 Concurrent Users, Standard, with SW support, 3 Year

Interface Modules

Product Number	Description
SRX-MP-1T1E1-R	1 port T1E1, MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-1VDSL2-R	1 port VDSL2 (backward compatible with ADSL / ADSL2+), MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-1SERIAL-R	1 port Synchronous Serial, MPIM form factor supported on SRX320, SRX340, SRX345, SRX380, and SRX550M. ROHS complaint
SRX-MP-LTE-AA	4G / LTE MPIM support 1, 3, 5, 7-8, 18-19, 21, 28, 38-41 LTE bands (for Asia and Australia). Supported on SRX320, SRX340, SRX345, SRX380, and SRX550M
SRX-MP-LTE-AE	4G / LTE MPIM support 1-5, 7-8, 12-13, 30, 25-26, 29-30, 41 LTE bands (for Americas and EMEA). Supported on SRX320, SRX340, SRX345, SRX380, and SRX550M
SRX-MP-WLAN-US	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for U.S. regulatory bands only.
SRX-MP-WLAN-WW	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for worldwide regulatory bands (excluding U.S. and Israel).
SRX-MP-WLAN-IL	Wireless access point (Wi-Fi) MPIM for SRX320, SRX34x, SRX380, and SRX550M. Supported for Israel regulatory bands only.
SRX-MP-ANT-EXT	Antenna extension cable for WLAN MPIM on SRX Series platforms

Accessories

Product Number	Description
SRX300-RMK0	SRX300 rack mount kit with adaptor tray
SRX300-RMK1	SRX300 rack mount kit without adaptor tray
SRX300-WALL-KITO	SRX300 wall mount kit with brackets
SRX320-P-RMK0	SRX320-POE rack mount kit with adaptor tray
SRX320-P-RMK1	SRX300-POE rack mount kit without adaptor tray
SRX320-RMK0	SRX320 rack mount kit with adaptor tray
SRX320-RMK1	SRX320 rack mount kit without adaptor tray
SRX320-WALL-KITO	SRX320 wall mount kit with brackets
SRX34X-RMK	SRX340 and SRX345 rack mount kit
EX-4PST-RMK	SRX380 rack mount kit
JSU-SSD-MLC-100	Juniper Storage Unit, SSD, MLC, 100GB
JPSU-600-AC-AFO	SRX380 600W AC PSU, front-to-back

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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EX2300 ETHERNET SWITCH



Product Overview

The Juniper Networks EX2300 Ethernet Switch offers an economical, entry-level, standalone solution for access-layer deployments in branch and remote offices, as well as enterprise campus networks. Both 1 Gbps and 2.5 Gbps access port options are available to provide higher-speed options, especially when connecting to 802.11ac Wave 2 access points.

For small networks, up to four EX2300 switches can be interconnected in a Virtual Chassis configuration, allowing them to be managed as a single switch.

The EX2300 is onboarded, provisioned, and managed in the Juniper Mist Cloud Architecture. Mist Wired Assurance delivers better experiences for connected devices through AI-powered automation and service levels.

Product Description

The Juniper Networks® EX2300 line of Ethernet switches offers a compact, high-performance solution for supporting today's converged network access deployments.

Each EX2300 switch includes an ASIC-based Packet Forwarding Engine (PFE) with an integrated CPU to consistently deliver wire-rate forwarding, even with all control plane features enabled. Based on existing, field-proven Juniper Networks technology, the PFE brings the same level of carrier-class performance and reliability to the EX2300 switches that Juniper Networks routers bring to the world's largest service provider networks.

Select EX2300 models also support the 802.3af Class 3 Power over Ethernet (PoE) and 802.3at PoE+ standards for supporting networked devices such as telephones, video cameras, IEEE 802.11ac WLAN access points, and videophones in converged networks. The PoE-enabled EX2300 switches include a maximum system budget of 750 watts to deliver up to 30 watts to select ports.

Multiple EX2300 models are available, including versions offering multigigabit (up to 2.5 Gbps) PoE+ access ports that can accommodate higher-speed IEEE 802.11ac Wave 2 access points, enabling the switches to support more wireless users.

The EX2300 fixed-configuration Ethernet switches provide exceptional value to enterprise customers by supporting the following key technologies:

- Virtual Chassis technology enables up to four interconnected EX2300 switches to form a single logical device.
- Flexible 1GbE SFP/10GbE SFP+ uplinks provide high-speed connectivity to aggregation layer switches or other upstream devices.
- Up to 48 10/100/1000BASE-T ports are available with or without PoE/PoE+.
- Models offering 24 and 48 multigigabit ports support 1GbE/2.5GbE on 8 and 16 ports, respectively
- Energy Efficient Ethernet (EEE) support is provided on 1GbE ports.
- Complete Layer 2 and basic Layer 3 switching capabilities are available.
- Simplified onboarding and management with Juniper Mist Wired Assurance.

Additional features include:

- PoE-enabled EX2300 switches can simultaneously deliver up to 15.4 watts of standards-based 802.3af Class 3 PoE to a maximum of 48 ports or 30 watts of standards-based 802.3at PoE+ to a maximum of 24 ports, based on a total system budget of 750 watts.
- Uplink ports can be configured as Virtual Chassis interfaces and connected via standard 10GbE optics interfaces (optional Virtual Chassis license required).

- Fixed power supply and uplink ports ensure operational simplicity.
- Low power consumption, low acoustic fans, and a small 10-inch deep footprint enable flexible, environmentally friendly deployment.
- Support for L2 protocols as well as L3 protocols like RIP and static routing are included in the base license.
- Support is available for IPv6 management, including neighbor discovery, telnet, SSH, DNS, system log, and NTP.
- A single release train for Juniper Networks Junos operating system is supported to ensure a consistent control plane feature implementation.
- Modular Junos OS prevents a switch reboot if a single protocol feature fails.
- Built-in Web interface (Juniper Networks J-Web Software) is provided.
- RJ-45 serial console port is available.
- USB mini console port is included on 1GbE access switch models.
- Out-of-band Ethernet management port is provided.
- Reduction of Hazardous Waste (RoHS) is certified.

Architecture and Key Components

The EX2300 occupies a single rack unit, delivering a compact solution for crowded wiring closets and access locations where space and power are at a premium. The EX2300 switch's 10-inch/12-inch depth and low acoustics also make it ideal for open office deployments. For silent operation requirements, please see the EX2300-C, a compact, fanless version of the EX2300.

Each EX2300 switch supports four fixed front-panel 1GbE/10GbE uplink ports (six 1/10GbE uplink ports on the 48-port multigigabit model) with pluggable optics (purchased separately) for high-speed backbone or link aggregation connections between wiring closets and upstream aggregation switches. The 1GbE EX2300 access switch models also feature a front-panel mode button that offers a simple interface for bringing devices up and selecting LED modes.

A dedicated rear panel RJ-45 Ethernet port is available for out-of-band management, while a rear panel USB port can be used to easily upload the Junos OS and configuration files.

Cloud Management with Juniper Mist Wired Assurance

Juniper Mist Wired Assurance, a cloud-based service driven by Mist AI to claim, configure, manage, and troubleshoot the EX2300, delivers AI-powered automation and service levels to ensure a better experience for connected devices. Wired Assurance leverages rich Junos switch telemetry data to simplify operations, reduce mean time to repair, and improve visibility. Wired Assurance offers the following features.

Day 0/Day 1: Simplified Onboarding and Provisioning

- Single-click activation adds true plug-and-play capabilities to the cloud-ready, zero-touch provisioning (ZTP)-enabled EX2300 driven by Mist AI.
- Configuration models use global templates for bulk rollouts while retaining the flexibility to apply custom site- or switch-specific attributes.
- Device, port, and interface profiles allows for the manual provisioning of colored ports or auto-provisioning of colorless ports.
- Open APIs support third-party integrations such as ServiceNow and Splunk to automate troubleshooting, ticketing, and more.

Day 2 and Beyond: AI-Driven Operations

- Wired service level expectation (SLEs) allow you to set, monitor, and measure wired user experiences such as throughput, successful connections, and switch health with pre- and post-connection performance metrics.
- AI-driven switch insights reveal exactly how switches are performing, including detailed device-level metrics such as CPU, memory utilization, and Virtual Chassis status.

The addition of Marvis, a complementary Virtual Network Assistant driven by Mist AI, lets you start building a self-driving network that simplifies network operations and streamlines troubleshooting via automatic fixes for EX Series switches or recommended actions for external systems.

Virtual Chassis Technology

The EX2300 supports Juniper's unique Virtual Chassis technology, enabling up to four interconnected EX2300 switches to be managed as a single logical device, delivering a scalable, pay-as-you-grow solution for expanding network environments.

While EX2300 switches can be interconnected over any of the front-panel uplink ports using standard 10GbE SFP+ transceivers (sold separately), these ports can also be configured as 1GbE/10GbE uplinks to aggregation devices by disabling the Virtual Chassis technology.

When deployed in a Virtual Chassis configuration, the EX2300 switches elect a primary and a backup switch based on a set of preconfigured policies or criteria. The primary switch automatically creates and updates the switching and optional routing tables on all other Virtual Chassis switch members. Switches can be added to or removed from the Virtual Chassis configuration without service disruption.

EX2300 Virtual Chassis configurations operate as highly resilient unified systems, providing simplified management using a single IP address, single telnet session, single command-line interface (CLI), automatic version checking, and automatic configuration. The EX2300 switches are also capable of local switching, so packets coming into a port destined for another port on the same switch do not have to traverse the Virtual Chassis, increasing forwarding capacities.

EX2300 Virtual Chassis configurations implement the same slot/module/port numbering schema as other Juniper Networks chassis-based products, providing true chassis-like operations. By using a consistent operating system and a single configuration file, all switches in a Virtual Chassis configuration are treated as a single device, simplifying overall system maintenance and management.

Multigigabit Switches

IEEE 802.11ac Wave 2 access points require switch ports capable of handling up to 2.5 Gbps in order to support the growing number of wireless devices and the amount of traffic they produce. To address this need, specific multigigabit EX2300 models now offer 1 Gbps and 2.5 Gbps access ports to support these increased bandwidth requirements over existing Category 5e cabling. These switches run the same Junos image and support all the same software features as other EX2300 models.

The EX2300 multigigabit switches can interoperate with other EX Series switches in Virtual Chassis deployments, protecting existing customer investments by enabling them to add multigigabit support to their existing Juniper network deployments.

The EX2300 multigigabit switches support PoE+ on all access ports, provided the power demand is within the PoE budget.

Table 1: EX2300 multigigabit switches

Model	1 Gbps Ports	1/2.5 Gbps Ports	PoE/ PoE+	Uplinks	Fans	Air Flow
EX2300- 24MP	8-23	0-7	All access ports	4 SFP+	3	Side-side
EX2300- 48MP	0-15; 32-47	16-31	All access ports	6 SFP+	4	Side-side

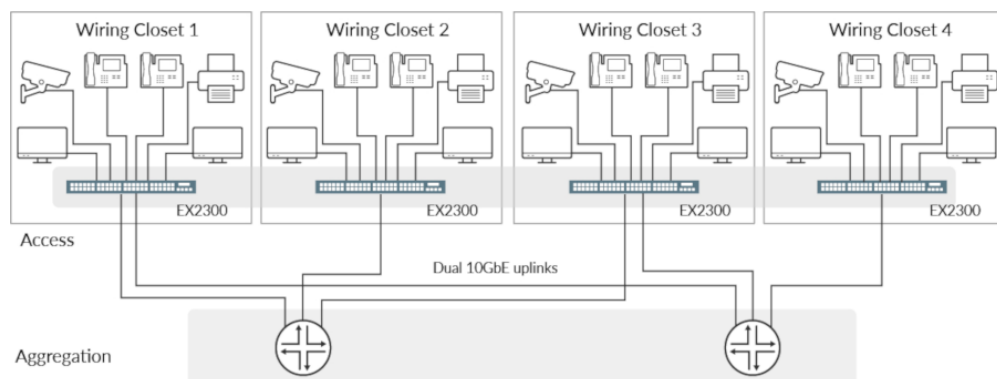


Figure 1: EX2300 switches support Virtual Chassis technology, which enables up to four interconnected switches to operate as a single, logical device.

Simplified Operations

Virtual Chassis technology simplifies network management for smaller deployments. Up to four interconnected EX2300 switches can be managed as a single device utilizing a single Junos OS image and a single configuration file, reducing the overall number of units to monitor and manage. When the Junos OS is upgraded on the primary switch in an EX2300 Virtual Chassis configuration, the software is automatically upgraded on all other member switches at the same time.

The EX2300 includes port profiles that allow network administrators to automatically configure ports with security, QoS, and other parameters based on the type of device connected to the port. Six preconfigured profiles are available, including default, desktop, desktop plus IP phone, WLAN access point, routed uplink, and Layer 2 uplink. Users can select from the existing profiles or create their own and apply them through the command-line interface (CLI), J-Web Software interface, or management system.

In addition, a feature called system snapshot makes a copy of all software files used to run the switch—including the Junos operating system, the active configuration, and the rescue configuration. These files can be used to reboot the switch at the next power-up or as a backup boot option. The Junos OS software can also be preinstalled on a flash drive and used to boot the EX2300 at any time.

Another feature, called automatic software download, enables network administrators to easily upgrade the EX2300 using the DHCP message exchange process to download and install software packages. Users simply configure the automatic software download feature on EX2300 switches acting as DHCP clients and establish a path to the server where the software package file is installed. The server then communicates the path to the software package file through DHCP server messages.

The ZTP feature allows a DHCP server to push configuration details and software images to multiple switches at boot-up time.

Features and Benefits

Wired Service-Level Expectations

The Wired Assurance feature provides operational visibility into the wired experience with service-level expectations (SLEs) for EX Series Switches. Pre- and post-connection performance metrics help you monitor successful connects and switch health throughout the system, using Mist AI to measure and manage networks and simplify troubleshooting.

High Availability Features

To avoid the complexities of the Spanning Tree Protocol (STP) without sacrificing network resiliency, the EX2300 employs a redundant trunk group (RTG) to provide the necessary port redundancy and simplify switch configuration. It also supports cross-member link aggregation, which allows redundant link aggregation connections between devices in a single Virtual Chassis configuration, providing an additional level of reliability and availability.

Junos Operating System

The EX2300 switches run the same Junos OS that is used by other Juniper Networks EX Series Ethernet Switches, QFX Series Switches, Juniper Routers, Juniper SRX Firewalls, and the Juniper NFX Series Network Services Platform. By utilizing a common operating system, Juniper delivers a consistent implementation and operation of control plane features across all products. To maintain that consistency, the Junos OS adheres to a highly disciplined development process that uses a single source code, and it employs a highly available modular architecture that prevents isolated failures from bringing down an entire system.

These attributes are fundamental to the core value of the software, enabling all Junos OS-powered products to be updated simultaneously with the same software release. All features are fully regression-tested, making each new release a true superset of the previous version. Customers can deploy the software with complete confidence that all existing capabilities are maintained and operate in the same way.

Converged Environments

The EX2300 provides the highest levels of flexibility and features in its class for the most demanding converged data, voice, and video environments, delivering a reliable platform for unifying enterprise communications.

By providing a full 15.4 watts of Class 3 PoE to VoIP telephones, closed-circuit security cameras, wireless access points, and other IP-enabled devices, the EX2300 delivers a future-proofed solution for converging disparate networks onto a single IP infrastructure. The EX2300 PoE switches also support 802.3at standards-based PoE+, delivering 30 watts for powering networked devices such as IEEE

802.11ac wireless access points, and videophones that might require more power than available with IEEE 802.3af.

To ease deployment, the EX2300 supports the industrystandard Link Layer Discovery Protocol (LLDP) and LLDPMedia Endpoint Discovery (LLDP-MED) protocol, enabling the switches to automatically discover Ethernet-enabled devices, determine their power requirements, and assign virtual LAN (VLAN) membership. LLDP-MED-based granular PoE management allows the EX2300 to negotiate PoE usage down to a fraction of a watt on powered devices, enabling more efficient PoE utilization across the switch.

In addition, the EX2300 supports rich quality-of-service (QoS) functionality for prioritizing data, voice, and video traffic. The switches support eight class-of-service (CoS) queues on every port, enabling them to maintain multilevel, end-to-end traffic prioritizations. The EX2300 also supports a wide range of policy options, including strict priority, low latency, weighted random early detection (WRED), and shaped-deficit weighted roundrobin (SDWRR) queuing.

Security

Working as an enforcement point in Access Policy Infrastructure, the EX2300 provides both standards-based 802.1X portlevel access control for multiple devices per port, as well as Layer 2-4 policy enforcement based on user identity, location, device, or a combination of these. A user's identity, device type, machine posture check, and location can be used to determine whether access should be granted and for how long. If access is granted, the switch provides access to the network based on authorization attributes sent by the authentication server. The switch can also apply security policies, QoS policies, or both, or it can mirror user traffic to a central location for logging, monitoring, or threat detection by intrusion prevention systems.

The EX2300 also provides a full complement of integrated port security and threat detection features, including Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection (DAI), and media access control (MAC) limiting to defend against internal and external spoofing, and man-in-the-middle and denial of service (DoS) attacks.

Enhanced Limited Lifetime Warranty

The EX2300 includes an enhanced limited lifetime hardware warranty that provides return-to-factory switch replacement for as long as the original purchaser owns the product. The warranty includes lifetime software updates, advanced shipping of spares within one business day, and 24x7 Juniper Networks Technical Assistance Center (JTAC) support for 90 days after the purchase date. Power supplies and fan trays are covered for a period of five years. For complete details, please visit www.juniper.net/support/warranty.



EX2300-24T/24P



EX2300-48T/48P



EX2300-24MP



EX2300-48MP

Physical Specifications

Power Options

Model	Max. System Power Consumption (Input Power without PoE)	Total PoE Power Budget
EX2300-24T	55 W AC	0
EX2300-24P	80 W AC	370 W
EX2300-24MP	55 W AC	380 W
EX2300-48T	70 W AC	0
EX2300-48P	100 W AC	750 W
EX2300-48MP	90 W AC	750 W

Dimensions (W x H x D)

- Width:
 - 17.4 in (44.19 cm) for desktop installations
 - 17.5 in (44.6 cm) with rack-mount brackets
- Height: 1.75 in (4.45 cm) for 1U installations
- Depth:
 - EX2300-24T: 10.2 in (25.9 cm)
 - EX2300-24P: 12.2 in (30.98 cm)
 - EX2300-24MP: 10 in (25.4 cm)
 - EX2300-48T: 10.2 in (25.9 cm)
 - EX2300-48P: 12.2 in (30.98 cm)
 - EX2300-48MP: 14.5 in (36.83 cm)

Backplane

- 80 Gbps Virtual Chassis interconnect to link up to four switches as a single logical device (EX2300-24/48T/P and EX2300-24/48 MP models)

System Weight

- EX2300-24T: 7.25 lb (3.29 kg)
- EX2300-24P: 9.89 lb (4.49 kg)
- EX2300-24MP: 8.82 lb (4 kg)
- EX2300-48T: 8.29 lb (3.76 kg)

- EX2300-48P: 11.07 lb (5.02 kg)
- EX2300-48MP: 14.33 lb (6.5 kg)

Environmental Ranges

- Operating temperature: 32° to 113° F (0° to 45° C)
- Storage temperature: -40° to 158° F (-40° to 70° C)
- Operating altitude: up to 13,000 ft (3962 m) at 40° C according to GR-63
- Non-operating altitude: up to 15,000 ft (4572 m)
- Relative humidity operating: 10% to 85% (noncondensing)
- Relative humidity non-operating: 0% to 95% (noncondensing)

Cooling

- Airflow:
 - EX2300-24T: 25 cfm
 - EX2300-24P: 23 cfm
 - EX2300-48T: 24 cfm
 - EX2300-48P: 25 cfm

Hardware Specifications

Switching Engine Model

- Store and forward

DRAM

- 2 GB (EX2300-24/48T/P)

Flash

- 2 GB (EX2300 non-multigigabit models)
- 8 GB (EX2300-24MP, EX2300-48MP)

CPU

- 1.25GHz ARM CPU

GbE Port Density per System

- EX2300-24P/24T/24MP: 28 (24 host ports + four-port SFP/SFP+ uplinks)
- EX2300-48P/48T: 52 (48 host ports + four-port SFP/SFP+ uplinks)
- EX2300-48MP: 54 (48 host ports + six-port SFP/SFP+ uplinks)

Supported Optics

- 10/100/1000BASE-T connector type RJ-45
- GbE SFP optic/connector type: RJ-45, or LC SFP fiber supporting 1000BASE-T SFP, SX (multimode), LX (singlemode), or LH (single-mode)

Physical Layer

- Physical port redundancy: Redundant trunk group (RTG)
- Cable diagnostics for detecting cable breaks and shorts
- Auto MDI/MDIX (medium-dependent interface/mediumdependent interface crossover) support

- Port speed downshift/setting maximum advertised speed on 10/100/1000BASE-T ports
- Digital optical monitoring for optical ports

Packet-Switching Capacities (Maximum with 64-Byte Packets)

- EX2300-24P/24T: 64 Gbps (unidirectional)/128 Gbps (bidirectional)
- EX2300-24MP: 76 Gbps (unidirectional)/ 152 Gbps (bidirectional)
- EX2300-48P/48T: 88 Gbps (unidirectional)/176 Gbps (bidirectional)
- EX2300-48MP: 132 Gbps (unidirectional)/264 Gbps (bidirectional)

Software Specifications

Layer 2/Layer 3 Throughput (Mpps) (Maximum with 64 Byte Packets)

- EX2300-24P/24T/24MP: 95 Mpps (wire speed)
- EX2300-48P/48T/48MP: 130 Mpps (wire speed)

Layer 2 Features

- Maximum MAC addresses in hardware: 16,000
- Jumbo frames: 9216 bytes
- Number of VLANs supported: 4093 (2044 active VLAN)
- Range of possible VLAN IDs: 1-4094
- Port-based VLAN
- MAC-based VLAN
- Voice VLAN
- Layer 2 Protocol Tunneling (L2PT)
- IEEE 802.1ak: Multiple VLAN Registration Protocol (MVRP)
- Compatible with Per-VLAN Spanning Tree Plus (PVST+)
- RVI (Routed VLAN Interface)
- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- LLDP-MED with VoIP integration
- IEEE 802.1ad Q-in-Q tunneling
- IEEE 802.1br: Bridge Port Extension
- IEEE 802.1D: Spanning Tree Protocol
- IEEE 802.1p: CoS Prioritization
- IEEE 802.1Q: VLAN Tagging
- IEEE 802.1Q-in-Q: VLAN Stacking
- IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
- Number of MST instances supported: 64
- Number of VSTP instances supported: 253
- IEEE 802.1w: Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1X: Port Access Control
- IEEE 802.3: 10BASE-T
- IEEE 802.3u: 100BASE-T
- IEEE 802.3ab: 1000BASE-T
- IEEE 802.3z: 1000BASE-X
- IEEE 802.3af: PoE
- IEEE 802.3at: PoE+

- IEEE 802.3ad: Link Aggregation Control Protocol (LACP)
- IEEE 802.3x: Pause Frames/Flow Control
- IEEE 802.3az: Energy Efficient Ethernet

Layer 3 Features: IPv4

- Maximum number of ARP entries: 1,500
- Maximum number of IPv4 unicast routes in hardware: 512 prefixes; 4,096 host routes
- Maximum number of IPv4 multicast routes in hardware: 2,048 groups; 2,048 multicast routes
- Routing Protocols: RIP v1/v2, OSPF v1/v2
- Static routing
- Routing policy
- Bidirectional Forwarding Detection (BFD) with slow timers (> 3 sec)
- IP directed broadcast

Layer 3 Features: IPv6

- Maximum number of Neighbor Discovery (ND) entries: 1,500
- Maximum number of IPv6 unicast routes in hardware: 512 prefixes; 2,048 host routes
- Maximum number of IPv6 multicast routes in hardware: 1,024 groups; 1,024 multicast routes
- Neighbor discovery, system logging, Telnet, SSH, SNMP, Network Time Protocol (NTP), Domain Name System (DNS)
- Static routing
- Routing protocols: RIPng, OSPF v3, Multicast Listener Discovery, Multicast Listener Discovery v2

Access Control Lists (ACLs) (Junos OS Firewall Filters)

- Port-based ACL (PACL)—256 ingress; 256 egress
- VLAN-based ACL (VACL)— 256 ingress; 256 egress
- Router-based ACL (RACL)—256 ingress; 512 egress
- ACL entries (ACE) in hardware per system: 2,000
- ACL counter for denied packets
- ACL counter for permitted packets
- Ability to add/remove/change ACL entries in middle of list (ACL editing)
- L2-L4 ACL

Access Security

- MAC limiting
- Allowed MAC addresses—configurable per port
- Sticky MAC (persistent MAC address learning)
- Dynamic ARP inspection (DAI)
- Proxy ARP
- Static ARP support
- DHCP snooping
- 802.1X port-based
- 802.1X multiple supplicants

- 802.1X with VLAN assignment
- 802.1X with authentication bypass access (based on host MAC address)
- 802.1X with VoIP VLAN support
- 802.1X dynamic ACL based on RADIUS attributes
- 802.1X Supported EAP types: Message Digest 5 (MD5), Transport Layer Security (TLS), Tunneled Transport Layer Security (TTLS), Protected Extensible Authentication Protocol (PEAP)
- IPv6 RA Guard
- IPv6 Neighbor Discovery Inspection
- Captive Portal
- Static MAC authentication
- MAC-RADIUS
- Control plane DoS protection
- Fallback authentication
- Trusted Network Connect (TNC) certified

High Availability

- Link aggregation
- 802.3ad (LACP) support:
 - Number of LAGs supported: 128
 - Maximum number of ports per LAG: 8
- Tagged ports support in LAG
- Uplink Failure Detection

Quality of Service (QoS)

- Layer 2 QoS
- Layer 3 QoS
- Ingress policing: one-rate two-color; two-rate three-color markers
- Hardware queues per port: 8
- Scheduling methods (egress): Strict Priority (SP), shaped deficit weighted round-robin (SDWRR)
- 802.1p, DSCP /IP precedence trust and marking
- L2-L4 classification criteria: Interface, MAC address, EtherType, 802.1p, VLAN, IP address, DSCP/IP precedence, TCP/UDP port numbers
- Congestion avoidance capabilities: Tail drop and WRED

Multicast

- IGMP snooping entries: 2,000
- IGMP: v1, v2, v3
- IGMP snooping
- PIM-SM, PIM-SSM, PIM-DM
- MLD snooping

Services and Manageability

- Juniper Mist Wired Assurance
- Junos OS CLI
- Junos Web interface (J-Web)
- Junos Space Management Applications
- Junos Space Network Director
- Out-of-band management: Serial, 10/100BASE-T Ethernet
- ASCII configuration
- Rescue configuration
- Configuration rollback
- Image rollback
- Simple Network Management Protocol (SNMP): v1, v2c, v3
- Remote monitoring (RMON) (RFC 2819) Groups 1, 2, 3, 9
- Network Time Protocol (NTP)
- DHCP server
- DHCP client and DHCP proxy
- DHCP relay and helper
- RADIUS authentication
- TACACS+ authentication
- SSHv2
- Secure copy
- HTTP/HTTPs
- DNS resolver
- System log logging
- Temperature sensor
- Configuration backup via FTP/secure copy
- Interface range

Supported RFCs

- RFC 768 UDP
- RFC 783 Trivial File Transfer Protocol (TFTP)
- RFC 791 IP
- RFC 792 Internet Control Message Protocol (ICMP)
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet client and server
- RFC 894 IP over Ethernet
- RFC 903 Reverse ARP (RARP)
- RFC 906 Bootstrap Loading using TFTP
- RFC 951, 1542 BootP
- RFC 1027 Proxy ARP
- RFC 1058 RIP v1
- RFC 1122 Requirements for Internet Hosts
- RFC 1256 IPv4 ICMP Router Discovery (IRDP)
- RFC 1492 TACACS+
- RFC 1519 Classless Interdomain Routing (CIDR)
- RFC 1591 Domain Name System (DNS)
- RFC 1812 Requirements for IP Version 4 routers

- RFC 2030 Simple Network Time Protocol (SNTP)
- RFC 2068 HTTP/1.1
- RFC 2131 BOOTP/DHCP relay agent and DHCP server
- RFC 2138 RADIUS Authentication
- RFC 2139 RADIUS Accounting
- RFC 2267 Network Ingress Filtering
- RFC 2453 RIP v2
- RFC 2474 DiffServ Precedence, including 8 queues/port
- RFC 2597 DiffServ Assured Forwarding (AF)
- RFC 2598 DiffServ Expedited Forwarding (EF)
- RFC 2710 Multicast Listener Discovery Version (MLD) for IPv6
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- RFC 3176 sFlow
- RFC 3579 RADIUS Extensible Authentication Protocol (EAP) support for 802.1X
- RFC 5176 Dynamic Authorization Extensions to RADIUS
- LLDP Media Endpoint Discovery (LLDP-MED), ANSI/TIA1057, draft 08

Supported MIBs

- RFC 1155 Structure of Management Information (SMI)
- RFC 1157 SNMPv1
- RFC 1212, RFC 1213, RFC 1215 MIB-II, Ethernet-like MIB, and TRAPS
- RFC 1493 Bridge MIB
- RFC 1643 Ethernet MIB
- RFC 1724 RIPv2 MIB
- RFC 1905 RFC 1907 SNMP v2c, SMIv2 and Revised MIB-II
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2011 SNMPv2 Management Information Base for the IP using SMIv2
- RFC 2012 SNMPv2 Management Information Base for the Transmission Control Protocol using SMIv2
- RFC 2013 SNMPv2 Management Information Base for the User Datagram Protocol using SMIv2
- RFC 2096 IPv4 Forwarding Table MIB
- RFC 2287 System Application Packages MIB
- RFC 2460 IPv6 Specification
- RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
- RFC 2570-2575 SNMPv3, User-based Security, Encryption, and Authentication
- RFC 2576 Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework
- RFC 2578 SNMP Structure of Management Information MIB
- RFC 2579 SNMP Textual Conventions for SMIv2

- RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
- RFC 2819 RMON MIB
- RFC 2863 The Interfaces Group MIB
- RFC 2922 LLDP MIB
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- RFC 3413 SNMP Application MIB
- RFC 3414 User-based Security Model for SNMPv3
- RFC 3415 View-based Access Control Model (VACM) for SNMP
- RFC 3484 Default Address Selection for IPv6
- RFC 3621 PoE-MIB (PoE switches only)
- RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
- RFC 4188 STP and Extensions MIB
- RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- RFC 4291 IPv6 Addressing Architecture
- RFC 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and VLAN Extensions
- RFC 4443 ICMPv6 for the IPv6 Specification
- RFC 4861 Neighbor Discovery for IPv6
- RFC 4862 IPv6 Stateless Address Autoconfiguration
- Draft – blumenthal – aes – usm - 08
- Draft – reeder - snmpv3 – usm - 3desede -00

Troubleshooting

- Debugging: CLI via console, telnet, or SSH
- Diagnostics: Show and debug command statistics
- Traffic mirroring (port)
- Traffic mirroring (VLAN)
- ACL-based mirroring
- Mirroring destination ports per system: 4
- LAG port monitoring
- Multiple destination ports monitored to 1 mirror (N:1)
- Maximum number of mirroring sessions: 4
- Mirroring to remote destination (over L2): 1 destination VLAN
- Encapsulated Remote Switched Port Analyzer (ERSPAN)
- IP tools: Extended ping and trace
- Juniper Networks commit and rollback

Safety Certifications

- UL-UL60950-1 (Second Edition)
- C-UL to CAN/CSA 22.2 No.60950-1 (Second Edition)
- TUV/GS to EN 60950-1 (Second Edition)
- CB-IEC60950-1 (Second Edition with all country deviations)
- EN 60825-1 (Second Edition)

Electromagnetic Compatibility Certifications

- FCC 47CFR Part 15 Class A
- EN 55022 Class A
- ICES-003 Class A
- VCCI Class A
- AS/NZS CISPR 22 Class A
- CISPR 22 Class A
- EN 55024
- EN 300386
- CE

Telecom Quality Management

- TL9000

Environmental

- Reduction of Hazardous Substances (ROHS) 6

Telco

- CLEI code

Noise Specifications

Noise measurements based on operational tests taken from bystander position (front) and performed at 25° C in compliance with ISO 7779. The PoE load was 370 W (24 ports powered at 15.4W each) on the EX2300-24P and 740 W (48 ports powered at 15.4W each) on the EX2300-48P.

Model	Acoustic Noise in DB
EX2300-24T	34.2
EX2300-24P	40.6
EX2300-48T	34.6
EX2300-48P	51.4
EX2300-24MP	45.7
EX2300-48MP	45.8

Warranty

- Enhanced limited lifetime switch hardware warranty

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

Product Number	Description
Switches	
EX2300-24T	EX2300 24-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24T-VC	EX2300 24-port non-PoE+ w/ Virtual Chassis License
EX2300-24P	EX2300 24-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24P-VC	EX2300 24-port PoE+ w/ Virtual Chassis License
EX2300-24MP	EX2300 16-port 10/100/1000BASE-T PoE+, 8-port 10/100/1000/2500BASE-T PoE+, 4 x 1/10GbE SFP/ SFP+ (optics sold separately)
EX2300-24T-DC	EX2300 24-port 10/100/1000BASE-T with internal DC PSU, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24T-TAA	EX2300 TAA 24-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-24P-TAA	EX2300 TAA 24-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48T	EX2300 48-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48T-VC	EX2300 48-port non-PoE+ w/ Virtual Chassis License
EX2300-48P	EX2300 48-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48P-VC	EX2300 48-port PoE+ w/ Virtual Chassis License
EX2300-48MP	EX2300 32-port 10/100/1000BASE-T PoE+, 16-port 10/100/1000/2500BASE-T PoE+, 6 x 1/10GbE SFP/ SFP+ (optics sold separately)
EX2300-48T-TAA	EX2300 TAA 48-port 10/100/1000BASE-T, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-48P-TAA	EX2300 TAA 48-port 10/100/1000BASE-T PoE+, 4 x 1/10GbE SFP/SFP+ (optics sold separately)
Accessories	
EX-RMK	Rack-mount kit for EX2300
EX-4PST-RMK	Adjustable 4-post rack-mount kit for EX2300
EX-WMK	Wall-mount kit for EX2300
Licenses	
EX2300-VC	EX2300 Virtual Chassis License
EX-24-EFL/EX-48-EFL	Enhanced Feature License for EX2300 24- and 48-port switches. Includes licenses for IPv4 routing (OSPF v2/ v3, IGMP v1/v2/v3, VRRP, and BFD), IPv6 routing (RIPng, OSPF v3, VRRP v6, MSDP, and PIM), and RealTime Performance Monitoring (RPM).
Pluggable Optics	
EX-SFP-1GE-T	SFP 10/100/1000BASE-T copper; RJ-45 connector; 100m reach on UTP
EX-SFP-1GE-SX	SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber
EX-SFP-1GE-SX-ET	SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber, extended temperature
EX-SFP-1GE-LX	SFP 1000BASE-LX; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-1GE-LH	SFP 1000BASE-LH; LC connector; 1550 nm; 70 km reach on single-mode fiber
EX-SFP-1GE-LX40K	SFP 1000BASE-LX; LC connector; 1310 nm; 40 km reach on single-mode fiber
EX-SFP-GE10KT13R14	SFP 1000BASE-BX; TX 1310 nm/RX 1490 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE10KT13R15	SFP 1000BASE-BX; TX 1310 nm/RX 1550 nm for 10 km transmission on single-strand, single-mode fiber

Product Number	Description
EX-SFP-GE10KT14R13	SFP 1000BASE-BX; TX 1490 nm/RX 1310 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE10KT15R13	SFP 1000BASE-BX; TX 1550 nm/RX 1310 nm for 10 km transmission on single-strand, single-mode fiber
EX-SFP-GE40KT13R15	SFP 1000BASE-BX; TX 1310 nm/RX 1550 nm for 40 km transmission on single-strand, single-mode fiber
EX-SFPGE80KCW1470	SFP Gigabit Ethernet CWDM, LC connector; 1470 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1490	SFP Gigabit Ethernet CWDM, LC connector; 1490 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1510	SFP Gigabit Ethernet CWDM, LC connector; 1510 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1530	SFP Gigabit Ethernet CWDM, LC connector; 1530 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1550	SFP Gigabit Ethernet CWDM, LC connector; 1550 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1570	SFP Gigabit Ethernet CWDM, LC connector; 1570 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1590	SFP Gigabit Ethernet CWDM, LC connector; 1590 nm, 80 km reach on single-mode fiber
EX-SFPGE80KCW1610	SFP Gigabit Ethernet CWDM, LC connector; 1610 nm, 80 km reach on single-mode fiber
EX-SFP-10GE-USR	SFP+ 10 Gigabit Ethernet Ultra Short Reach Optics, 850 nm for 10m on OM1, 20m on OM2, 100m on OM3 multimode fiber
EX-SFP-10GE-SR	SFP+ 10GBASE-SR; LC connector; 850 nm; 300m reach on 50 microns multimode fiber; 33m on 62.5 microns multimode fiber
EX-SFP-10GE-LR	SFP+ 10GBASE-LR; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-10GE-ER	SFP+ 10GBASE-ER 10 Gigabit Ethernet Optics, 1550 nm for 40 km transmission on single-mode fiber
EX-SFP-10GE-ZR	SFP+ 10GBASE-ZR; LC connector; 1550nm; 80 km reach on single-mode fiber
EX-SFP-10GE-DAC1M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 1-meter length
EX-SFP-10GE-DAC3M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 3-meter length
EX-SFP-10GE-DAC5M	SFP+ 10 Gigabit Ethernet Direct Attach Copper (twinax copper cable) – 5-meter length

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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EX2300-C COMPACT ETHERNET SWITCH

Product Overview

The Juniper Networks EX2300-C Ethernet Switch offers an economical, entry-level solution in a compact, fanless form factor for access layer deployments in branches, retail, and workgroup environments. The EX2300-C supports Juniper Networks Virtual Chassis technology, allowing up to four interconnected switches to be managed as a single logical device, delivering a scalable, pay-as-you-grow solution for expanding networks. The EX2300-C is onboarded, provisioned, and managed in the Juniper Mist Cloud Architecture, with Wired Assurance delivering better experiences for connected devices through AI-powered automation and service levels.

Product Description

The Juniper Networks® EX2300-C Ethernet Switch delivers a compact, silent, and power-efficient platform for low-density branch deployments and commercial access or enterprise workgroup environments outside the wiring closet.

Featuring 12 10/100/1000BASE-T access ports and two 10GbE uplink ports with and without Power over Ethernet (PoE/PoE+) in a fanless design, the EX2300-C switches deliver a powerful solution for supporting services such as unified communications, IP telephony, closed circuit television (CCTV), and other applications in office, classroom, hospitality, and other space and wiring-constrained environments. The key features of the EX2300-C switch include:

- Multiple hardware configurations:
 - 12 10/100/1000BASE-T access ports and two SFP+ 10GbE uplink ports
 - 12 10/100/1000BASE-T PoE/PoE+ access ports and two SFP+ 10GbE uplink ports
- IEEE 802.3at (PoE+) compliance, allowing a variety of devices to draw power from the switch through the access ports
- Cloud-managed and driven by Mist AI with Juniper Mist Wired Assurance
- Virtual Chassis support, allowing up to four switches to be interconnected and managed as a single logical device (optional license required)
- Energy Efficient Ethernet (EEE) support for GbE access ports
- Compact design featuring fanless and noiseless operation

Architecture and Key Components

The fixed-configuration EX2300-C line of Ethernet switches delivers complete Layer 2 and basic Layer 3 switching capabilities to satisfy the low-density branch and low-density wiring closet connectivity requirements of today's high-performance business needs. The EX2300-C models extend that reach into workgroup environments that reside outside the wiring closet, including branch offices, retail access applications, education, hospitality, and other locations where the switch is deployed in open areas inside a building.

Two versions are available. The EX2300-C-12T offers 12 front panel 10/100/1000BASE-T access ports and two SFP+ 10GbE uplink ports. The EX2300-C-12P offers 12 front panel 10/100/1000BASE-T IEEE 802.3af/IEEE 802.3at (PoE/PoE+) access ports, which can be used for powering networked devices such as telephones, video cameras, multiple radio IEEE 802.11ac wireless LAN (WLAN) access points, and videophones in converged network environments. In addition, the EX2300-C-12P has two SFP+ 10GbE uplink ports.

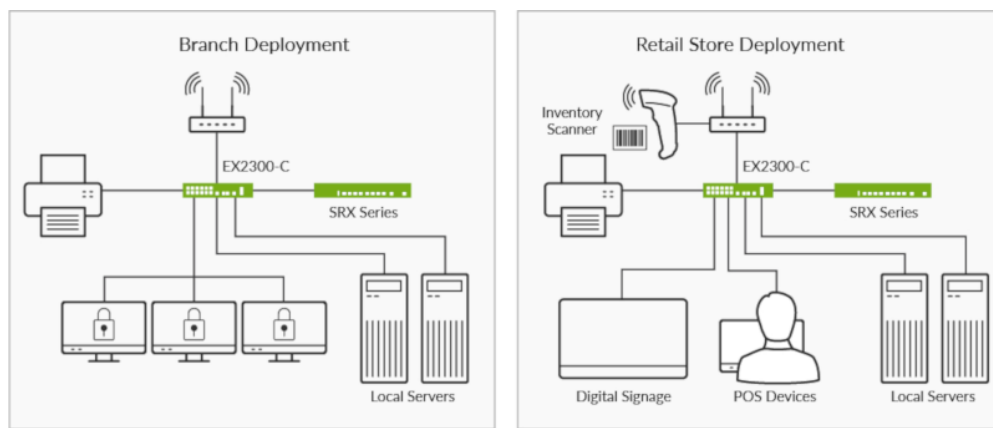


Figure 1: EX2300-C branch and retail store deployments.

The uplink ports can be used to connect to higher-layer devices such as aggregation switches or routers. The uplink ports can also be configured as Virtual Chassis interfaces and connected via standard 10GbE interfaces. A fixed internal power supply ensures operational simplicity.

Cloud Management with Juniper Mist Wired Assurance

Juniper Mist Wired Assurance, a cloud-based service driven by Mist AI to claim, configure, manage, and troubleshoot the EX2300-C, delivers AI-powered automation and service levels to ensure a better experience for connected devices. Wired Assurance leverages rich Junos switch telemetry data to simplify operations, reduce mean time to repair, and improve visibility. Wired Assurance offers the following features.

Day 0/Day 1: Simplified Onboarding and Provisioning

- Single-click activation adds true plug-and-play capabilities to the cloud-ready, zero-touch provisioning (ZTP)-enabled EX2300-C driven by Mist AI.
- Configuration models use global templates for bulk rollouts while retaining the flexibility to apply custom site- or switch-specific attributes.
- Device, port, and interface profiles allows for the manual provisioning of colored ports or auto-provisioning of colorless ports.
- Open APIs support third-party integrations such as ServiceNow and Splunk to automate troubleshooting, ticketing, and more.

Day 2 and Beyond: AI-Driven Operations

- Wired service level expectation (SLEs) allow you to set, monitor, and measure wired user experiences such as throughput, successful connections, and switch health with pre- and post-connection performance metrics.
- AI-driven switch insights reveal exactly how switches are performing, including detailed device-level metrics such as CPU, memory utilization, and Virtual Chassis status.

The addition of Marvis, a complementary Virtual Network Assistant driven by Mist AI, lets you start building a self-driving network that simplifies network operations and streamlines troubleshooting via automatic fixes for EX Series switches or recommended actions for external systems.

Virtual Chassis Technology

The EX2300-C supports Juniper's unique Virtual Chassis technology, enabling up to four interconnected EX2300-C switches to be managed as a single logical device and delivering a scalable, pay-as-you-grow solution for expanding network environments. The EX2300-C can also be connected to an existing Virtual Chassis configuration composed of EX2300 switches.

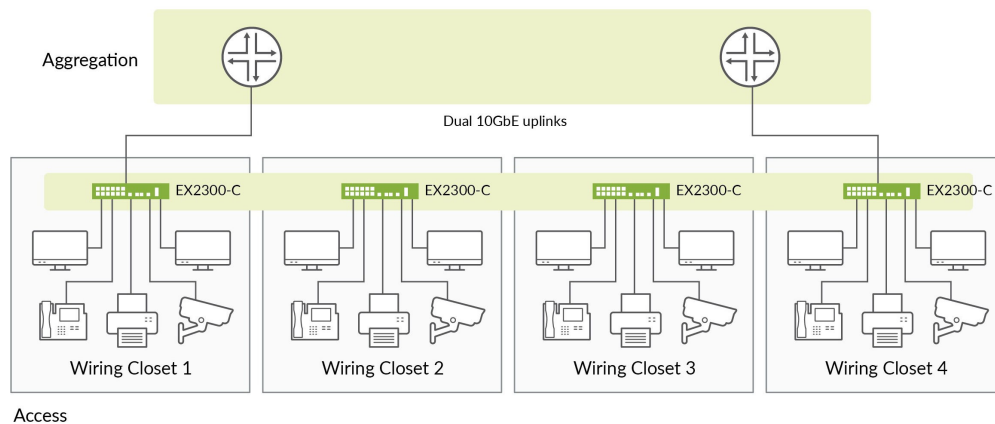


Figure 2: When deployed in a Virtual Chassis configuration, up to four EX2300-C switches can operate as a single, logical device.

While EX2300-C switches can be interconnected over either of the two front panel 10GbE uplink ports, these ports can also be configured as 1GbE uplinks to aggregation devices by disabling the Virtual Chassis technology.

When deployed in a Virtual Chassis configuration, the EX2300-C switches elect a primary and a backup switch based on a set of preconfigured policies or criteria. The primary switch automatically creates and updates the switching and optional routing tables on all other Virtual Chassis switch members. Switches can be added to or removed from the Virtual Chassis configuration without service disruption.

EX2300-C Virtual Chassis configurations operate as highly resilient unified systems, providing simplified management using a single IP address, single telnet/SSH session, single command-line interface (CLI), automatic version checking, and automatic configuration. The EX2300-C switches are also capable of local switching, so packets coming into a port destined for another port on the same switch do not have to traverse the Virtual Chassis, increasing forwarding capacities.

EX2300-C Virtual Chassis configurations implement the same slot/module/port numbering schema as other Juniper Networks chassis-based products, providing true chassis-like operations. By using a consistent operating system and a single configuration file, all switches in a Virtual Chassis configuration are treated as a single device, simplifying overall system maintenance and management.

Simplified Operations

Virtual Chassis technology simplifies network management for smaller deployments. Up to four interconnected EX2300-C switches can be managed as a single device utilizing a single Junos OS image and a single configuration file, reducing the overall number of units to monitor and manage. When the Junos OS is upgraded on the primary switch in an EX2300-C Virtual Chassis configuration, the software is automatically upgraded on all other member switches at the same time.

Dedicated front panel RJ-45 and USB console ports offer flexible out-of-band management options, while a front panel USB port can be used to easily upload the Juniper Networks Junos operating system and configuration files. All front panel access and uplink ports have dedicated link status and link activity LEDs. In addition, a series of front panel LEDs offer system status information with a button that allows users to toggle through four different modes for reporting speed (SPD), duplex mode (DX), administrative status (EN), and PoE status (PoE). A fixed internal power supply ensures operational simplicity.

Easy Provisioning

Auto-configuration and Auto-Image Install features allow the switches to be configured and imaged over the network using the Dynamic Host Configuration Protocol (DHCP) message exchange process. These features eliminate the need to stage devices prior to deployment, dramatically reducing operational expenses. Auto-configuration and Auto Image Install allow new branches and retail stores to rapidly deploy their networks, and they also enable software upgrades and security fixes to be performed at the touch of a button. The ZTP feature allows a DHCP server to push configuration details and software images to multiple switches at boot-up time.

Features and Benefits

The EX2300-C model switches include a number of features that make them ideal for low-density, open space deployments.

Wired Service-Level Expectations

The Wired Assurance feature provides operational visibility into the wired experience with service-level expectations (SLEs) for EX Series Switches. Pre- and post-connection performance metrics help you monitor successful connects and switch health throughout the system, using Mist AI to measure and manage networks and simplify troubleshooting.

Compact Form Factor

At 10.98 inches wide and 9.4 inches deep, EX2300-C switches can be easily and discreetly installed on desktops, on or under shelves, or on walls. An optional magnetic mounting pad is available for securing the EX2300-C switches to metal surfaces. Rack-mount kits are also available for installing the switches in standard 19-inch wiring racks. Wall mounting can be done using the flexible mounting slots on the bottom of the chassis to attach to the screws on the wall.

Silent Operation

The EX2300-C switches are fanless, resulting in a silent operation suitable for deployments in workgroup areas. The fanless design also reduces power consumption and improves mean time between failures (MTBF) by eliminating moving parts.

Low Power

The fanless design reduces the power consumed by the EX2300-C switches. Energy Efficient Ethernet (EEE) ports ensure low power consumption when the network link is idle.

Access Security

Working as an enforcement point within the Access Policy Infrastructure, the EX2300-C provides standards-based 802.1X port-level access control as well as L2-L4 policy enforcement based on user identity, location, device, or a combination of these. If access is granted, the switch assigns the user to a specific VLAN based on authorization levels.

Product Options

Table 1. EX2300-C Ethernet Switch Models

Model	Access Port Configuration	Uplink Ports	PoE+ Capable Ports	Height	PoE+ Budget	Power Supply Rating
EX2300-C-12T	12-port 10/100/1000BASE-T	Two SFP/SFP+ ports	0	1 RU	N/A	40 W AC
EX2300-C-12P	12-port 10/100/1000BASE-T	Two SFP/SFP+ ports	12	1 RU	124 W	170 W AC

The EX2300-C also provides a full complement of port security features, including DHCP snooping, dynamic ARP inspection (DAI), and media access control (MAC) limiting to defend against internal and external spoofing, and man-in-the-middle and denial-of-service (DoS) attacks.

Physical Security

Security slots on either side of the switch accept locking devices that physically secure switches, preventing them from being easily removed in open space or unsecured environments.

PoE/PoE+ Power

The EX2300-C-12P switch delivers power for supporting networked devices such as telephones, video cameras, IEEE 802.11n WLAN access points, and videophones. It supports the IEEE 802.3af PoE standard, as well as IEEE 802.3at PoE+ with a budget of 124 watts. At maximum power, the 12-port EX2300-C-12P can provide the full 15.4 watts of Class 3 PoE to a maximum of eight ports simultaneously, and the full 30 watts of PoE+ to a maximum of four ports simultaneously. Attached devices draw the necessary power until the PoE power budget is exhausted.

Junos Operating System

The EX2300-C switches run the same Junos OS that is used by other Juniper Networks EX Series Ethernet Switches, QFX Series Switches, Juniper Routers, Juniper SRX Firewalls, and the Juniper NFX Series Network Services Platform. By using a common operating system, Juniper delivers a consistent implementation and operation of control plane features across all products.

Enhanced Limited Lifetime Warranty

The EX2300-C switches include an enhanced limited lifetime hardware warranty that provides next business day advance hardware replacement for as long as the original purchaser owns the product. The warranty includes lifetime software updates, advanced shipping of spares within one business day, and 24x7 Juniper Networks Technical Assistance Center (JTAC) support for 90 days after the purchase date. Power supplies and fan trays are covered for a period of five years. For complete details, please visit www.juniper.net/support/warranty.



EX2300-C

Physical Specifications

Power Options

- Fixed internal power supply (AC)

Model	Max. System Power Consumption (Input Power without PoE)	Total PoE Power Budget
EX2300-C-12T	20 W AC	0
EX2300-C-12P	24 W AC	124W

Dimensions (W x H x D)

- EX2300-C-12T: 10.98 x 1.72 x 9.4 in (27.9 x 4.4 x 23.9 cm)
- EX2300-C-12P: 10.98 x 1.72 x 9.4 in (27.9 x 4.4 x 23.9 cm)

Backplane

- 40 Gbps Virtual Chassis interconnect to link up to four switches as a single logical device

System Weight

- EX2300-C-12T: 5.45 lb (2.48 kg)
- EX2300-C-12P: 6.99 lb (3.17 kg)

Environmental Ranges

- Operating temperature: 32° to 104° F (0° to 40° C)^{1,2}
- Storage temperature: -40° to 158° F (-40° to 70° C)
- Operating altitude: up to 5,000 ft (1524 m)
- Nonoperating altitude: up to 16,000 ft (4877 m)
- Relative humidity operating: 10% to 85% (noncondensing)
- Relative humidity nonoperating: 0% to 95% (noncondensing)

Cooling

- Fanless operation

Hardware Specifications

Switching Engine Model

- Store and forward

DRAM

- 2 GB with ECC

Flash

- 2 GB

¹ To support operating temperature ranges beyond 40° C at altitudes up to 5,000 feet, extended temperature-range SFPs should be used when fiber uplinks are being utilized.

² Use extended temperature-grade transceivers for optical reach of ER and ZR.

CPU

- 1.25 GHz ARM CPU

GbE port density per system

- 14 (12 access ports + 2 uplink ports)

Physical Layer

- Physical port redundancy: Redundant trunk group (RTG)
- Cable diagnostics for detecting cable breaks and shorts
- Auto medium-dependent interface/medium-dependent interface crossover (MDI/MDIX) support
- Port speed downshift/setting maximum advertised speed on 10/100/1000BASE-T ports
- Digital optical monitoring for optical ports

Packet-Switching Capacities (Maximum with 64-Byte Packets)

- 32 Gbps (unidirectional)/64 Gbps (bidirectional)

Software Specifications

Layer 2/Layer 3 Throughput (Mpps) (Maximum with 64 Byte Packets)

- 47 Mpps (wire speed)

Layer 2 Features

- Maximum MAC addresses in hardware: 16,000
- Jumbo frames: 9216 bytes
- Number of VLANs supported: 4093 (2044 active VLAN)
- Range of possible VLAN IDs: 1-4094
- Port-based VLAN
- MAC-based VLAN
- Voice VLAN
- Layer 2 Protocol Tunneling (L2PT)
- IEEE 802.1ak: Multiple VLAN Registration Protocol (MVRP)
- Compatible with Per-VLAN Spanning Tree Plus (PVST+)
- RVI (Routed VLAN Interface)
- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- LLDP-MED with VoIP integration
- IEEE 802.1ad Q-in-Q tunneling
- IEEE 802.1br Bridge Port Extension
- IEEE 802.1D: Spanning Tree Protocol
- IEEE 802.1p: CoS Prioritization
- IEEE 802.1Q: VLAN Tagging
- IEEE 802.1Q-in-Q: VLAN Stacking
- IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
- Number of MST instances supported: 64
- IEEE 802.1w: Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1X: Port Access Control
- IEEE 802.3: 10BASE-T
- IEEE 802.3u: 100BASE-TX
- IEEE 802.3ab: 1000BASE-T

- IEEE 802.3z: 1000BASE-X
- IEEE 802.3af: PoE
- IEEE 802.3at: PoE+
- IEEE 802.3ad: Link Aggregation Control Protocol (LACP)
- IEEE 802.3x: Pause Frames/Flow Control

Layer 3 Features: IPv4

- Maximum number of ARP entries: 1,500
- Maximum number of IPv4 unicast routes in hardware: 512 prefixes; 4,096 host routes
- Maximum number of IPv4 multicast routes in hardware: 2,048 groups; 2,048 multicast routes
- Routing Protocols: RIP v1/v2, OSPF v1/v2
- Static routing
- Routing policy
- Bidirectional Forwarding Detection (BFD) with slow timers (> 3 sec)
- IP directed broadcast

Layer 3 Features: IPv6

- Maximum number of Neighbor Discovery (ND) entries: 1,500
- Maximum number of IPv6 unicast routes in hardware: 512 prefixes; 2,048 host routes
- Maximum number of IPv6 multicast routes in hardware: 1,024 groups; 1,024 multicast routes
- Neighbor discovery, system logging, Telnet, SSH, SNMP, Network Time Protocol (NTP), Domain Name System (DNS)
- Static routing
- Routing protocols: RIPng, OSPF v3

Access control lists (ACLs) (Junos OS firewall filters)

- Port-based ACL (PACL)—256 ingress; 256 egress
- VLAN-based ACL (VACL)—256 ingress; 256 egress
- Router-based ACL (RACL)—256 ingress; 512 egress
- ACL entries (ACE) in hardware per system: 2,000
- ACL counter for denied packets
- ACL counter for permitted packets
- Ability to add/remove/change ACL entries in middle of list (ACL editing)
- L2-L4 ACL

Access Security

- MAC limiting
- Allowed MAC addresses—configurable per port
- Sticky MAC (persistent MAC address learning)
- Dynamic ARP inspection (DAI)
- Proxy ARP
- Static ARP support
- DHCP snooping
- 802.1X port-based

- 802.1X multiple supplicants
- 802.1X with VLAN assignment
- 802.1X with authentication bypass access (based on host MAC address)
- 802.1X with VoIP VLAN support
- 802.1X dynamic access control list (ACL) based on RADIUS attributes
- 802.1X Supported EAP types: Message Digest 5 (MD5), Transport Layer Security (TLS), Tunneled Transport Layer Security (TTLS), Protected Extensible Authentication Protocol (PEAP)
- IPv6 RA Guard
- IPv6 Neighbor Discovery Inspection
- Captive Portal
- Static MAC authentication
- MAC-RADIUS
- Control plane DoS protection
- Fallback Authentication
- Trusted Network Connect (TNC) certified

High Availability

- Link Aggregation
- 802.3ad (LACP) support:
 - Number of LAGs supported: 128
 - Maximum number of ports per LAG: 8
- Tagged ports support in LAG
- Uplink failure detection

Quality of Service (QoS)

- Layer 2 QoS
- Layer 3 QoS
- Ingress policing: 2 rate 3 color
- Hardware queues per port: 8
- Scheduling methods (egress): Strict Priority (SP), shaped-deficit weighted round-robin (SDWRR)
- 802.1p: DSCP/IP precedence trust and marking
- L2-L4 classification criteria: Interface, MAC address, Ethertype, 802.1p, VLAN, IP address, DSCP/IP precedence, TCP/UDP port numbers
- Congestion avoidance capabilities: Tail drop and WRED

Multicast

- Internet Group Management Protocol (IGMP) snooping entries: 2,000
- IGMP: v1, v2, v3
- IGMP snooping
- PIM sparse mode (PIM SM), PIM source-specific multicast (PIM SSM), PIM dense mode (PIM DM)

Services and Manageability

- Juniper Mist Wired Assurance
- Junos OS CLI
- Junos Web interface (J-Web)
- Junos Space Management Applications
- Junos Space Network Director
- Out-of-band management: Serial, 10/100BASE-T Ethernet
- ASCII configuration
- Rescue configuration
- Configuration rollback
- Image rollback
- Simple Network Management Protocol (SNMP): v1, v2c, v3
- Remote monitoring (RMON) (RFC 2819) Groups 1, 2, 3, 9
- Network Time Protocol (NTP)
- DHCP server
- DHCP client and DHCP proxy
- DHCP relay and helper
- RADIUS authentication
- TACACS+ authentication
- SSHv2
- Secure copy
- HTTP/HTTPS
- DNS resolver
- System log logging
- Temperature sensor
- Configuration backup via FTP/secure copy
- Interface range

Supported MIBs

- RFC 1155 Structure of Management Information (SMI)
- RFC 1157 SNMPv1
- RFC 1212, RFC 1213, RFC 1215 MIB-II, Ethernet-like MIB, and TRAPs
- RFC 1493 Bridge MIB
- RFC 1643 Ethernet MIB
- RFC 1724 RIPv2 MIB
- RFC 1905 RFC 1907 SNMP v2c, SMIPv2, and Revised MIB-II
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2011 SNMPv2 Management Information Base for the IP using SMIPv2
- RFC 2012 SNMPv2 Management Information Base for the transmission Control Protocol using SMIPv2
- RFC 2013 SNMPv2 Management Information Base for the User Datagram Protocol using SMIPv2
- RFC 2096 IPv4 Forwarding Table MIB
- RFC 2287 System Application Packages MIB
- RFC 2460 IPv6 Specification

- RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
- RFC 2570-2575 SNMPv3, User-based Security, Encryption, and Authentication
- RFC 2576 Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework
- RFC 2578 SNMP Structure of Management Information MIB
- RFC 2579 SNMP Textual Conventions for SMIPv2
- RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
- RFC 2819 RMON MIB
- RFC 2863 The Interfaces Group MIB
- RFC 2922 LLDP MIB
- RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
- RFC 3413 SNMP Application MIB
- RFC 3414 User-based Security Model for SNMPv3
- RFC 3415 View-based Access Control Model (VACM) for SNMP
- RFC 3484 Default Address Selection for IPv6
- RFC 3621 PoE-MIB (PoE switches only)
- RFC 4188 STP and Extensions MIB
- RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
- RFC 4291 IPv6 Addressing Architecture
- RFC 4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and VLAN Extensions
- RFC 4443 ICMPv6 for the IPv6 Specification
- RFC 4861 Neighbor Discovery for IPv6
- RFC 4862 IPv6 Stateless Address Autoconfiguration
- Draft - blumenthal - aes - usm - 08
- Draft - reeder - snmpv3 - usm - 3desede - 0

Troubleshooting

- Debugging: CLI via console, telnet, or SSH
- Diagnostics: Show and debug command statistics
- Traffic mirroring (port)
- Traffic mirroring (VLAN)
- Filter-based mirroring
- Mirroring destination ports per system: 4
- LAG port monitoring
- Multiple destination ports monitored to 1 mirror (N:1)
- Maximum number of mirroring sessions: 4
- Mirroring to remote destination (over L2): 1 destination VLAN
- Encapsulated Remote Switched Port Analyzer (ERSPAN)
- IP tools: Extended ping and trace
- Juniper Networks commit and rollback

Safety Certifications

- UL-UL60950-1 (Second Edition)
- C-UL to CAN/CSA 22.2 No.60950-1 (Second Edition)
- TUV/GS to EN 60950-1 (Second Edition)
- CB-IEC60950-1 (Second Edition with all country deviations)
- EN 60825-1 (Second Edition)

Electromagnetic Compatibility Certifications

- FCC 47CFR Part 15 Class A
- EN 55022 Class A
- ICES-003 Class A
- VCCI Class A
- AS/NZS CISPR 22 Class A
- CISPR 22 Class A
- EN 55024
- EN 300386
- CE

Telecom Quality Management

- TL9000

Telco

- CLEI code

Noise Specifications

- 0 db (fanless)

Warranty

- Enhanced limited lifetime switch hardware warranty

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

Product Number	Description
Switches	
EX2300-C-12T	EX2300 Compact Fanless 12-port 10/100/1000BASE-T, 2 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-C-12T-VC	EX2300 Compact Fanless 12-port 10/100/1000BASE-T, 2 x 1/10GbE SFP/SFP+ with Virtual Chassis License (optics sold separately)
EX2300-C-12P	EX2300 Compact Fanless 12-port 10/100/1000BASE-T PoE+, 2 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-C-12P-VC	EX2300 Compact Fanless 12-port 10/100/1000BASE-T PoE+, 2 x 1/10GbE SFP/SFP+ with Virtual Chassis License (optics sold separately)
EX2300-C-12T-TAA	EX2300 TAA Compact Fanless 12-port 10/100/1000BASE-T, 2 x 1/10GbE SFP/SFP+ (optics sold separately)
EX2300-C-12P-TAA	EX2300 TAA Compact Fanless 12-port 10/100/1000BASE-T PoE+, 2 x 1/10GbE SFP/SFP+ (optics sold separately)
Accessories	
EX-CBL-CON-USB	Console cable with USB Type A and mini-B connectors
EX2300-C-CBL-GRD	Cable guard
EX2300-C-MGNT-MNT	Magnet mount
EX2300-C-RMK	Rack-mount kit
Licenses	
EX-12-EFL	Enhanced Feature License. Includes licenses for EX2300-VC (EX2300 Virtual Chassis), IPv4 routing (OSPF v2/v3, IGMP v1/v2/v3, VRRP, and BFD), IPv6 routing (RIPng, OSPF v3, VRRP v6, MSDP, and PIM), and Real-Time Performance Monitoring (RPM)
Optics	
EX-SFP-10GE-USR	SFP+ 10-Gigabit Ethernet Ultra Short Reach Optics, 850 nm for 10m on OM1, 20m on OM2, 100m on OM3 multimode fiber
EX-SFP-10GE-DAC-1M	SFP+ 10-Gigabit Ethernet Direct Attach Copper (twinax copper cable), 1m
EX-SFP-10GE-SR	SFP+ 10GBASE-LR; LC connector; 1310 nm; 10km reach on single-mode fiber
EX-SFP-10GE-LR	SFP+ 10GBASE-LR; LC connector; 1310 nm; 10km reach on single-mode fiber
EX-SFP-10GE-DAC-3M	SFP+ 10-Gigabit Ethernet Direct Attach Copper (twinax copper cable), 3m
EX-SFP-10GE-DAC-5M	SFP+ 10-Gigabit Ethernet Direct Attach Copper (twinax copper cable), 5m
EX-SFP-1GE-SX	SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber
EX-SFP-1GE-SX-ET	Extended Temperature SFP 1000BASE-SX; LC connector; 850 nm; 550m reach on multimode fiber
EX-SFP-1GE-LX	SFP 1000BASE-LX; LC connector; 1310 nm; 10 km reach on single-mode fiber
EX-SFP-1GE-LH	SFP 1000BASE-LH Gigabit Ethernet Optics, 1550 nm for 70 km transmission on single-mode fiber
EX-SFP-1GE-T	SFP 10/100/1000BASE-T Copper Transceiver Module for up to 100m transmission on Category 1
EX-SFP-1GE-LX40K	SFP 1000BASE-LX Gigabit Ethernet Optics, 1310 nm for 40 km transmission on single-mode fiber
EX-SFP-GE10KT13R14	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1310 nm/Rx 1490 nm for 10 km transmission on single strand of single-mode fiber
EX-SFP-GE10KT14R13	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1490 nm/Rx 1310 nm for 10 km transmission on single strand of single-mode fiber
EX-SFP-GE10KT13R15	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1310 nm/Rx 1550 nm for 10 km transmission on single strand of single-mode fiber
EX-SFP-GE10KT15R13	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1550 nm/Rx 1310 nm for 10 km transmission on single strand of single-mode fiber
EX-SFP-GE40KT13R15	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1310 nm/Rx 1550 nm for 40 km transmission on single strand of single-mode fiber

Product Number	Description
EX-SFP-GE40KT15R13	SFP 1000BASE-BX Gigabit Ethernet Optics, Tx 1550 nm/Rx 1310 nm for 40 km transmission on single strand of single-mode fiber
EX-SFP-GE80KCW1470	SFP Gigabit Ethernet CWDM, LC connector; 1470 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1490	SFP Gigabit Ethernet CWDM, LC connector; 1490 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1510	SFP Gigabit Ethernet CWDM, LC connector; 1510 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1530	SFP Gigabit Ethernet CWDM, LC connector; 1530 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1550	SFP Gigabit Ethernet CWDM, LC connector; 1550 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1570	SFP Gigabit Ethernet CWDM, LC connector; 1570 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1590	SFP Gigabit Ethernet CWDM, LC connector; 1590 nm, 80 km reach on single-mode fiber
EX-SFP-GE80KCW1610	SFP Gigabit Ethernet CWDM, LC connector; 1610 nm, 80 km reach on single-mode fiber

¹ Each switch comes with a RJ-45-to-DB-9 serial port adapter, power cord retainer, and four rubber feet. Each system also ships with a power cord for the country to which it is shipped

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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A Leader in Gartner's 2020 Magic Quadrant for Data Center and Cloud Networking.

For the 3rd consecutive time.



Gartner's 2020 Magic Quadrant for Data Center and Cloud Networking recognizes Juniper as a Leader for the third time. We believe this recognition comes from Juniper's proven strengths in helping customers to simplify operations with automated fabrics, AI-driven insights and built-in security.

Built on a common operating system and instrumented to be AI-driven, our solutions let you apply consistent, end-to-end policies wherever your applications and data reside. Let us help you to achieve your vision with our open-standards, intent-based solutions.

AI-Driven Enterprise



Great user experiences:

- Service levels and data bring insight
- Proactively detect anomalies

Simplified operations:

- Automate troubleshooting and root cause
- Microservices agility and elasticity
- Simplify helpdesk operations with Marvis Virtual Network Assistant

Automated workflows:

- Insights propel self-driving actions
- SDN orchestration of devices
- Programmable, complete APIs

Data Center Multicloud



Agile architecture:

- Open-standards fabrics
- One switching line
- One common operating system

Simplified operations:

- Automated fabric management
- Extensive automation hooks
- Intent-based solutions

AI-driven insights:

- Visibility across the underlay/overlay
- Subsecond granularity with asynchronous push models

Connected Security



Simplified policy management:

- Intent-based metadata policies
- Consistent policies across multiple clouds

Sophisticated threat detection:

- Dynamic analysis
- Machine learning
- Deception techniques

Protect from all angles:

- Automate host isolation
- Enforcement on third-party solutions
- Extend security to network infrastructure components, such as routers and switches

Learn more at www.juniper.net/dc-leader



Juniper Networks is a Leader

2020 Gartner Magic Quadrant
Wired and Wireless LAN Access Infrastructure



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Engineering
Simplicity

Juniper Networks is a Leader

2020 Magic Quadrant for Wired and Wireless LAN Access Infrastructure

Figure 1. Magic Quadrant for Wired and Wireless LAN Access Infrastructure



Juniper Networks is positioned **highest** for **execution** in the Leaders' Quadrant.

"In our opinion, this report validates the unique advantages of the Juniper AI-driven enterprise, including rich AIOps functionality and proactive self-driving automation for optimized user experiences."

- Jeff Aaron, VP of Enterprise Marketing at Juniper

[Access a Complimentary Copy](#)

Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure by Bill Menezes, Christian Canales, Tim Zimmerman, Mike Toussaint, 4 November 2020. This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from Juniper Networks. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Gartner Peer Insights –Customer Reviews Say it All

"The EX series is very versatile. We use them in almost every conceivable manner. They are solid and reliable switches."

– [NETWORK ENGINEER](#)

"Never looking back. Deployment of Mist APs has been a real treat."

– [LEAD NETWORK ENGINEER](#)

Mist's APs were super simple to install and integrate into our existing infrastructure. Marvis AI is extremely powerful and provides insights that we didn't know were issues. Things have just worked out of the box.

–[NETWORK ENGINEER](#)



[WIRED AND WIRELESS LAN ACCESS INFRASTRUCTURE](#)

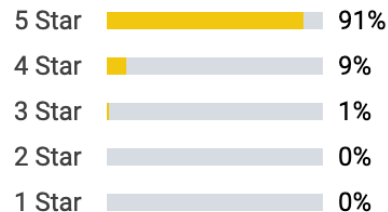
[APRIL 2019](#)



Juniper received the highest ratings of any other vendor in this



4.9 ★★★★★ 161 Ratings



Juniper Networks

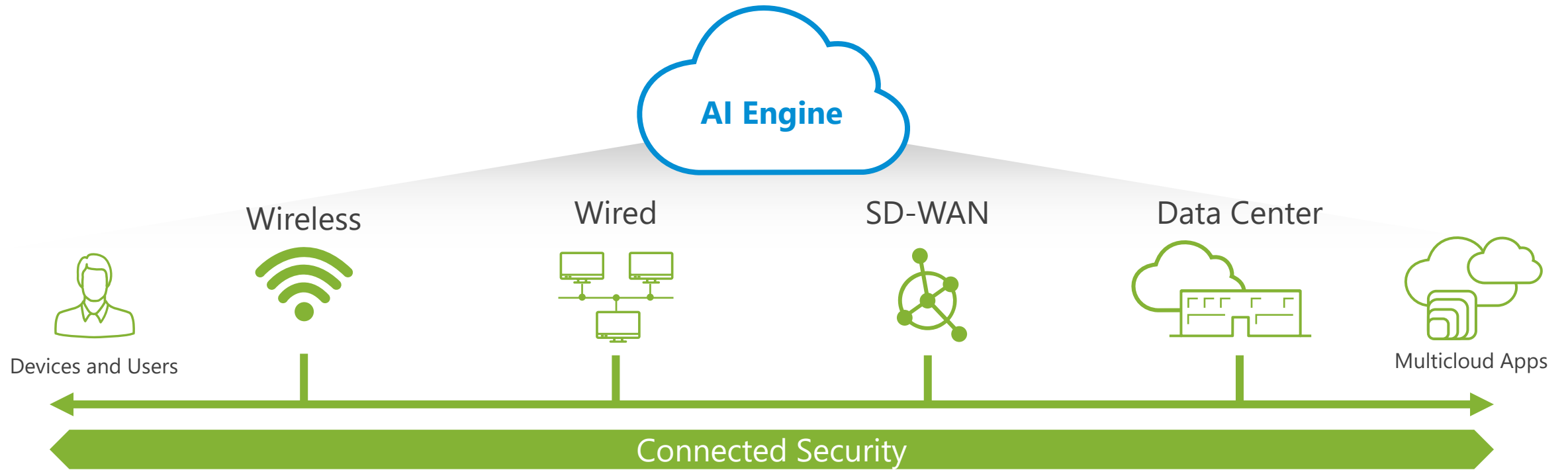
Products: Mist Systems Wireless Access Points, EX Series Switches, Mist Wi-Fi Assurance Service, Mist BLE Engagement Location Based Services

"The perfect WiFi you couldn't have even dreamed of two years ago."

From the first steps of PoC to the half a year in production we haven't just been satisfied but many times it has provided more than we could have even wished for. Back in the day WiFi was considered good if you didn't ...

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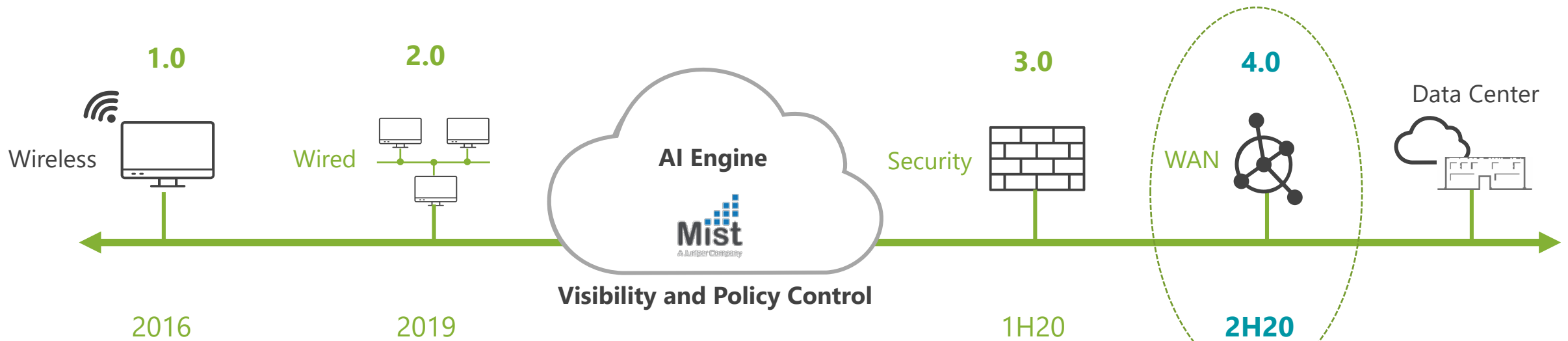
Our AI-Driven Enterprise Mission



The Juniper AI-Driven Enterprise – Version 4.0

Key tenets of the AI-driven Enterprise

- Focus is on **user experiences**
- AI-driven automation, insight and actions
 - Across Wired/ Wireless/Security/WAN
- Modern cloud for agility, resiliency and scale
- AIOps

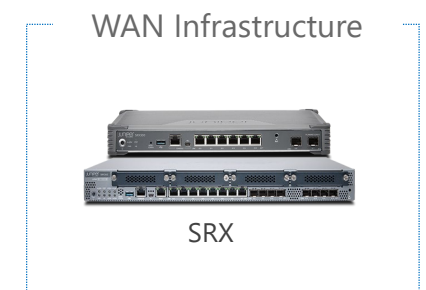
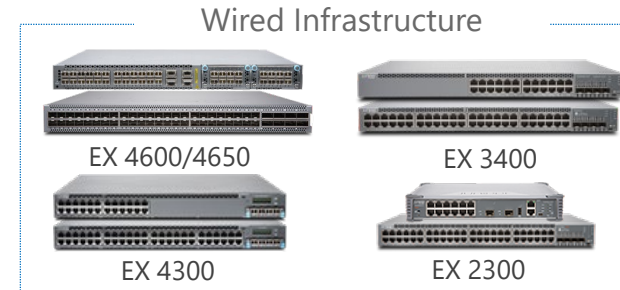
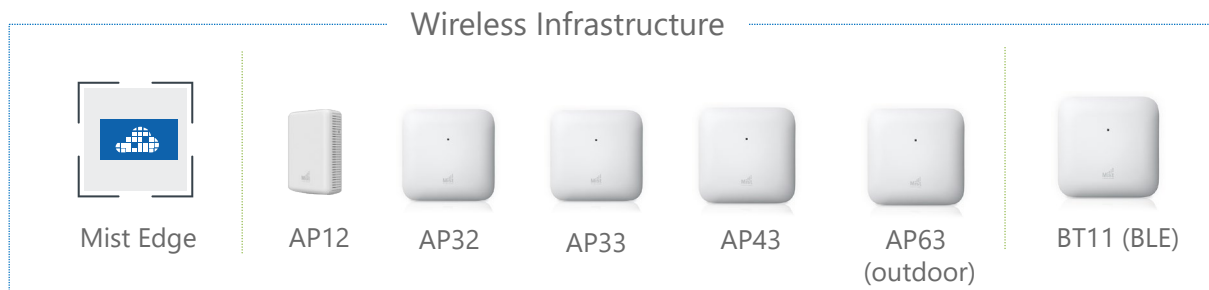
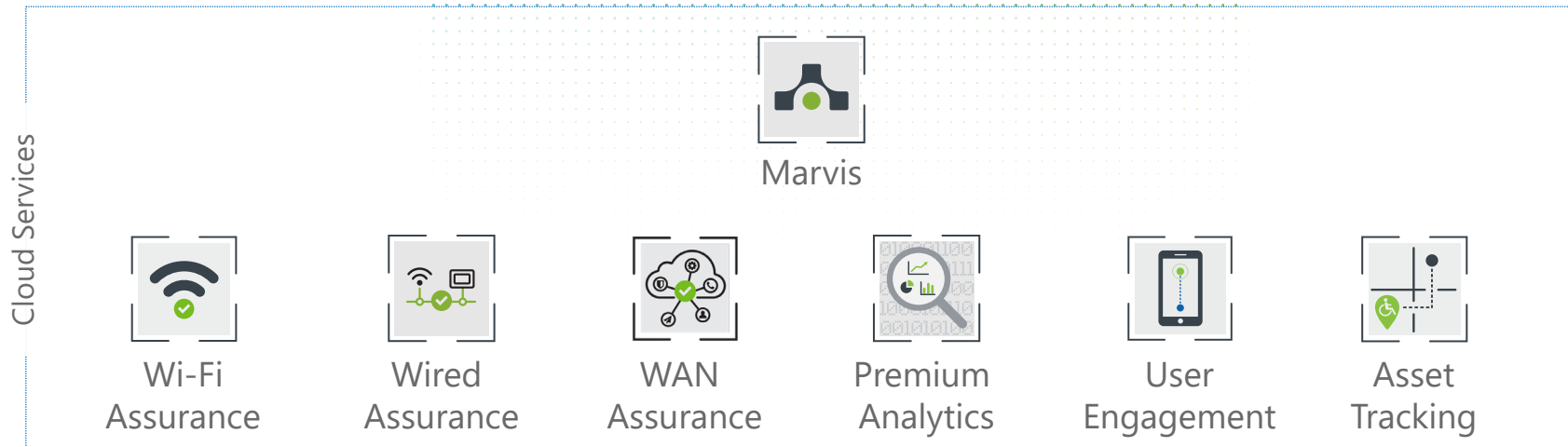


Mist Unveils Cloud-Based Wireless Networking Platform to Deliver Amazing Mobile Experiences
 Cupertino, CA, June 28, 2016
 Mist, a pioneer in cutting-edge wireless technologies for delivering amazing mobile experiences for enterprises, today unveiled the first two services launched on the Mist cloud platform: Mist business-critical Wi-Fi and Mist's patented Virtual Bluetooth Low Energy™ (VBLE). Available today, Mist products are already in use by many medium to large organizations around the world, including Fortune 500 organizations.
 Mist is the first extensible, programmable microservices cloud architecture for the indoor wireless technologies of Wi-Fi and Bluetooth Low Energy (BLE). A Mist wireless network understands and adapts to each user, how they are moving, the devices they are carrying and the content they are consuming at a scale never before possible. Mist's cloud platform enables the first new approach to wireless in nearly a decade, applying data science and machine learning to transform and assure mobile user experience.
 "The explosive growth of mobile users, apps, and connected devices presents big challenges for legacy wireless networks. The core technology in wireless networks today simply wasn't built to handle the rapid rate of change in the mobile and cloud era or the sheer scale of the Internet of Things," said Mist Co-founder and CTO Bob Frisvold. "Our products deliver an experience beyond just connectivity and allow us to drive the transition from the Connectivity Era to the Experience Era."

Juniper Networks Brings AI-driven Simplicity and Reliability to Enterprise Networks with New Mist Wired Assurance Service and Marvis™ Actions
 November 11, 2019 at 7:43 AM EST
 Mist's award-winning AI engine and Cloud delivers on the vision of self-driving networks for wired and wireless networks.
 SUNNYVALE, Calif., Nov. 11, 2019 (GLOBE NEWSWIRE) — Mist Systems, a Juniper Networks (NYSE: JNPN) company, today announced the first AI-Driven Self-Driving Network™ for the enterprise, which leverages Mist AI engine and microservices cloud to streamline IT operations, simplify troubleshooting across wired/wireless domains and deliver optimized experiences to network users. With the addition of these unique

Juniper Networks Expands Connected Security Portfolio with Encrypted Traffic Analysis for Juniper Advanced Threat Prevention and Sencintel for Mist Wireless
 February 24, 2020 at 7:43 AM EST
 Juniper delivers on the benefits of a Threat-Aware Network by securing more traffic, in more areas of the network.
 SUNNYVALE, Calif., Feb. 24, 2020 (GLOBE NEWSWIRE) — Juniper Networks (NYSE: JNPN), a leader in secure, AI-driven networks, today announced encrypted traffic analysis for Juniper Advanced Threat Prevention (ATP) Cloud and Sencintel Series firewalls, as well as the integration of Sencintel to the Mist platform for wireless access. With these additions to the Juniper Connected Security solution portfolio, Juniper delivers a

AI-Driven Enterprise Solution



The AI-Driven Enterprise is Here... and Driving Real Value!



DARTMOUTH

Network resolved
75% of all
helpdesk
tickets on its own



97% improvement
in point-of-sale errors
across 1,500 stores

servicenow

98% reduction in
end-user trouble
tickets, down from
hundreds a month



Cut all Wi-Fi issues
across school
district by **50%**

9 of the Forbes 10
40% of the Forbes 1000

6 of the top 10 global retailers
17 of the 20 largest global banks
14 of the top 20 world's most prominent
universities

Additional Resources

Weekly Live Demo

North America - 10:00 AM PT / 1:00 PM ET

Europe - 9:00 BST / 10:00 CET

Asia Pacific - 10:00 AM AET / 12:00 PM NZT

Sign Up Below



Wired & Wireless Wednesday

<https://www.mist.com/demos>

AI-DRIVEN ENTERPRISE DEMO
LIVE ON THURSDAYS

4 of the Fortune 10 switched
to Juniper LAN/WLAN/WAN
products driven by Mist AI.

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Transformation Thursdays: AI-Driven Enterprise Demo

<https://www.juniper.net/us/en/forms/a-i-driven-demo/>



Thank you

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Engineering
Simplicity