




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 2

 List View

General Information

Procurement Folder: 357263

SO Doc Code: CRFQ

Procurement Type: Central Purchase Order

SO Dept: 0613

Vendor ID: 000000210569 

SO Doc ID: VNF1800000004

Legal Name: ALPHA TECHNOLOGIES INC

Published Date: 8/17/17

Alias/DBA:

Close Date: 9/6/17



Total Bid: \$57,451.17

Close Time: 13:30

Response Date: 09/01/2017 

Status: Closed

Response Time: 11:03

Solicitation Description: HARDWARE FOR IPT AND SAN INTEGRATION  

Total of Header Attachments: 2

Total of All Attachments: 2



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

State of West Virginia
Solicitation Response

Proc Folder : 357263

Solicitation Description : HARDWARE FOR IPT AND SAN INTEGRATION

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2017-09-06 13:30:00	SR 0613 ESR09011700000000817	1

VENDOR

000000210569

ALPHA TECHNOLOGIES INC

Solicitation Number: CRFQ 0613 VNF1800000004

Total Bid : \$57,451.17 Response Date: 2017-09-01 Response Time: 11:03:57

Comments:

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature on File

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	CISCO ISR 4431 US BUNDLE, PVDM 4-64, UC LICENSE , CUBE 25	1.00000	EA	\$57,451.170000	\$57,451.17

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Comments: Lump Sum Price

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	8G EUSB FLASH MEMOR FOR CISCO ISR 4430 OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	4G DRAM (2G+2G) FOR CISCO ISR 4400 OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	2G DRAM (1DIMM) FOR CISCO ISR 4400 DATA PLAN OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	SNTC-8X5XNBD CISCO ISR 4431 UC BU OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	CONSOLE CABLE 6 FT WITH USB TYPE A AND MINI-B OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	BLANK FACEPLATE FOR NIM SLOT ON CISO ISR 4400 OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	IP BASE LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	PVDM4 64 CHANNEL TO 128 CHANNEL FACTORY UPGRADE OR	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
10	2 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATE	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
11	AC POWER SUPPLY FOR CISCO ISR 4430 OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
12	COVER FOR EMPTY 2ND PWR SUPPLY SLOT CISCO ISR4430 OR	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
13	AC POWER CORD NORTH AMERICA C13 NEMA 5-15P,2.1M	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
14	YELLOW CABLE ETHERNET, STRAIGHT THROUGH RJ-45 6FT	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
15	UNIFIED BORDER ELEMENT ENTERPRISE LICENSE 25 SESS	25.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
16	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4400 OR	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
17	CISCO ISR4400 SERIES IOS XE UNIVERSAL OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAIL

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
18	COMMUNICATION MANAGER EXPRESS OR SRST- 25 SEATS OR	25.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
19	CISCO SURVIVABLE REMOTE SITE TELEPHONY LICENSE OR EQUAL	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
20	2 PORT NETWORK INTERFACE MODULE - FXO (UNIVERSAL) OR	1.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description : ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
21	HP ARUBA 2920-48-G-POE+ 740W SWITCH OR EQUAL	12.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :	ALL ITEMS ARE "OR EQUAL" PLEASE SEE ATTACHED SPECS FOR MORE DETAILS
------------------------	--

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
22	PROLINE ARUBA SFP-SX-AU COMPATIBLE SFP TAA OR EQUAL	12.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :	ALL ITEMS ARE "OR EQUAL" PLEASE SEE ATTACHED SPECS FOR MORE DETAILS
------------------------	--

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
23	3.3 FT. STACKING CABLE FOR ARUBA/HP SWITCHES OR EQUAL	12.00000	EA	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :	ALL ITEMS ARE "OR EQUAL" PLEASE SEE ATTACHED SPECS FOR MORE DETAILS
------------------------	--



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

State of West Virginia
Request for Quotation
21 – Info Technology

Proc Folder: 357263

Doc Description: HARDWARE FOR IPT AND SAN INTEGRATION

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2017-08-17	2017-09-06 13:30:00	CRFQ 0613 VNF1800000004	1

BID RECEIVING LOCATION

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


VENDOR

Vendor Name, Address and Telephone Number:

Alpha Technologies Inc.
4003 Outlook Drive
Hurricane, WV 25526
304-721-8987

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X  FEIN # 55-0774279 DATE 9-1-2017

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

ADDITIONAL INFORMATION:

THE STATE OF WEST VIRGINIA PURCHASING DIVISION FOR THE AGENCY, WEST VIRGINIA VETERANS NURSING FACILITY, IS SOLICITING BIDS TO ESTABLISH A CONTRACT FOR THE ONE-TIME PURCHASE OF HARDWARE FOR IPT AND SAN INTEGRATION PER THE ATTACHED.

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	CISCO ISR 4431 US BUNDLE, PVDM 4-64, UC LICENSE , CUBE 25	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	8G EUSB FLASH MEMOR FOR CISCO ISR 4430 OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	4G DRAM (2G+2G) FOR CISCO ISR 4400 OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :
ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	2G DRAM (1DIMM) FOR CISCO ISR 4400 DATA PLAN OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :
ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	SN7C-8X5XNBD CISCO ISR 4431 UC BU OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	CONSOLE CABLE 6 FT WITH USB TYPE A AND MINI-B OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
7	BLANK FACEPLATE FOR NIM SLOT ON CISO ISR 4400 OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
8	IP BASE LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
9	PVDM4 64 CHANNEL TO 128 CHANNEL FACTORY UPGRADE OR	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
10	2 PORT MULTIFLEX TRUNK VOICE/CLEAR-CHANNEL DATE	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
11	AC POWER SUPPLY FOR CISCO ISR 4430 OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
12	COVER FOR EMPTY 2ND PWR SUPPLY SLOT CISCO ISR4430 OR	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
13	AC POWER CORD NORTH AMERICA C13 NEMA 5-15P,2.1M	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
14	YELLOW CABLE ETHERNET, STRAIGHT THROUGH RJ-45 6FT	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
15	UNIFIED BORDER ELEMENT ENTERPRISE LICENSE 25 SESS	25.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
16	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4400 OR	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
17	CISCO ISR4400 SERIES IOS XE UNIVERSAL OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAIL

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
18	COMMUNICATION MANAGER EXPRESS OR SRST- 25 SEATS OR	25.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
19	CISCO SURVIVABLE REMOTE SITE TELEPHONY LICENSE OR EQUAL	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
20	2 PORT NETWORK INTERFACE MODULE - FXO (UNIVERSAL) OR	1.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
21	HP ARUBA 2920-48-G-POE+ 740W SWITCH OR EQUAL	12.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
22	PROLINE ARUBA SFP-SX-AU COMPATIBLE SFP TAA OR EQUAL	12.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

INVOICE TO		SHIP TO	
DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY		DIVISION OF VETERANS AFFAIRS 1 FREEDOMS WAY	
CLARKSBURG	WV26301	CLARKSBURG	WV 26301
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
23	3.3 FT. STACKING CABLE FOR ARUBA/HP SWITCHES OR EQUAL	12.00000	EA		

Comm Code	Manufacturer	Specification	Model #
43211601			

Extended Description :

ALL ITEMS ARE "OR EQUAL"
PLEASE SEE ATTACHED SPECS FOR MORE DETAILS

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	VENDOR QUESTION DEADLINE	2017-08-29

VNF1800000004	Document Phase Final	Document Description HARDWARE FOR IPT AND SAN INTEGRATION	Page 12 of 12
---------------	--------------------------------	--	----------------------------

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of WV Veterans Nursing Facility to establish a contract for the one-time purchase of Cisco Unified Computing system hardware or equal to integrate with the IPT and SAN storage systems as more fully described.
2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
 - 2.1 **“Contract Item”** means Cisco Unified Computing System Hardware to integrate with the IPT and SAN storage systems as more fully described by these specifications as more fully described by these specifications.
 - 2.2 **“Pricing Page”** means the pages, contained in wvOASIS or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items.
 - 2.3 **“Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
 - 2.4 **“NIM”** means Network Interface Module. This is a card that has interchanging face plate.
 - 2.5 **“PVDM”** means is used to configure and signal to data and voice.
 - 2.6 **“RJ-45”** means Ethernet connector
3. **GENERAL REQUIREMENTS:**
 - 3.1 **Mandatory Contract Item Requirements:** Contract Item must meet or exceed the mandatory requirements listed below.
 - 3.1.1 **Cisco ISR 4431 UC Bundle, PVD 4-64, UC License, CUBE-25 or Equal** Networking hardware must be compatible and interoperable with the following systems and applications:
 - 3.1.1.1 Cisco Unified Computing System (UCS), comprised of: Cisco ISR 4431 UC Bundle, PVD 4-64, UC License, CUBE-25 or Equal

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

3.1.1.2 All Equipment must have a minimum one (1) year warranty for return to base.

3.1.1.3 Cisco ISR 4431 UC Bundle, PVD 4-64, UC License, CUBE-25 or equal must have the following memory:

8 G eUSB Flash Memory for Cisco ISR4430

4G Dram (2G+2G) for Cisco ISR 4400

2G Dram (1 DIMM) for Cisco ISR 4400 Data Plan

3.1.2 SNTC-8X5XNBD Cisco ISR 4431 UC Bu or Equal

3.1.2.1 Cisco ISR 4331 Rack Mountable Router or Equal must have the Cisco IOS IP Base software installed. Equality is determined by its capability to have universal processing. Universal Processing is a must.

3.1.2.2 Vendor shall supply the console cable. This shall be 6ft. with USB Type A and mini-B

3.1.2.3 Vendor shall supply a Blank faceplate for NIM slot on Cisco ISR4400 Series or Equal.

Cisco ISR 4331 Rack Mountable Router or Equal must have a minimum ninety (90) day warranty on parts and service

3.1.3 IP Base License for Cisco ISR 4400 Series or Equal

3.1.3.1 This Software licensing must be compatible with Cisco Content Router 4400 Series. Equality is determined by providing a perpetual license for online and appliance based services for the lifetime of the hardware for a wide area network, data center, and access domains.

3.1.3.1 This software licensing shall be for One (1) year.

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

3.1.4 PVDM4 64-Channel to 128-Channel factory upgrade

3.1.4.1 The WVVNF shall be issued a PVDM in a Voice bundle on T1/E1 Card. The PVDM is to configure and signal to Data/Voice.

3.1.4.2 Factory upgrade shall have 2 port Multiflex Trunk Voice/Clear-channel Data T1/E1 Module

3.1.4.3 All equipment in this bundle must be new. Remanufactured or warranted-as-new equipment is not permitted.

3.1.5 AC Power Supply for Cisco ISR 4430

3.1.5.1 Vendor must supply WVVNF with PWR-4430-AC or Equal for Power Supply. Hot Plug power supply with an input voltage of AC 120-230V, and a minimum of 250 Watt.

3.1.5.2 Vendor must supply WVVNF with CAB-AC or Equal for Power Cord, 125, VAC North America. This is to supply electricity to the device. There shall be supplied, a cover for any empty Power Supply slots.

3.1.6 Yellow Cable for Ethernet

3.1.6.1 Yellow Cable for Ethernet must be RJ-45 and be six feet long

3.1.7 Unified Border Elements Enterprise License

3.1.7.1 Vendor must provide 25 Sessions with the option for WV VNF to renew. These sessions shall be for Collaborations Support Services.

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

3.1.8 Unified Communication License for Cisco ISR 4400 Series

3.1.8.1 Vendor shall provide Communication Support for 90 days

3.1.8.2 Vendor shall include in their bid the cost of 90 days Communication Support.

3.1.8.3 Vendor shall provide 24/7/365 Telephone Service Support with a Technician that can provide troubleshooting over the phone.

3.1.8.4 Vendor shall provide Technician to be available to come to the WV VNF when called for if troubleshooting over the phone does not work. This shall be during normal business hours of 8am to 4 pm Monday – Friday. Excluding Holidays.

3.1.8.5 Vendor shall provide a Cisco Survivable Remote Site Telephony License or equal. This license shall be for telephone communication 24 hours a day, 7 days a week including weekends and holidays. This shall be for Voice over I.P.

3.1.9 HP ARUBA 2920-48G-POE+ 740 W Switch or Equal

3.1.9.1 Vendor must supply Proline Aruba SFP-SX-AU compatible SFP TAA compliant Transceiver – SFP or Equal
This is a stackable switch router for data over the network.

3.1.9.2 Vendor shall supply 3.3 feet stacking cable for Aruba/HP Switches or equal

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

3.1.10 Alternative Submission

3.1.10.1 Vendor submitting an alternate brand must include documentation confirming interoperability with existing environment with upon request. Vendor must include alternate brand information on hardware, software, and training with alternative part numbers and brand on Pricing Sheets.

3.1.10.2 Vendor will assume any costs related to new software, hardware, and training of the new system provided as a part of this agreement.

4. CONTRACT AWARD:

4.1 Contract Award: The Contract is intended to provide Agencies with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages (Exhibit A). The Order shall be delivered to WV VNF One Freedoms Way Clarksburg, WV 26301 within sixty (60) calendar days from the issuance of the Purchase Order.

4.2 Pricing Page: Vendor should complete the Pricing Page (Exhibit A) by entering the price for each contract item on wvOASIS and attached pricing page. Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

Vendor should type or electronically enter the information into the Exhibit A Pricing Page to prevent errors in the evaluation.

5. PAYMENT:

5.1 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

6. DELIVERY AND RETURN:

6.1 Shipment and Delivery: Vendor shall ship the Contract Items immediately after being awarded this Contract and receiving a purchase order or notice to proceed. Vendor shall deliver the Contract Items within sixty (60) calendars days after receiving a purchase order or notice to proceed. Contract Items must be delivered to Agency at One Freedoms Way Clarksburg, WV 26301

6.2 Late Delivery: The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the Contract, and/or obtaining the Contract Items from a third party.

Any Agency seeking to obtain the Contract Items from a third party under this provision must first obtain approval of the Purchasing Division.

6.3 Delivery Payment/Risk of Loss: Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location.

6.4 Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

6.5 Return Due to Agency Error: Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

7 VENDOR DEFAULT:

REQUEST FOR QUOTATION
CRFQ VNF1800000004
Hardware for IPT and SAN Integration

7.1 The following shall be considered a vendor default under this Contract.

7.1.1 Failure to provide Contract Items in accordance with the requirements contained herein.

7.1.2 Failure to comply with other specifications and requirements contained herein.

7.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

7.1.4 Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Agency upon default.

7.2.1 Immediate cancellation of the Contract.

7.2.2 Immediate cancellation of one or more release orders issued under this Contract.

7.2.3 Any other remedies available in law or equity.

EXHIBIT A

CRFQ VNF1800000004

HARDWARE FOR IPT AND SAN INTERGRATION

ITEM NUMBER	ITEM NEEDED	BRAND NAME/PART NUMBER	UNIT PRICE	AMOUNT NEEDED	TOTAL PRICE
3.1.1	CISCO ISR 4431 UC BUNDLE, PVD4-64, UC LICENSE, CUBE 25 OR EQUAL			1 \$	-
3.1.1.3	8G EUSB FLASH MEMORY FOR CISO ISR 4430 OR EQUAL			1 \$	-
3.1.1.3	4G DRAM (2G+2G) FOR CISCO ISR 4400 OR EQUAL			1 \$	-
3.1.1.3	2G DRAM (1DIMM) FOR CISCO ISR 4400 DATA PLAN OR EQUAL			1 \$	-
3.1.2	SNTC-8X5XNBD CISCO ISR 4431 UC Bn OR EQUAL			1 \$	-
3.1.2.2	CONSOLE CABLE 6 FT. WITH USB TYPE A AND MINI B OR EQUAL			1 \$	-
3.1.2.3	BLANK FACEPLATE FOR NIM SLOT ON CISCO ISR 4400 OR EQUAL			1 \$	-
3.1.3	IP BASE LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL			1 \$	-
3.1.4	PVD4 64 CHANNEL TO 128 CHANNEL FACTORY UPGRADE OR EQUAL			1 \$	-
3.1.4.1	2 PORT MULTIFLEX TRUNK VOICE/CLEAR CHANNEL DATE T1/E1 MODULE OR EQUAL			1 \$	-
3.1.5	AC POWER SUPPLY FOR CISCO ISR 4430 OR EQUAL			1 \$	-
3.1.5.2	COVER FOR EMPTY 2ND POWR SUPPLY SLOT ON CISCO ISR 4430 OR EQUAL			1 \$	-
3.1.5.2	AC POWER CORD NORTH AMERICA C13, NEMA 5-15P, 2.1M OR EQUAL			1 \$	-
3.1.6	YELLOW CABLE FOR ETHERNET, STRAIGHT-THROUGH, RJ-45, 6 FT OR EQUAL			1 \$	-
3.1.7	UNIFIED BORDER ELEMENT ENTERPRISE LICENSE 25 SESSIONS OR EQUAL			25 \$	-
3.1.8	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL			1 \$	-
3.1.8	CISCO ISR 4400 SERIES IOS XE UNIVERSAL OR EQUAL			1 \$	-
3.1.8	COMMUNICATION MANAGER EXPRESS OR SRST 25 SEAT LICENSE OR EQUAL			25 \$	-
3.1.8.5	CISCO SURVIVABLE REMOTE SITE TELEPHONY LICENSE OR EQUAL			1 \$	-
3.1.9	2 PORT NETWORK INTERFACE MODULE - FXO (UNIVERSAL) OR EQUAL			1 \$	-
3.1.9	HP ARUBA 2920-48G-POE+ 740W SWITCH OR EQUAL			12 \$	-
3.1.9.1	PROLINE ARUBA SFP-SX-AU COMPATIBLE SFP TAA COMPLIANT TRANSCEIVER - SFP OR EQUAL			12 \$	-
3.1.9.2	3.3FT STACKING CABLE FOR ARUBA/HP SWITCHES OR EQUAL			12 \$	-
				TOTAL BID PRICE	\$ -

COMPANY NAME:
CONTACT PERSON:
ADDRESS:
PHONE:
EMAIL:
FAX:
SIGNATURE:

West Virginia Ethics Commission



Disclosure of Interested Parties to Contracts

Pursuant to W. Va. Code § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$100,000 or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation.

"Interested party" or "Interested parties" means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of W. Va. Code § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

☒ A pre-bid meeting will not be held prior to bid opening

☐ A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. VENDOR QUESTION DEADLINE: Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: August 29, 2017 at 10:00 AM EST

Submit Questions to: Crystal Rink
2019 Washington Street, East
Charleston, WV 25305
Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)
Email: Crystal.G.Rink@wv.gov

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. BID SUBMISSION: All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:
BUYER: Crystal Rink
SOLICITATION NO.: CRFQ VNF1800000004
BID OPENING DATE: September 6, 2017
BID OPENING TIME: 1:30 PM EST
FAX NUMBER: 3047-558-3970

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression of Interest or Request for Proposal is not permitted in wvOASIS.

For Request For Proposal ("RFP") Responses Only: In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus n/a convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

- ☐ Technical
☐ Cost

7. BID OPENING: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: September 6, 2017 at 1:30 PM EST

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. ALTERNATES: Any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

13. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

14. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. PREFERENCE: Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Vendor Preference Certificate form has been attached hereto to allow Vendor to apply for the preference. Vendor's failure to submit the Vendor Preference Certificate form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

17. WAIVER OF MINOR IRREGULARITIES: The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

18. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

19. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance.”

20. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

21. 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.

22. INTERESTED PARTY DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$100,000, the vendor must submit to the Purchasing Division a disclosure of interested parties to the contract, prior to contract award. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. "Interested parties" means: (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors; (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract; and (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency: Provided, That subdivision (2) shall be inapplicable if a business entity is a publicly traded company: Provided, however, That subdivision (3) shall not include persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.

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: 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 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. 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 _____ months in total. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

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, the vendor agrees that maintenance, monitoring, or warranty services will be provided for one year thereafter with an additional _____ successive one year renewal periods or multiple renewal periods of less than one year provided that the multiple renewal periods do not exceed _____ months in total. Automatic renewal of this Contract is prohibited.

☒ **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 of 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 _____. The performance bond must be received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **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 entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐

☐

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award 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 prior to Contract award. Subsequent to contract award, and prior to the insurance expiration date, 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 mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverages identified below must be maintained throughout the life of this contract. 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:

☐ **Automobile Liability Insurance** in at least an amount of: _____

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of:

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of:

☐ **Cyber Liability Insurance** in an amount of: _____

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

☐

☐

☐

☐

☐

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. LITIGATION BOND: The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or \$5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

11. LIQUIDATED DAMAGES: Vendor shall pay liquidated damages in the amount of

for _____.

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.

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.

14. PAYMENT: 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. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

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 § 148-1-6.1.e.

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.

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. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

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. BANKRUPTCY: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

31. 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>.

32. 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.

33. 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. 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.

34. 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.

35. 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.

36. 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.

37. 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.

38. PURCHASING AFFIDAVIT: In accordance with West Virginia Code § 5-22-1(i), the contracting public entity shall not award a contract for a construction project to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees. Accordingly, prior to contract award, 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.

39. 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"). 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. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

40. 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.

41. 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.

42. 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.

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

43. 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.

44. 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.

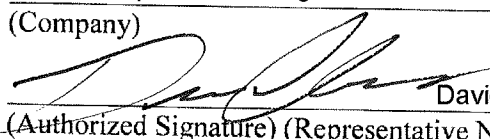
All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for 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.

45. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$100,000, 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. "Interested parties" means: (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors; (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract; and (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency: Provided, That subdivision (2) shall be inapplicable if a business entity is a publicly traded company: Provided, however, That subdivision (3) shall not include persons or business entities performing legal services related to the negotiation or drafting of the applicable contract. The Agency shall submit a copy of the disclosure to the Ethics Commission within 15 days after receiving the supplemental disclosure of interested parties.

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.

David Chambers, Sales Executive
(Name, Title)
David Chambers, Sales Executive
(Printed Name and Title)
4003 Outlook Drive, Hurricane, WV 25526
(Address)
Phone # 304-721-8987 Fax # 304-201-2610
(Phone Number) / (Fax Number)
dchambers@alpha-tech.us
(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.

Alpha Technologies Inc.
(Company)

David Chambers, Sales Executive
(Authorized Signature) (Representative Name, Title)

David Chambers, Sales Executive
(Printed Name and Title of Authorized Representative)

9-1-2017
(Date)

Phone # 304-721-8987 Fax # 304-201-2610
(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ VNF1800000004

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:

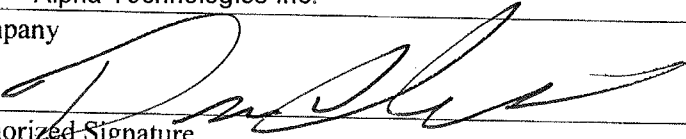
(Check the box next to each addendum received)

- ☐ Addendum No. 1
- ☐ Addendum No. 2
- ☐ Addendum No. 3
- ☐ Addendum No. 4
- ☐ Addendum No. 5

- ☐ Addendum No. 6
- ☐ Addendum No. 7
- ☐ Addendum No. 8
- ☐ Addendum No. 9
- ☐ 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 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.

Alpha Technologies Inc.

Company


Authorized Signature

9-1-2017

Date

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

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

- ☒ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,
☐ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or** 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,
☐ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or**,

2. Application is made for 2.5% vendor preference for the reason checked:

- ☒ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,

3. Application is made for 2.5% vendor preference for the reason checked:

- ☐ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,

4. Application is made for 5% vendor preference for the reason checked:

- ☒ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or**,

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

- ☐ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or**,

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

- ☐ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with West Virginia Code §5A-3-59 and West Virginia Code of State Rules.

- ☐ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Alpha Technologies Inc.

Signed: 

Date: 9-1-2017

Title: Sales Executive

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Contracting business entity: Alpha Technologies Inc.

Address: 4003 Outlook Drive, Hurricane, WV 25526

Contracting business entity's authorized agent: David Chambers, Sales Executive

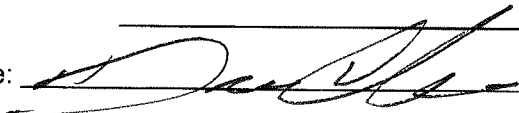
Address: 4003 Outlook Drive, Hurricane, WV 25526

Number or title of contract: VNF1800000004

Type or description of contract: Hardware for IPT and San Integretion

Governmental agency awarding contract: Division of Veteran Affairs

Names of each Interested Party to the contract known or reasonably anticipated by the contracting business entity (attach additional pages if necessary):

Signature:  Date Signed: 9-1-2017

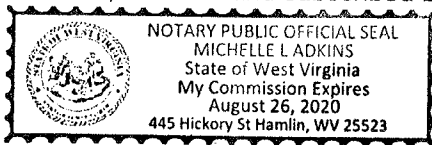
☐ Check here if this is a Supplemental Disclosure.


Verification

State of West Virginia, County of Putnam:

I, David Chambers, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledges that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 1st day of September 2017.




Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Alpha Technologies Inc.

Authorized Signature: [Signature] Date: 9-1-2017

State of West Virginia

County of Putnam, to-wit:

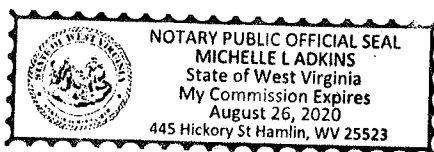
Taken, subscribed, and sworn to before me this 1st day of September, 2017.

My Commission expires August 26th, 2020.

AFFIX SEAL HERE

NOTARY PUBLIC

[Signature]
Purchasing Affidavit (Revised 07/01/2012)

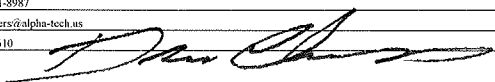


HARDWARE FOR IPT AND SAN INTERGRATION

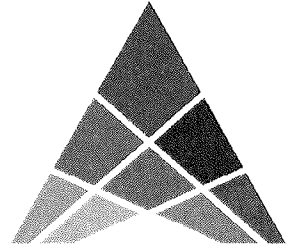
ITEM NUMBER	ITEM NEEDED	BRAND NAME/PART NUMBER	UNIT PRICE	AMOUNT NEEDED	TOTAL PRICE
3.1.1	CISCO ISR 4431 UC BUNDLE, PVD4-64, UC LICENSE, CUBE 25 OR EQUAL.	This is an All Cisco Bid. We are bidding the Cisco Router and Cisco Switches. Please see the attached Alpha Technologies Quote.		1 \$	57,451.17
3.1.1.3	8G EUSB FLASH MEMORY FOR CISO ISR 4430 OR EQUAL.			1 \$	-
3.1.1.3	4G DRAM (2G+2G) FOR CISCO ISR 4400 OR EQUAL.			1 \$	-
3.1.1.3	2G DRAM (1DIMM) FOR CISCO ISR 4400 DATA PLAN OR EQUAL.			1 \$	-
3.1.2	SNTC-8XSXNBD CISCO ISR 4431 UC Bn OR EQUAL.			1 \$	-
3.1.2.2	CONSOLE CABLE 6 FT. WITH USB TYPE A AND MINI B OR EQUAL.			1 \$	-
3.1.2.3	BLANK FACEPLATE FOR NIM SLOT ON CISCO ISR 4400 OR EQUAL.			1 \$	-
3.1.3	IP BASE LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL.			1 \$	-
3.1.4	PVD4 64 CHANNEL TO 128 CHANNEL FACTORY UPGRADE OR EQUAL.			1 \$	-
3.1.4.2	2 PORT MULTIFLEX TRUNK VOICE/CLEAR CHANNEL DATE T1/E1 MODULE OR EQUAL.			1 \$	-
3.1.5	AC POWER SUPPLY FOR CISCO ISR 4430 OR EQUAL.			1 \$	-
3.1.5.2	COVER FOR EMPTY 2ND POWR SUPPLY SLOT ON CISCO ISR 4430 OR EQUAL.			1 \$	-
3.1.5.2	AC POWER CORD NORTH AMERICA C13, NEMA 5-15P, 2.1M OR EQUAL.			1 \$	-
3.1.6	YELLOW CABLE FOR ETHERNET, STRAIGHT-THROUGH, RJ-45, 6 FT OR EQUAL.			1 \$	-
3.1.7	UNIFIED BORDER ELEMENT ENTERPRISE LICENSE 25 SESSIONS OR EQUAL.			25 \$	-
3.1.8	UNIFIED COMMUNICATION LICENSE FOR CISCO ISR 4400 SERIES OR EQUAL.			1 \$	-
3.1.8	CISCO ISR 4400 SERIES IOS XE UNIVERSAL OR EQUAL.			1 \$	-
3.1.8	COMMUNICATION MANAGER EXPRESS OR SRST 25 SEAT LICENSE OR EQUAL.			25 \$	-
3.1.8.5	CISCO SURVIVABLE REMOTE SITE TELEPHONY LICENSE OR EQUAL.			1 \$	-
3.1.9	2 PORT NETWORK INTERFACE MODULE - FXO (UNIVERSAL) OR EQUAL.			1 \$	-
3.1.9	HP ARUBA 2920-48G-POE - 740W SWITCH OR EQUAL.			12 \$	-
3.1.9.1	PROLINE ARUBA SFP-SX-AU COMPATIBLE SFP TAA COMPLIANT TRANSCEIVER - SFP OR EQUAL.			12 \$	-
3.1.9.2	3.3FT STACKING CABLE FOR ARUBA/HP SWITCHES OR EQUAL.			12 \$	-
				TOTAL BID PRICE	57,451.17

COMPANY NAME: Alpha Technologies Inc.
CONTACT PERSON: David Chambers
ADDRESS: 4003 Outlook Drive, Hurricane, WV 25526

PHONE: 304-721-8987
EMAIL: dchambers@alpha-tech.us
FAX: 304-201-2610



alpha
TECHNOLOGIES



WV Division of Veterans Affairs

WE HAVE PREPARED A QUOTE FOR YOU

**HARDWARE FOR IPT AND SAN INTEGRATION
WV VETERANS AFFAIRS**

Quote #008280

Version 1

+1-304-201-7485

www.alpha-tech.us



Prepared For:

WV Division of Veterans Affairs
Crystal Rink
1 FREEDOMS WAY
CLARKSBURG, WV 26301
crystal.g.rink@wv.gov

Prepared By:

David Chambers
Phone: 3047218987
Email: dchambers@alpha-tech.us

Quote ID: 008280

Date: Friday, September 01, 2017

Expires: Thursday, September 21, 2017

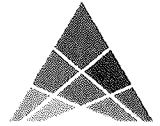
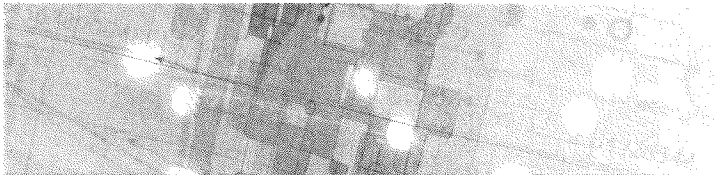
HARDWARE FOR IPT AND SAN INTEGRATION WV VETERANS AFFAIRS

Description		Price	Qty	Ext. Price
CAB-CONSOLE-USB=	Console Cable 6ft with USB Type A and mini-B	\$11.93	1	\$11.93
CAB-ETH-S-RJ45=	Yellow Cable for Ethernet, Straight-through, RJ-45, 6 feet	\$6.82	1	\$6.82
ISR4431-V/K9	Cisco ISR 4431 UC Bundle, PVD4-64, UC License, CUBE-25	\$4,774.00	1	\$4,774.00
CON-SNT-ISR4431V	SNTC-8X5XNBD Cisco ISR 4431 UC Bu	\$1,133.62	1	\$1,133.62
SL-44-IPB-K9	IP Base License for Cisco ISR 4400 Series	\$0.00	1	\$0.00
PWR-4430-AC	AC Power Supply for Cisco ISR 4430	\$0.00	1	\$0.00
MEM-4400-4G	4G DRAM (2G+2G) for Cisco ISR 4400	\$0.00	1	\$0.00
MEM-FLSH-8G	8G eUSB Flash Memory for Cisco ISR 4430	\$0.00	1	\$0.00
PWR-COVER-4430	Cover for empty 2nd Power Supply slot on Cisco ISR 4430	\$0.00	1	\$0.00
MEM-4400-DP-2G	2G DRAM (1 DIMM) for Cisco ISR 4400 Data Plane	\$0.00	1	\$0.00
SL-44-UC-K9	Unified Communication License for Cisco ISR 4400 Series	\$0.00	1	\$0.00
FL-CUBEE-25	Unified Border Element Enterprise License - 25 sessions	\$0.00	1	\$0.00
NIM-BLANK	Blank faceplate for NIM slot on Cisco ISR 4400	\$0.00	2	\$0.00



HARDWARE FOR IPT AND SAN INTEGRATION WV VETERANS AFFAIRS

Description		Price	Qty	Ext. Price
PVDM4-64	64-channel DSP module	\$0.00	1	\$0.00
SISR4400UK9-316S	Cisco ISR 4400 Series IOS XE Universal	\$0.00	1	\$0.00
CAB-AC	AC Power Cord (North America), C13, NEMA 5-15P, 2.1m	\$0.00	1	\$0.00
FL-CME	Cisco Communications Manager Express (CME) License	\$0.00	1	\$0.00
SW-CCME-UL-BASIC	CUCME Phone License - Basic	\$42.62	1	\$42.62
FL-CUBEE-25	Unified Border Element Enterprise License - 25 sessions	\$1,021.30	1	\$1,021.30
NIM-2MFT-T1/E1	2 port Multiflex Trunk Voice/Clear-channel Data T1/E1 Module	\$750.20	1	\$750.20
PVDM4-64	64-channel DSP module	\$1,159.40	1	\$1,159.40
C2960X-STACK=	Catalyst 2960-X FlexStack Plus Stacking Module optional	\$407.50	12	\$4,890.00
CAB-STK-E-1M	Cisco FlexStack 1m stacking cable	\$34.10	12	\$409.20
GLC-SX-MMD=	1000BASE-SX SFP transceiver module, MMF, 850nm, DOM	\$170.50	12	\$2,046.00
WS-C2960XR-48LPS-I	Catalyst 2960-XR 48 GigE PoE 370W, 4 x 1G SFP, IP Lite	\$2,965.00	12	\$35,580.00
CON-SNT-WSC29648	SNTC-8X5XNBD Catalyst 2960-XR 48 GigE PoE 370W, 4	\$468.84	12	\$5,626.08
CAB-TA-NA	North America AC Type A Power Cable	\$0.00	12	\$0.00
HARDWARE FOR IPT AND SAN INTEGRATION WV VETERANS AFFAIRS Subtotal				\$57,451.17



One-time Cost Summary

Description	Amount
HARDWARE FOR IPT AND SAN INTEGRATION WW VETERANS AFFAIRS	\$57,451.17
Subtotal	\$57,451.17
Tax	\$0.00
Total	\$57,451.17

Signature _____

Date _____

Cisco Catalyst 2960-X Series Switches

Product Overview

Cisco® Catalyst® 2960-X Series Switches are fixed-configuration, stackable Gigabit Ethernet switches that provide enterprise-class access for campus and branch applications (Figure 1). Designed for operational simplicity to lower total cost of ownership, they enable scalable, secure and energy-efficient business operations with intelligent services and a range of advanced Cisco IOS® Software features.

Figure 1. A Cisco Catalyst 2960-X Series Switch Family



Product Highlights

Cisco Catalyst 2960-X switches feature:

- 24 or 48 Gigabit Ethernet ports with line-rate forwarding performance
- Gigabit Small Form-Factor Pluggable (SFP) or 10G SFP+ uplinks
- FlexStack Plus for stacking of up to 8 switches with 80 Gbps of stack throughput (optional)
- Power over Ethernet Plus (PoE+) support with up to 740W of PoE budget
- 24-port PoE fanless switch for deployment outside the wiring closet
- Reduced power consumption and advanced energy management features
- USB and Ethernet management interfaces for simplified operations
- Application visibility and capacity planning with integrated Full (Flexible) NetFlow and NetFlow-Lite
- LAN Base or LAN Lite Cisco IOS software features
- Enhanced limited lifetime warranty (E-LLW) offering next-business-day hardware replacement
- Identify, classify and control of trusted internal network traffic through Domain Name System as an Authoritative Source (DNS-AS)

Cisco Catalyst 2960-XR models also offer:

- Power resiliency with optional dual field-replaceable power supplies
- IP Lite Cisco IOS software with dynamic routing and Layer 3 features

Switch Models and Configurations

Catalyst 2960-X switches include a single fixed power supply and are available with either the Cisco IOS LAN Base or LAN Lite feature set. Catalyst 2960-XR switch models include a field-replaceable modular power supply and can accommodate a second power supply. Catalyst 2960-XR is available only with the Cisco IOS IP Lite feature set.

Table 1. Cisco Catalyst 2960-X Configurations

Model	10/100/1000 Ethernet Ports	Uplink Interfaces	Cisco IOS Software Image	Available PoE Power	FlexStack-Plus Capability
Cisco Catalyst 2960X-48FPD-L	48	2 SFP+	LAN Base	740W	Y
Cisco Catalyst 2960X-48LPD-L	48	2 SFP+	LAN Base	370W	Y
Cisco Catalyst 2960X-24PD-L	24	2 SFP+	LAN Base	370W	Y
Cisco Catalyst 2960X-48TD-L	48	2 SFP+	LAN Base	-	Y
Cisco Catalyst 2960X-24TD-L	24	2 SFP+	LAN Base	-	Y
Cisco Catalyst 2960X-48FPS-L	48	4 SFP	LAN Base	740W	Y
Cisco Catalyst 2960X-48LPS-L	48	4 SFP	LAN Base	370W	Y
Cisco Catalyst 2960X-24PS-L	24	4 SFP	LAN Base	370W	Y
Cisco Catalyst 2960X-24PSQ-L	24 (8PoE)	2 SFP, 2 10/100/1000BT	LAN Base	110W	-
Cisco Catalyst 2960X-48TS-L	48	4 SFP	LAN Base	-	Y
Cisco Catalyst 2960X-24TS-L	24	4 SFP	LAN Base	-	Y
Cisco Catalyst 2960X-48TS-LL	48	2 SFP	LAN Lite	-	-
Cisco Catalyst 2960X-24TS-LL	24	2 SFP	LAN Lite	-	-

Table 2. Cisco Catalyst 2960-XR Configurations

Model	10/100/1000 Ethernet Ports	Uplink Interfaces	Cisco IOS Software Image	Available PoE Power	Power Supply
Cisco Catalyst 2960XR-48FPD-I	48	2 SFP+	IP Lite	740W	1025WAC
Cisco Catalyst 2960XR-48LPD-I	48	2 SFP+	IP Lite	370W	640WAC
Cisco Catalyst 2960XR-24PD-I	24	2 SFP+	IP Lite	370W	640WAC
Cisco Catalyst 2960XR-48TD-I	48	2 SFP+	IP Lite	-	250WAC
Cisco Catalyst 2960XR-24TD-I	24	2 SFP+	IP Lite	-	250WAC
Cisco Catalyst 2960XR-48FPS-I	48	4 SFP	IP Lite	740W	1025WAC
Cisco Catalyst 2960XR-48LPS-I	48	4 SFP	IP Lite	370W	640WAC
Cisco Catalyst 2960XR-24PS-I	24	4 SFP	IP Lite	370W	640WAC
Cisco Catalyst 2960XR-48TS-I	48	4 SFP	IP Lite	-	250WAC
Cisco Catalyst 2960XR-24TS-I	24	4 SFP	IP Lite	-	250WAC

Catalyst 2960-X Series Software Features

All Catalyst 2960-X Series Switches use a single Universal Cisco IOS Software Image for all SKUs. Depending on the switch model, the Cisco IOS image automatically configures the LAN Lite, LAN Base, or IP Lite feature set.

LAN Lite models have reduced functionality and scalability for small deployments with basic requirements. Cisco Catalyst 2960-X Family of Switches are available with the LAN Base and LAN Lite feature sets and Catalyst 2960-XR Family of switches are available IP Lite feature sets.

Note that each switch model is tied to a specific feature level; LAN Lite cannot be upgraded to LAN Base and LAN Base cannot be upgraded to IP Lite.

For more information about the features included in the LAN Lite, LAN Base and IP Lite feature sets, refer to Cisco Feature Navigator: <http://tools.cisco.com/ITDIT/CFN/jsp/index.jsp>.

Cisco ONE Software

[Cisco ONE Software for Access Switching](#) is available for the Cisco Catalyst 2960-X and Cisco Catalyst 2960-XR Series Switches.

Cisco ONE Software is a new way for customers to purchase and use our infrastructure software. It offers a simplified consumption model, centered on common customer scenarios in the data center, WANs, and LANs.

Cisco ONE Software and services provide customers with four primary benefits:

- Software suites that address typical customer use scenarios at an attractive price
- Investment protection of their software purchase through software services-enabled license portability
- Access to ongoing innovation and new technology with Cisco Software Support Service (SWSS)
- Flexible licensing models to smoothly distribute customer's software spend over time

For ordering information for Cisco ONE Software for the Cisco Catalyst 2960-X and Cisco Catalyst 2960-XR Series Switches, go to <http://www.cisco.com/c/en/us/products/software/one-access/switching-part-numbers.html>.

Cisco Catalyst 2960-XR IP-Lite High-Performance Routing

The Cisco hardware routing architecture delivers extremely high-performance IP routing in the Cisco Catalyst 2960-XR IP-Lite Switches:

- **IP unicast routing protocols (Static, Routing Information Protocol Version 1 [RIPv1], RIPv2, RIPv6, and EIGRP-Stub)** are supported for network routing applications.
- **Advanced IP unicast routing protocols (OSPF for Routed Access)** are supported for load balancing and constructing scalable LANs. IPv6 routing (OSPFv3) is supported in hardware for maximum performance.
- **EIGRPv3-Stub and PIMv6-Stub are supported as a part of the IPv6 routing suite.**
- **Equal-cost routing** facilitates Layer 3 load balancing and redundancy across the stack.
- **Policy-based routing (PBR)** allows superior control by facilitating flow redirection regardless of the routing protocol configured (for both IPv4 and IPv6).
- **Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)** provides dynamic load balancing and failover for routed links.
- **Protocol Independent Multicast (PIM)** for IP multicast is supported, including PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), PIM sparse-dense mode and Source Specific Multicast (SSM).

Network Security

The Cisco Catalyst 2960-X Series Switches provide a range of security features to limit access to the network and mitigate threats, including:

- **MAC-based VLAN assignment enables** different users to authenticate on different VLANs. This feature enables each user to have a different data VLAN on the same interface.
- **Cisco TrustSec® uses SXP** to simplify security and policy enforcement throughout the network. For more information about Cisco TrustSec security solutions, visit cisco.com/go/TrustSec.
- **Comprehensive 802.1X** Features to control access to the network, including Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization.
- **IPv6 First-Hop Security** enhances Layer-2 and Layer-3 network access from proliferating IPv6 devices especially BYOD devices. It protects against rogue router advertisements, address spoofing, fake DHCP replies and other risks introduced by IPv6 technology.
- **Device Sensor and Device Classifier** enable seamless versatile device profiles including BYOD devices. They also enable Cisco Identity Services Engine (ISE) to provision identity based security policies. This feature is available on both the 2960-X and the 2960-XR product families.
- **Cisco Trust Anchor Technology** enables easy distribution of a single universal image for all models of Catalyst 2960-X by verifying the authenticity of IOS images. This technology allows the switch to perform IOS integrity checks at boot-up by verifying the signature, verifying the Trusted Asset under Management and authenticating the license.
- **Cisco Threat Defense** features including Port Security, Dynamic ARP Inspection, and IP Source Guard.
- **Private VLANs** restrict traffic between hosts in a common segment by segregating traffic at Layer 2, turning a broadcast segment into a nonbroadcast multi access like segment. This feature is available in IP-Lite feature set only.
 - **Private VLAN Edge** provides security and isolation between switch ports, which helps ensure that users cannot snoop on other users' traffic.
- **Unicast Reverse Path Forwarding (uRPF)** feature helps mitigate problems caused by the introduction of malformed or forged (spoofed) IP source address into a network by discarding IP packets that lack a verifiable IP source address. This feature is available in IP-Lite feature set only.
- **Multidomain Authentication** allows an IP phone and a PC to authenticate on the same switch port while placing them on appropriate voice and data VLAN.
- **Access Control Lists (ACLs)** for IPv6 and IPv4 for security and QoS ACEs.
 - **VLAN ACLs** on all VLANs prevent unauthorized data flows from being bridged within VLANs.
 - **Router ACLs** define security policies on routed interfaces for control-plane and data-plane traffic. IPv6 ACLs can be applied to filter IPv6 traffic.
 - **Port-based ACLs** for Layer 2 interfaces allow security policies to be applied on individual switch ports.
- **Secure Shell (SSH) Protocol, Kerberos, and Simple Network Management Protocol Version 3 (SNMPv3)** provide network security by encrypting administrator traffic during Telnet and SNMP sessions. SSH Protocol, Kerberos, and the cryptographic version of SNMPv3 require a special cryptographic software image because of U.S. export restrictions.

- **Switched Port Analyzer (SPAN)**, with bidirectional data support, allows Cisco Intrusion Detection System (IDS) to take action when an intruder is detected.
- **TACACS+ and RADIUS authentication** facilitates centralized control of the switch and restricts unauthorized users from altering the configuration.
- **MAC Address Notification** allows administrators to be notified of users added to or removed from the network.
- **Multilevel security on console access** prevents unauthorized users from altering the switch configuration.
- **Bridge protocol data unit (BPDU) Guard** shuts down Spanning Tree Port Fast-enabled interfaces when BPDUs are received to avoid accidental topology loops.
- **Spanning Tree Root Guard (STRG)** prevents edge devices not in the network administrator's control from becoming Spanning Tree Protocol root nodes.
- **IGMP filtering** provides multicast authentication by filtering out nonsubscribers and limits the number of concurrent multicast streams available per port.
- **Dynamic VLAN assignment** is supported through implementation of VLAN Membership Policy Server client capability to provide flexibility in assigning ports to VLANs. Dynamic VLAN facilitates the fast assignment of IP addresses.

Redundancy and Resiliency

Cisco Catalyst 2960-X Series Switches offer a number of redundancy and resiliency features to prevent outages and help ensure that the network remains available:

- **Cross-stack EtherChannel** provides the ability to configure Cisco EtherChannel technology across different members of the stack for high resiliency.
- **Flexlink** provides link redundancy with convergence time less than 100 milliseconds.
- **IEEE 802.1s/w Rapid Spanning Tree Protocol (RSTP) and Multiple Spanning Tree Protocol (MSTP)** provide rapid spanning-tree convergence independent of spanning-tree timers and also offer the benefit of Layer 2 load balancing and distributed processing. Stacked units behave as a single spanning-tree node.
- **Per-VLAN Rapid Spanning Tree (PVRST+)** allows rapid spanning-tree reconvergence on a per-VLAN spanning-tree basis, without requiring the implementation of spanning-tree instances.
- **Cisco Hot Standby Router Protocol (HSRP)** is supported to create redundant, fail safe routing topologies in 2960-XR IP-Lite SKUs.
- **Switch-port auto-recovery (Error Disable)** automatically attempts to reactivate a link that is disabled because of a network error.
- **Power redundancy** with an optional second power supply on 2960-XR models, or with an external RPS on 2960-X models.

Enhanced Quality of Service

The Cisco Catalyst 2960-X Series Switches offers intelligent traffic management that keeps everything flowing smoothly. Flexible mechanisms for marking, classification, and scheduling deliver superior performance for data, voice, and video traffic, all at wire speed. Primary QoS features include:

- Up to **eight egress queues** per port and strict priority queuing so that the highest priority packets are serviced ahead of all other traffic.

- **Shaped Round Robin (SRR)** scheduling and **Weighted Tail Drop (WTD)** congestion avoidance.
- **Flow-based rate limiting** and up to 256 aggregate or individual policers per port.
- **802.1p class of service (CoS)** and **Differentiated Services Code Point (DSCP)** classification, with marking and reclassification on a per-packet basis by source and destination IP address, MAC address, or Layer 4 TCP/UDP port number.
- **Cross-stack QoS** to allow QoS to be configured across a stack of 2960-X series switches.
- **The Cisco committed information rate (CIR)** function provides bandwidth in increments as low as 8 Kbps.
- **Rate limiting** is provided based on source and destination IP address, source and destination MAC address, Layer 4 TCP/UDP information, or any combination of these fields, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps.

Cisco Catalyst 2960-X Series Switching Database Manager

Switching database manager (SDM) templates for LAN Base and IP Lite licenses allows the administrator to automatically optimize the ternary content-addressable memory (TCAM) allocation to the desired features based on deployment-specific requirements. MAC, routing, security, and QoS scalability numbers depend on the type of template used in the switch.

Please refer to the SDM template reference link for more information:

http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst2960x/software/15-0_2_EX/system_manage/configuration_guide/b_sm_152ex_2960-x_cg/b_sm_152ex_2960-x_cg_chapter_0100.html.

Table 3. Cisco Catalyst 2960-X Family LAN Lite and LAN Base Scalability Numbers

Resources	LAN Lite (Default)	LAN Base (Default)
Unicast MAC Addresses	16K	16K
IPv4 Unicast Direct Routes	320	2K
IPv4 Unicast Indirect Routes	32	1K
IPv6 Unicast Direct Routes	256	2K
IPv6 Unicast Indirect Routes	0	1K
IPv4 Multicast Routes and IGMP Groups	1K	1K
IPv6 Multicast Groups	1K	1K
IPv4 QoS ACEs	384	500
IPv6 QoS ACEs	256	500
IPv4 Security ACEs	256	625
IPv6 Security ACEs	256	625

Table 4. Cisco Catalyst 2960-XR Family IP Lite Scalability Numbers

Resources	Default (IP Lite)	VLAN (IP Lite)	IPv4 (IP Lite)
Unicast MAC Addresses	16K	32K	16K
IPv4 Unicast Direct Routes	4K	250	16K
IPv4 Unicast Indirect Routes	1.25K	250	8K
IPv6 Unicast Direct Routes	4K	250	0
IPv6 Unicast Indirect Routes	1.25K	250	0
IPv4 Multicast Routes and IGMP Groups	1K	1K	1K

Resources	Default (IP Lite)	VLAN (IP Lite)	IPv4 (IP Lite)
IPv6 Multicast Groups	1K	1K	0
IPv4 QoS ACEs	500	500	500
IPv6 QoS ACEs	250	500	0
IPv4 Security ACEs	1K	1K	875
IPv6 Security ACEs	500	500	0
IPv4 Policy Based Routing ACEs	500	0	375

Cisco FlexStack-Plus

Cisco FlexStack-Plus provides stacking of up to eight 2960-X switches with the optional FlexStack-Plus module ([Figure 2](#)).

The FlexStack-Plus module is hot swappable and can be added to any Cisco Catalyst 2960-X or Catalyst 2960-XR with a FlexStack-Plus slot. Switches connected to a stack will automatically upgrade to the stack's Cisco IOS Software version and transparently join the stack without additional intervention.

Cisco FlexStack-Plus and Cisco IOS Software offer true stacking, with all switches in a stack acting as a single switch unit. FlexStack-Plus provides a unified data plane, unified configuration, and single IP address for switch management. The advantages of true stacking include lower total cost of ownership and higher availability through simplified management as well as cross-stack features including EtherChannel, SPAN, and FlexLink.

To provide investment protection, FlexStack-Plus is backwards-compatible with FlexStack. Cisco Catalyst 2960-X LAN Base switches equipped with a FlexStack-Plus module can be stacked with Catalyst 2960-S and 2960-SF LAN Base switches equipped with a FlexStack module (see [Table 5](#)).

Table 5. FlexStack and FlexStack Plus Supported Combinations

	2960-XR IP Lite	2960-X LAN Base	2960-S/SF LAN Base
2960-XR IP Lite	Yes	-	-
2960-X LAN Base	-	Yes	Yes
2960-S or 2960-SF LAN Base	-	Yes	Yes

Table 6. FlexStack-Plus Scalability and Performance

Stack Members	Stack Bandwidth	Stack Limit	Cisco IOS Feature Set
2960-XR IP Lite	80G	8	IOS IP Lite
2960-XLAN Base	80G	8	IOS LAN Base
2960-X LAN Base mixed with 2960-S/SF LAN Base	40G	4	IOS LAN Base

Figure 2. Cisco FlexStack-Plus Switch Stack



Power Supply

The Catalyst 2960-X switches comes with one fixed power-supply and options for an external redundant power supply source (RPS2300).

The Catalyst 2960-XR switches support dual redundant power supplies. The Catalyst 2960-XR ships with one power supply by default. The second power supply can be purchased at the time of ordering the switch or as a spare. These power supplies have in-built fans to provide cooling.

Figure 3. 2960-XR Family Power Supply



The following table shows the different power supplies available in these switches and the available PoE power.

Table 7. 2960-XR Default Power Supply Configurations

Models	Default Power Supply	Available PoE Power
WS-C2960XR-24TS-I WS-C2960XR-48TS-I WS-C2960XR-24TD-I WS-C2960XR-48TD-I	PWR-C2-250WAC	-
WS-C2960XR-24PD-I WS-C2960XR-48LPD-I WS-C2960XR-24PS-I WS-C2960XR-48LPS-I	PWR-C2-640WAC	370W
WS-C2960XR-48FPD-I WS-C2960XR-48FPS-I	PWR-C2-1025WAC	740W

Intelligent Power over Ethernet Plus

Cisco Catalyst 2960-Xseries switches support both IEEE 802.3af Power over Ethernet (PoE) and IEEE 802.3at PoE+ (up to 30W per port) to deliver lower total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless access points, or other standards-compliant PoE/PoE+ end devices. PoE removes the need to supply wall power to PoE-enabled devices and eliminates the cost of adding electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments.

The Catalyst 2960-X series PoE power allocation is dynamic and power mapping scale up to a maximum of 740W PoE+ power.

The 2960-XR switch configurations offer the additional benefit of dual redundant power supplies. If both power supplies are used, then the 2960-XR shares the load between the two power supplies for nonstop power.

Table 8. 2960-X PoE and PoE+ Power Capacity

Switch Model	Maximum Number of PoE+ (IEEE 802.3at) Ports*	Maximum Number of PoE (IEEE 802.3af) Ports*	Available PoE Power (Single PS Source)
Cisco Catalyst 2960X-48FPD-L	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960X-48LPD-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-24PD-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-48FPS-L	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960X-48LPS-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-24PS-L	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960X-24PSQ-L	3 ports up to 30W	7 ports up to 15.4W	110W
Cisco Catalyst 2960XR-48FPD-I	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960XR-48LPD-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-24PD-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-48FPS-I	24 ports up to 30W	48 ports up to 15.4W	740W
Cisco Catalyst 2960XR-48LPS-I	12 ports up to 30W	24 ports up to 15.4W	370W
Cisco Catalyst 2960XR-24PS-I	12 ports up to 30W	24 ports up to 15.4W	370W

* Intelligent power management allows flexible power allocation across all ports.

Table 9. 2960-XR Available PoE and Switch Power Capabilities with Different Combinations of Power Supplies

Primary Power Supply	Secondary Power Supply	Available Power for PoE+	Switch Power Redundancy	Available PoE Power When One PS fails
PWR-C2-250WAC	-	-	No	-
PWR-C2-250WAC	PWR-C2-250WAC	-	Yes	-
PWR-C2-640WAC	-	370W	No	-
PWR-C2-640WAC	PWR-C2-640WAC	370W	Yes	370W
PWR-C2-1025WAC	-	740W	No	-
PWR-C2-1025WAC	PWR-C2-1025WAC	740W	Yes	740W

Application Visibility and Control

Catalyst 2960-X Series Switches support both **Full (Flexible) NetFlow** and **NetFlow Lite**, which enable IT teams to understand the mix of traffic on their network and identify anomalies by capturing and recording specific packet flows. NetFlow Lite supports flexible sampling of the traffic, and exports flow data in the NetFlow Version 9 format for analysis on a wide range of Cisco and third-party collectors.

NetFlow Lite is included on all Catalyst 2960-X and 2960-XR LAN Base and IP Lite models.

Flexible NetFlow is the next generation in flow visibility technology, allowing optimization of the network infrastructure, reducing operation costs, and improving capacity planning and security incident detection with increased flexibility and scalability. The Catalyst 2960-X Series Switches are capable of up to 8000 flow entries in hardware.

Full (Flexible) NetFlow is included on all Catalyst 2960-X and 2960-XR switches and requires a C1 Foundation License per switch.

More details about Flexible NetFlow are available at

http://www.cisco.com/en/US/prod/collateral/iosswrel/ps6537/ps6555/ps6601/ps6965/product_data_sheet0900aecd804b590b.html.

Domain Name System as an Authoritative Source (DNS-AS) feature (AVC with DNS-AS) provides a centralized means of controlling the identification and classification of trusted network traffic in an organization. It accomplishes this by using network metadata stored in a DNS server that is authoritative to the domain in question, to identify applications, and Modular QoS CLI (MQC) to classify the corresponding traffic and apply suitable policies.

DNS-AS is included on all Catalyst 2960-X and 2960-XR and requires a C1 Foundation License per switch.

Cisco Catalyst SmartOperations

Cisco Catalyst SmartOperations is a comprehensive set of capabilities that simplify LAN planning, deployment, monitoring, and troubleshooting. Deploying SmartOperations tools reduces the time and effort required to operate the network and lowers total cost of ownership (TCO).

- **Cisco AutoConfig** services determine the level of network access provided to an endpoint based on the type of the endpoint device. This feature also permits hard-binding between the end device and the interface.
- **Cisco Smart Install** services enable minimal-touch deployment by providing automated Cisco IOS Software image installation and configuration when new switches are connected to the network. This enables network administrators to remotely manage Cisco IOS Software image installs and upgrades.
- **Cisco Auto SmartPorts** services enable automatic configuration of switch ports as devices connect to the switch, with settings optimized for the device type resulting in zero-touch port-policy provisioning.
- **Cisco Auto QoS** is a service that automatic configuration of QoS that allows switch to manage QoS policies based on traffic types resulting in zero-touch traffic engineering. Auto-QoS supports 8 egress queues in both 2960-X and 2960-XR product families.
- **Cisco Smart Troubleshooting** is an extensive array of diagnostic commands and system health checks within the switch, including Smart Call Home. The Cisco GOLD[®] (Generic Online Diagnostics) and Cisco online diagnostics on switches in live networks help predicting and detecting failures faster.

For more information about Cisco Catalyst SmartOperations, visit cisco.com/go/SmartOperations.

Operational Simplicity Features

- **Cisco AutoSecure** provides a single-line CLI to enable base line security features (Port Security, DHCP snooping, DAI). This feature simplifies security configurations with a single touch.
- **Dynamic Host Configuration Protocol (DHCP)** autoconfiguration of multiple switches through a boot server eases switch deployment.
- **Stacking master configuration management** and Cisco FlexStack Plus technology helps ensure that all switches are automatically upgraded when the master switch receives a new software version. Automatic software version checking and updating help ensure that all stack members have the same software version.
- **Autonegotiation** on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.
- **Dynamic Trunking Protocol (DTP)** facilitates dynamic trunk configuration across all switch ports.
- **Port Aggregation Protocol (PAgP)** automates the creation of Cisco Fast EtherChannel[®] groups or Gigabit EtherChannel groups to link to another switch, router, or server.
- **Link Aggregation Control Protocol (LACP)** allows the creation of Ethernet channeling with devices that conform to IEEE 802.3ad. This feature is similar to Cisco EtherChannel technology and PAgP.
- **Automatic media-dependent interface crossover (MDIX)** automatically adjusts transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
- **Unidirectional Link Detection Protocol (UDLD)** and Aggressive UDLD allow unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
- **Switching Database Manager (SDM)** templates for access, routing, and VLAN deployment allow the administrator to easily maximize memory allocation to the desired features based on deployment-specific requirements.
- **Local Proxy Address Resolution Protocol (ARP)** works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.
- **VLAN1 minimization** allows VLAN1 to be disabled on any individual VLAN trunk.
- **Smart Multicast, with Cisco FlexStack-Plus technology**, allows the Cisco Catalyst 2960-X Series to offer greater efficiency and support for more multicast data streams such as video by putting each data packet onto the backplane only once.
- **Internet Group Management Protocol (IGMP) Snooping** for IPv4 and IPv6 MLD v1 and v2 Snooping provide fast client joins and leaves of multicast streams and limit bandwidth-intensive video traffic to only the requestors.
- **Multicast VLAN Registration (MVR)** continuously sends multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
- **Per-port broadcast, multicast, and unicast storm control** prevents faulty end stations from degrading overall systems performance.
- **Voice VLAN** simplifies telephony installations by keeping voice traffic on a separate VLAN for easier administration and troubleshooting.
- **Cisco VLAN Trunking Protocol (VTP)** supports dynamic VLANs and dynamic trunk configuration across all switches.

- **Remote Switch Port Analyzer (RSPAN)** allows administrators to remotely monitor ports in a Layer 2 switch network from any other switch in the same network.
- For enhanced traffic management, monitoring, and analysis, the Embedded **Remote Monitoring (RMON)** software agent supports four RMON groups (history, statistics, alarms, and events).
- **Layer 2 trace route** eases troubleshooting by identifying the physical path that a packet takes from source to destination.
- **Trivial File Transfer Protocol (TFTP)** reduces the cost of administering software upgrades by downloading from a centralized location.
- **Network Timing Protocol (NTP)** provides an accurate and consistent timestamp to all intranet switches.

Power Management

The 2960-X switches offer a range of industry leading features for effective energy efficiency and energy management. 2960-X Series are the greenest switches in the industry.

Switch Hibernation Mode (SHM) is an industry first and available on all 2960-X series switches. This feature puts the switch in ultra low power mode during periods of non-operation such as nights or weekends. Switch Hibernation Mode on the 2960-X switches can be scheduled using Cisco EnergyWise® compliant management software.

IEEE 802.3az EEE (Energy Efficient Ethernet) enables ports to dynamically sense idle periods between traffic bursts and quickly switch the interfaces into a low power idle mode, reducing power consumption.

Cisco EnergyWise policies can be used to control the power consumed by PoE-powered endpoints, desktop and data-center IT equipment, and a wide range of building infrastructure. Cisco EnergyWise technology is included on all Cisco Catalyst 2960-X Series Switches.

For more information about Cisco EnergyWise, visit cisco.com/go/energywise.

Network Management

The Cisco Catalyst 2960-X Series Switches offer a superior CLI for detailed configuration and administration. 2960-X Series Switches are also supported in the full range of Cisco network management solutions.

Cisco Prime Infrastructure

Cisco Prime™ network management solutions provide comprehensive network lifecycle management. Cisco Prime Infrastructure provides an extensive library of easy-to-use features to automate the initial and day-to-day management of your Cisco network. Cisco Prime integrates hardware and software platform expertise and operational experience into a powerful set of workflow-driven configuration, monitoring, troubleshooting, reporting, and administrative tools.

For detailed information about Cisco Prime, visit cisco.com/go/prime.

Cisco Network Assistant

A Cisco network management application designed for small and medium-sized business (SMB) networks with up to 250 users that runs on PCs, tablets and even smart phones, Cisco Network Assistant offers centralized network management and configuration capabilities. This application also features an intuitive GUI where users can easily apply common services across Cisco switches, routers, and access points.

For detailed information about Cisco Network Assistant, visit cisco.com/go/cna.

Security Management

Cisco Identity Services Engine (ISE) support enables the 2960-XR switches to offer security management for all devices connected to it.

Figure 4. Fanless Quiet Cool 24-Port PoE Switch



The Cisco Catalyst 2960-X Series adds a new member to its 2960-X family, the WS-C2960X-24PSQ-L (Cool). This is a 24-port 10M/100M/1000M switch that can power up to 8 ports of PoE (first eight ports only) with ability to deliver a sum total of 110W of PoE power. This switch has four Gigabit Ethernet uplinks: two of them SFP and the other two 10M/100M/1000M copper interfaces enabling choice of fiber or copper connectivity to the aggregation point. This switch ships with the Cisco IOS LAN Base image.

Some important 2960-X “cool” switch highlights are:

- Extends a highly secure, intelligent, managed Cisco Catalyst infrastructure with a single Ethernet cable or fiber from the wiring closet
- Support for advanced security and intelligent services, including NetFlow Lite and Switch Hibernation, including voice, video, AP powering, and Cisco Enterprise Network services to remote endpoints
- Less than 12” depth fit in user work spaces where multiple cable runs could be challenging with very low power consumption and heat dissipation
- Higher MTBF rates due to no moving mechanical parts, no fans help ensure that 2960X cool switch is convenient to be used for colocated applications
- Easy to deploy using smart-install, configure with auto-smart-ports and device sensors and manage using Cisco Prime or CNA

2960-X Cool Switch Use Cases

Retail

Major retailers are increasingly moving customer-facing IP-based applications and services to the middle of the sales floor or POS that is far away from their access router that connects the retail outlets to the outside network. A typical retail outlet needs to serve customers at multiple sales points, each with a POS machine, phone, printer, or video display with network and some PoE powering. Because of their quiet operation and ability to cater to up to 24 ports with flexible mounting options, these switches are ideally suited for mounting in confined spaces on the floor.

Education

The 2960X cool switch extends access to labs, classrooms, and other training rooms from the central/floor distribution rooms, reducing cost of cabling and providing superior quality of service with enhanced security and enterprise network features. Quiet operation and shallow depth make them ideally suited for classrooms or confined areas nearby.

Defense

Defense establishments often look to an access switch that is portable in mobile units. These units require multiple network access devices, some of them residing in inconvenient locations in the mobile unit that requires being powered by the switch, reducing number of cables to that location and reducing possible failure sources. The switch is expected to be very quiet and have longer MTBF rates, which is served by the 2960X cool switch.

Technical Specifications

Table 10. Cisco Catalyst 2960-X Series Hardware

Hardware Specifications	
Flash memory	128 MB for LAN Base & IP Lite SKUs, 64 MB for LAN Lite SKUs
DRAM	512 MB for LAN Base and 256 MB for LAN Lite
CPU	APM86392 600MHz dual core
Console Ports	USB (Type-B), Ethernet (RJ-45)
Storage Interface	USB (Type-A) for external flash storage
Network Management Interface	10/100 Mbps Ethernet (RJ-45)

Table 11. Cisco Catalyst 2960-X Series Performance

Performance and Scalability			
	2960-X LAN Lite	2960-X LAN Base	2960-XR IP Lite
Forwarding bandwidth	50 Gbps	108 Gbps	108 Gbps
Switching bandwidth*	100 Gbps	216 Gbps	216 Gbps
Maximum active VLANs	64	1023	1023
VLAN IDs available	4096	4096	4096
Maximum transmission unit (MTU)-L3 packet	9198 bytes	9198 bytes	9198 bytes
Jumbo frame - Ethernet frame	9216 bytes	9216 bytes	9216 bytes

* Switching bandwidth is full-duplex capacity.

Table 12. Cisco Catalyst 2960-X Series Forwarding Performance

Forwarding Rate: 64-Byte L3 Packets	
Catalyst 2960-X Family	
Cisco Catalyst 2960X-48FPD-L	130.9 Mpps
Cisco Catalyst 2960X-48LPD-L	130.9 Mpps
Cisco Catalyst 2960X-24PD-L	95.2 Mpps
Cisco Catalyst 2960X-48TD-L	130.9 Mpps
Cisco Catalyst 2960X-24TD-L	95.2 Mpps
Cisco Catalyst 2960X-48FPS-L	107.1 Mpps
Cisco Catalyst 2960X-48LPS-L	107.1 Mpps
Cisco Catalyst 2960X-24PS-L	71.4 Mpps
Cisco Catalyst 2960X-24PSQ-L	71.4 Mpps
Cisco Catalyst 2960X-48TS-L	107.1 Mpps
Cisco Catalyst 2960X-24TS-L	71.4 Mpps
Cisco Catalyst 2960X-48TS-LL	104.2 Mpps
Cisco Catalyst 2960X-24TS-LL	68.5 Mpps

Forwarding Rate: 64-Byte L3 Packets	
Catalyst 2960-XR Family	
Cisco Catalyst 2960XR-48FPD-I	130.9 Mpps
Cisco Catalyst 2960XR-48LPD-I	130.9 Mpps
Cisco Catalyst 2960XR-24PD-I	95.2 Mpps
Cisco Catalyst 2960XR-48TD-I	130.9 Mpps
Cisco Catalyst 2960XR-24TD-I	95.2 Mpps
Cisco Catalyst 2960XR-48FPS-I	107.1 Mpps
Cisco Catalyst 2960XR-48LPS-I	107.1 Mpps
Cisco Catalyst 2960XR-24PS-I	71.4 Mpps
Cisco Catalyst 2960XR-48TS-I	107.1 Mpps
Cisco Catalyst 2960XR-24TS-I	71.4 Mpps

Table 13. Cisco Catalyst 2960-X Series Mechanical Specifications

Models		
Dimensions	Inches (H x D x W)	Centimeters (H x D x W)
WS-C2960X-48FPD-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-48LPD-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-48TD-L	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
WS-C2960X-24PD-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-24TD-L	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
WS-C2960X-48FPS-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-48LPS-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-48TS-L	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
WS-C2960X-24PS-L	1.75 x 14.5 x 17.5	4.5 x 36.8 x 44.5
WS-C2960X-24PSQ-L	1.73 x 11.03 x 17.5	4.45 x 28.0 x 44.5
WS-C2960X-24TS-L	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
WS-C2960X-48TS-LL	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
WS-C2960X-24TS-LL	1.75 x 11.0 x 17.5	4.5 x 27.9 x 44.5
Weights	Pounds	Kilograms
WS-C2960X-48FPD-L	12.9 lbs	5.8 Kg
WS-C2960X-48LPD-L	12.9 lbs	5.8 Kg
WS-C2960X-48TD-L	9.6 lbs	4.3 Kg
WS-C2960X-24PD-L	12.7 lbs	5.7 Kg
WS-C2960X-24TD-L	8.9 lbs	4.0 Kg
WS-C2960X-48FPS-L	12.9 lbs	5.8 Kg
WS-C2960X-48LPS-L	12.9 lbs	5.8 Kg
WS-C2960X-48TS-L	9.4 lbs	4.2 Kg
WS-C2960X-24PS-L	12.8 lbs	5.8 kg
WS-C2960X-24PSQ-L	12.8 lbs	5.8 kg
WS-C2960X-24TS-L	8.9 lbs	4.0 kg
WS-C2960X-48TS-LL	8.9 lbs	4.0 kg
WS-C2960X-24TS-LL	8.2 lbs	3.7 kg

Table 14. Cisco Catalyst 2960-XR Series Mechanical Specifications

Models (The Power Supplies Could Add Up to 3.1" to the Depth of the 2960XR Chassis)		
Dimensions	Inches (H x D x W)	Centimeters (H x D x W)
WS-C2960XR-48FPD-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-48LPD-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-48TD-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-24PD-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-24TD-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-48FPS-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-48LPS-I	1.75 x 16.0x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-48TS-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-24PS-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
WS-C2960XR-24TS-I	1.75 x 16.0 x 17.5	4.45 x 40.8 x 44.5
Weights	Pounds	Kilograms
WS-C2960XR-48FPD-I	14.6	6.6
WS-C2960XR-48LPD-I	14.0	6.4
WS-C2960XR-48TD-I	13.3	6.1
WS-C2960XR-24PD-I	13.6	6.2
WS-C2960XR-24TD-I	13.0	5.9
WS-C2960XR-48FPS-I	14.7	6.7
WS-C2960XR-48LPS-I	14.2	6.4
WS-C2960XR-48TS-I	13.2	6.0
WS-C2960XR-24PS-I	13.7	6.2
WS-C2960XR-24TS-I	13.0	5.9

Table 15. Cisco Catalyst 2960-X Series Environmental Specifications

Environmental Ranges		
	Fahrenheit	Centigrade
Operating temperature up to 5000 ft (1500 m)	23°F to 113°F	-5°C to 45°C
Operating temperature up to 10,000 ft (3000 m)	23°F to 104°F	-5°C to 40°C
Short-term exception at sea level*	23°F to 131°F	-5°C to 55°C
Short-term exception up to 5000 feet (1500 m)*	23°F to 122°F	-5°C to 50°C
Short-term exception up to 10,000 feet (3000 m)*	23°F to 113°F	-5°C to 45°C
Short-term exception up to 13,000 feet (4000 m)*	23° to 104°F	-5°C to 40°C
Storage temperature up to 15,000 feet (4573 m)	-13° to 158°F	-25° to 70°C
	Feet	Meters
Operating altitude	Up to 10,000	Up to 3000
Storage altitude	Up to 13,000	Up to 4000
Operating relative humidity	10% to 95% noncondensing	
Storage relative humidity	10% to 95% noncondensing	
Acoustic Noise		
Measured per ISO 7779 and declared per ISO 9296. PoE output of 185W or less where applicable.		
Bystander positions operating mode at 25°C ambient.		

Environmental Ranges				
Model	Sound Pressure		Sound Power	
	LpA (Typical)	LpAD (Maximum)	LwA (Typical)	LwAD (Maximum)
Cisco Catalyst 2960X-48FPD-L	39 dB	43 dB	4.9 B	5.3 B
Cisco Catalyst 2960X-48LPD-L				
Cisco Catalyst 2960X-24PD-L				
Cisco Catalyst 2960X-48TD-L	42 dB	46 dB	5.1 B	5.5 B
Cisco Catalyst 2960X-24TD-L				
Cisco Catalyst 2960X-48FPS-L	39 dB	43 dB	4.9 B	5.3 B
Cisco Catalyst 2960X-48LPS-L				
Cisco Catalyst 2960X-24PS-L				
Cisco Catalyst 2960X-24PSQ-L	N/A	N/A	N/A	N/A
Cisco Catalyst 2960X-48TS-L	42 dB	46 dB	5.1 B	5.5 B
Cisco Catalyst 2960X-24TS-L				
Cisco Catalyst 2960X-48TS-LL	42 dB	46 dB	5.1 B	5.5 B
Cisco Catalyst 2960X-24TS-LL				
Cisco Catalyst 2960XR-48FPD-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-48LPD-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-24PD-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-48TD-I	22dB	25dB	3.3B	3.6B
Cisco Catalyst 2960XR-24TD-I	22dB	25dB	3.3B	3.6B
Cisco Catalyst 2960XR-48FPS-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-48LPS-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-24PS-I	40dB	43dB	5.2B	5.5B
Cisco Catalyst 2960XR-48TS-I	22dB	25dB	3.3B	3.6B
Cisco Catalyst 2960XR-24TS-I	22dB	25dB	3.3B	3.6B
Predicted Reliability				
Model	MTBF in hours**			
Cisco Catalyst 2960X-48FPD-L	233,370			
Cisco Catalyst 2960X-48LPD-L	277,960			
Cisco Catalyst 2960X-24PD-L	325,780			
Cisco Catalyst 2960X-48TD-L	445,460			
Cisco Catalyst 2960X-24TD-L	569,520			
Cisco Catalyst 2960X-48FPS-L	232,610			
Cisco Catalyst 2960X-48LPS-L	276,870			
Cisco Catalyst 2960X-24PS-L	324,280			
Cisco Catalyst 2960X-24PSQ-L	462,680			
Cisco Catalyst 2960X-48TS-L	442,690			
Cisco Catalyst 2960X-24TS-L	564,910			
Cisco Catalyst 2960X-48TS-LL	476,560			
Cisco Catalyst 2960X-24TS-LL	622,350			
Cisco Catalyst 2960X-STACK	17,128,090			
Cisco Catalyst 2960XR-48FPD-I	231,590			
Cisco Catalyst 2960XR-48LPD-I	275,430			
Cisco Catalyst 2960XR-24PD-I	322,740			
Cisco Catalyst 2960XR-48TD-I	440,880			

Environmental Ranges	
Cisco Catalyst 2960XR-24TD-I	561,890
Cisco Catalyst 2960XR-48FPS-I	230,860
Cisco Catalyst 2960XR-48LPS-I	274,380
Cisco Catalyst 2960XR-24PS-I	321,290
Cisco Catalyst 2960XR-48TS-I	438,130
Cisco Catalyst 2960XR-24TS-I	557,320
Cisco PWR-C2-250WAC	1,000,000
Cisco PWR-C2-640WAC	1,000,000
Cisco PWR-C2-1025WAC	1,000,000

* Not more than the following in a 1-year period: 96 consecutive hours, or 360 hours total, or 15 occurrences.

** Currently estimates; Later will be Based on Telcordia SR-332 Issue 2 methodology.

Table 16. Connectors and Interfaces

Connectors and Interfaces
Ethernet Interfaces
<ul style="list-style-type: none"> 10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling 1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling
SFP and SFP+ Interfaces
For information about supported SFP/SFP+ modules, refer to the Transceiver Compatibility matrix tables at cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html .
Indicator LEDs
<ul style="list-style-type: none"> Per-port status: Link integrity, disabled, activity, speed, and full duplex System status: System, RPS, Stack link status, link duplex, PoE, and link speed
Stacking Interfaces
Cisco Catalyst 2960-XFlexStack-Plus stacking cables: <ul style="list-style-type: none"> CAB-STK-E-0.5M FlexStack-Plus stacking cable with a 0.5 m length CAB-STK-E-1M FlexStack-Plus stacking cable with a 1.0 m length CAB-STK-E-3M FlexStack-Plus stacking cable with a 3.0 m length
Console
Cisco Catalyst 2960-X console cables: <ul style="list-style-type: none"> CAB-CONSOLE-RJ45 Console cable 6 ft. with RJ-45 CAB-CONSOLE-USB Console cable 6 ft. with USB Type A and mini-B connectors
Power
<ul style="list-style-type: none"> The internal power supply is an auto-ranging unit and supports input voltages between 100 and 240V AC Use the supplied AC power cord to connect the AC power connector to an AC power outlet The Cisco RPS connector offers connection for an optional Cisco RPS 2300 that uses AC input and supplies DC output to the switch Only the Cisco RPS 2300 (model PWR-RPS2300) should be attached to the redundant-power-system receptacle

Table 17. Management and Standards Support

Category	Specification
Management	<ul style="list-style-type: none"> BRIDGE-MIB CISCO-CABLE-DIAG-MIB CISCO-CDP-MIB CISCO-CLUSTER-MIB CISCO-CONFIG-COPY-MIB CISCO-CONFIG-MAN-MIB CISCO-TC-MIB CISCO-TCP-MIB CISCO-UDLD-MIB CISCO-VLAN-IFTABLE RELATIONSHIP-MIB CISCO-VLAN-MEMBERSHIP-MIB

Category	Specification	
	<ul style="list-style-type: none"> • CISCO-DHCP-SNOOPING-MIB • CISCO-ENTITY-VENDORTYPE-OID-MIB • CISCO-ENVMON-MIB • CISCO-ERR-DISABLE-MIB • CISCO-FLASH-MIB • CISCO-FTP-CLIENT-MIB • CISCO-IGMP-FILTER-MIB • CISCO-IMAGE-MIB • CISCO-IP-STAT-MIB • CISCO-LAG-MIB • CISCO-MAC-NOTIFICATION-MIB • CISCO-MEMORY-POOL-MIB • CISCO-PAGP-MIB • CISCO-PING-MIB • CISCO-POE-EXTENSIONS-MIB • CISCO-PORT-QOS-MIB • CISCO-PORT-SECURITY-MIB • CISCO-PORT-STORM-CONTROL-MIB • CISCO-PRODUCTS-MIB • CISCO-PROCESS-MIB • CISCO-RTTMON-MIB • CISCO-SMI-MIB • CISCO-STP-EXTENSIONS-MIB • CISCO-SYSLOG-MIB 	<ul style="list-style-type: none"> • CISCO-VTP-MIB • ENTITY-MIB • ETHERLIKE-MIB • IEEE8021-PAE-MIB • IEEE8023-LAG-MIB • IF-MIB • INET-ADDRESS-MIB • OLD-CISCO-CHASSIS-MIB • OLD-CISCO-FLASH-MIB • OLD-CISCO-INTERFACES-MIB • OLD-CISCO-IP-MIB • OLD-CISCO-SYS-MIB • OLD-CISCO-TCP-MIB • OLD-CISCO-TS-MIB • RFC1213-MIB • RMON-MIB • RMON2-MIB • SNMP-FRAMEWORK-MIB • SNMP-MPD-MIB • SNMP-NOTIFICATION-MIB • SNMP-TARGET-MIB • SNMPv2-MIB • TCP-MIB • UDP-MIB • ePM MIB • CISCO-FLEXSTACK-PLUS-MIB (2960-X)
	For an updated list of supported MIBs, refer to the MIB Locator at cisco.com/go/mibs .	
Standards	<ul style="list-style-type: none"> • IEEE 802.1D Spanning Tree Protocol • IEEE 802.1p CoS Prioritization • IEEE 802.1Q VLAN • IEEE 802.1s • IEEE 802.1w • IEEE 802.1X • IEEE 802.1ab (LLDP) • IEEE 802.3ad • IEEE 802.3af and IEEE 802.3at • IEEE 802.3ah (100BASE-X single/multimode fiber only) • IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports 	<ul style="list-style-type: none"> • IEEE 802.3 10BASE-T • IEEE 802.3u 100BASE-TX • IEEE 802.3ab 1000BASE-T • IEEE 802.3z 1000BASE-X • RMON I and II standards • SNMP v1, v2c, and v3 • IEEE 802.3az • IEEE 802.3ae 10Gigabit Ethernet • IEEE 802.1ax
RFC compliance	<ul style="list-style-type: none"> • RFC 768 - UDP • RFC 783 - TFTP • RFC 791 - IP • RFC 792 - ICMP • RFC 793 - TCP • RFC 826 - ARP • RFC 854 - Telnet • RFC 951 - Bootstrap Protocol (BOOTP) • RFC 959 - FTP • RFC 1112 - IP Multicast and IGMP • RFC 1157 - SNMP v1 • RFC 1166 - IP Addresses • RFC 1256 - Internet Control Message Protocol (ICMP) Router Discovery • RFC 1305 - NTP • RFC 1492 - TACACS+ 	<ul style="list-style-type: none"> • RFC 1902-1907 - SNMP v2 • RFC 1981 - Maximum Transmission Unit (MTU) Path Discovery IPv6 • RFC 2068 - HTTP • RFC 2131 - DHCP • RFC 2138 - RADIUS • RFC 2233 - IF MIB v3 • RFC 2373 - IPv6 Aggregatable Addrs • RFC 2460 - IPv6 • RFC 2461 - IPv6 Neighbor Discovery • RFC 2462 - IPv6 Autoconfiguration • RFC 2463 - ICMP IPv6 • RFC 2474 - Differentiated Services (DiffServ) Precedence • RFC 2597 - Assured Forwarding • RFC 2598 - Expedited Forwarding • RFC 2571 - SNMP Management

Category	Specification	
	<ul style="list-style-type: none"> • RFC 1493 - Bridge MIB • RFC 1542 - BOOTP extensions • RFC 1643 - Ethernet Interface MIB • RFC 1757 - RMON • RFC 1901 - SNMP v2C 	<ul style="list-style-type: none"> • RFC 2865 - RADIUS • RFC 3046 - DHCP Relay Agent Information Option • RFC 3376 - IGMP v3 • RFC 3580 - 802.1X RADIUS

Table 18. Voltage and Power Ratings

Input Voltage and Current			
Model	Voltage (Auto ranging)	Current	Frequency
Cisco Catalyst 2960X-48FPD-L	100 to 240 VAC	9A-4A	50 to 60Hz
Cisco Catalyst 2960X-48LPD-L		5A-2A	
Cisco Catalyst 2960X-24PD-L		5A-2A	
Cisco Catalyst 2960X-48TD-L		1A - 0.5A	
Cisco Catalyst 2960X-24TD-L		1A to 0.5A	
Cisco Catalyst 2960X-48FPS-L		9A - 4A	
Cisco Catalyst 2960X-48LPS-L		5A - 2A	
Cisco Catalyst 2960X-24PS-L		5A - 2A	
Cisco Catalyst 2960X-24PSQ-L		2A - 4A	
Cisco Catalyst 2960X-48TS-L		1A-0.5A	
Cisco Catalyst 2960X-24TS-L		1A - 0.5A	
Cisco Catalyst 2960X-48TS-LL		1A - 0.5A	
Cisco Catalyst 2960X-24TS-LL		1A - 0.5A	
Cisco Catalyst 2960XR-48FPD-I	100 to 240 VAC	10A to 5A	50 to 60Hz
Cisco Catalyst 2960XR-48LPD-I		6A to 3 A	
Cisco Catalyst 2960XR-24PD-I		6A to 3 A	
Cisco Catalyst 2960XR-48TD-I		1A to 0.5 A	
Cisco Catalyst 2960XR-24TD-I		1A to 0.5 A	
Cisco Catalyst 2960XR-48FPS-I		10A to 5 A	
Cisco Catalyst 2960XR-48LPS-I		6A to 3 A	
Cisco Catalyst 2960XR-24PS-I		6A to 3 A	
Cisco Catalyst 2960XR-48TS-I		1A to 0.5 A	
Cisco Catalyst 2960XR-24TS-I		1A to 0.5 A	
Power Rating (Switch maximum consumption values)			
Cisco Catalyst 2960X-48FPD-L	0.89 kVA		
Cisco Catalyst 2960X-48LPD-L	0.48 kVA		
Cisco Catalyst 2960X-24PD-L	0.47 kVA		
Cisco Catalyst 2960X-48TD-L	0.049 kVA		
Cisco Catalyst 2960X-24TD-L	0.034 kVA		
Cisco Catalyst 2960X-48FPS-L	0.89 kVA		
Cisco Catalyst 2960X-48LPS-L	0.49 kVA		
Cisco Catalyst 2960X-24PS-L	0.49 kVA		
Cisco Catalyst 2960X-24PSQ-L	0.16 kVA		
Cisco Catalyst 2960X-48TS-L	0.051 kVA		
Cisco Catalyst 2960X-24TS-L	0.039 kVA		

Input Voltage and Current			
Model	Voltage (Auto ranging)	Current	Frequency
Cisco Catalyst 2960X-48TS-LL	0.46KVA		
Cisco Catalyst 2960X-24TS-LL	0.035KVA		
Cisco Catalyst 2960XR-48FPD-I	0.89KVA		
Cisco Catalyst 2960XR-48LPD-I	0.48KVA		
Cisco Catalyst 2960XR-24PD-I	0.46KVA		
Cisco Catalyst 2960XR-48TD-I	0.047KVA		
Cisco Catalyst 2960XR-24TD-I	0.039KVA		
Cisco Catalyst 2960XR-48FPS-I	0.89KVA		
Cisco Catalyst 2960XR-48LPS-I	0.47KVA		
Cisco Catalyst 2960XR-24PS-I	0.46KVA		
Cisco Catalyst 2960XR-48TS-I	0.046KVA		
Cisco Catalyst 2960XR-24TS-I	0.038KVA		

DC Input Voltages (RPS Input) - Only for 2960-X LAN Base Switches		
	12V	53V
Cisco Catalyst 2960X-48FPD-L	4A	15A
Cisco Catalyst 2960X-48LPD-L	4A	8A
Cisco Catalyst 2960X-24PD-L	3A	8A
Cisco Catalyst 2960X-48TD-L	4A	N/A
Cisco Catalyst 2960X-24TD-L	3A	N/A
Cisco Catalyst 2960X-48FPS-L	4A	15A
Cisco Catalyst 2960X-48LPS-L	4A	8A
Cisco Catalyst 2960X-24PS-L	3A	8A
Cisco Catalyst 2960X-24PSQ-L	N/A	N/A
Cisco Catalyst 2960X-48TS-L	5A	N/A
Cisco Catalyst 2960X-24TS-L	4A	N/A

Note: The wattage rating on the power supply does not represent actual power draw. It indicates the maximum power draw possible by the power supply. This rating can be used for facility capacity planning. For PoE switches, cooling requirements are smaller than total power draw as a significant portion of the load is dissipated in the endpoints.

Table 19. Power Consumption¹

Measured Power Consumption in Watts ²				
Model	0% Traffic ³	10% Traffic	100% Traffic	Weighted Average
Cisco Catalyst 2960X-48FPD-L	50.8	65.9	66.7	66.0
Cisco Catalyst 2960X-48LPD-L	45.7	61.1	62.0	61.2
Cisco Catalyst 2960X-24PD-L	44.7	52.3	53.1	52.3
Cisco Catalyst 2960X-48TD-L	32.9	47.0	47.8	47.1

¹ Disclaimer: All power consumption numbers were measured under controlled laboratory conditions and are provided as estimates.

² ATIS Methodology.

³ All Traffic measured with EEE enabled.

Measured Power Consumption in Watts ²				
Cisco Catalyst 2960X-24TD-L	24.9	32.2	33.1	32.3
Cisco Catalyst 2960X-48FPS-L	51.9	66.6	66.8	66.6
Cisco Catalyst 2960X-48LPS-L	46.7	60.8	61.1	60.9
Cisco Catalyst 2960X-24PS-L	41.4	49.0	49.2	49.0
Cisco Catalyst 2960X-24PSQ-L	28.5	32.8	34.8	33.0
Cisco Catalyst 2960X-48TS-L	34.9	49.5	49.7	49.5
Cisco Catalyst 2960X-24TS-L	28.0	36.8	37.1	36.9
Cisco Catalyst 2960X-48TS-LL	31.4	44.3	44.5	44.4
Cisco Catalyst 2960X-24TS-LL	25.2	32.0	32.0	32.0
Cisco Catalyst 2960XR-48FPD-I	46.7	61.8	62.5	61.9
Cisco Catalyst 2960XR-48LPD-I	40.7	54.6	55.9	54.8
Cisco Catalyst 2960XR-24PD-I	36.1	42.9	43.7	43.0
Cisco Catalyst 2960XR-48TD-I	29.7	44.7	45.6	44.8
Cisco Catalyst 2960XR-24TD-I	29.3	37.2	38.1	37.3
Cisco Catalyst 2960XR-48FPS-I	44.8	58.5	58.8	58.5
Cisco Catalyst 2960XR-48LPS-I	37.9	52.8	53.0	52.9
Cisco Catalyst 2960XR-24PS-I	36.5	43.2	43.4	43.2
Cisco Catalyst 2960XR-48TS-I	30.0	44.8	45.0	44.8
Cisco Catalyst 2960XR-24TS-I	28.8	36.0	36.2	36.0

Table 20. Safety and Compliance

Specification	Description
Safety	UL 60950-1 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1
EMC - Emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A CISPR22 Class A EN55022 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN22 Class A CNS13438 Class A
EMC - Immunity	EN55024 CISPR24 EN300386 KN24
Environmental	Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU
Telco	Common Language Equipment Identifier (CLEI) code
US Government Certifications	USGv6 and IPv6 Ready Logo

Cisco Enhanced Limited Lifetime Hardware Warranty

Cisco Catalyst 2960-X Series Switches come with an enhanced limited lifetime warranty (E-LLW). The E-LLW provides the same terms as Cisco's standard limited lifetime warranty but adds next business day delivery of replacement hardware, where available, and 90 days of 8X5 Cisco Technical Assistance Center (TAC) support.

Your formal warranty statement, including the warranty applicable to Cisco software, appears in the Cisco information packet that accompanies your Cisco product. We encourage you to review carefully the warranty statement shipped with your specific product before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy. For further information about warranty terms, visit <http://www.cisco.com/go/warranty>.

Table 21. Warranty Terms

Cisco Enhanced Limited Lifetime Hardware Warranty	
Device covered	Applies to all Cisco Catalyst 2960-X Series Switches.
Warranty duration	As long as the original end user continues to own or use the product.
End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance.
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a Cisco Catalyst 2960-X replacement part for next business day delivery, where available. Otherwise, a replacement will be shipped within ten (10) working days after the receipt of the RMA request. Actual delivery times may vary depending on customer location.
Effective date	Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety [90] days after original shipment by Cisco).
TAC support	Cisco will provide during customer's local business hours, 8 hours per day, 5 days per week basic configuration, diagnosis, and troubleshooting of device-level problems for up to 90 days from the date of shipment of the originally purchased Cisco Catalyst 2960-X product. This support does not include solution or network-level support beyond the specific device under consideration.
Cisco.com Access	Warranty allows guest access only to Cisco.com.

Software Policy

Customers with Cisco Catalyst IP Lite, LAN Base and LAN Lite software feature sets will be provided with maintenance updates and bug fixes designed to maintain the compliance of the software with published specifications, release notes, and industry standards compliance as long as the original end user continues to own or use the product or up to one year from the end-of-sale date for this product, whichever occurs earlier.

This policy supersedes any previous warranty or software statement and is subject to change without notice.

Technical Support and Services

Table 22. Technical Services Available for Cisco Catalyst 2960-X Series Switches

Technical Services
Cisco Smart Net Total Care™ Service <ul style="list-style-type: none">• Around-the-clock, global access to the Cisco TAC• Unrestricted access to the extensive Cisco.com knowledge base and tools• Next-business-day, 8x5x4, 24x7x4, or 24x7x2 advance hardware replacement and onsite parts replacement and installation available¹• Ongoing operating system software updates within the licensed feature set²• Proactive diagnostics and real-time alerts on Smart Call Home enabled devices

Technical Services

Cisco Smart Foundation Service

- Next-business-day advance hardware replacement as available
- Access to SMB TAC during business hours (access levels vary by region)
- Access to Cisco.com SMB knowledge base
- Online technical resources through Smart Foundation Portal
- Operating system software bug fixes and patches

Cisco Smart Care Service

- Network-level coverage for the needs of small and medium-sized businesses
- Proactive health checks and periodic assessments of Cisco network foundation, voice, and security technologies
- Technical support for eligible Cisco hardware and software through Smart Care Portal
- Cisco operating system and application software updates and upgrades²
- Next-business-day advance hardware replacement as available, 24x7x4 option available¹

Cisco SP Base Service

- Around-the-clock, global access to the Cisco TAC
- Registered access to Cisco.com
- Next-business-day, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement. Return to factory option available¹
- Ongoing operating system software updates²

Cisco Focused Technical Support Services

Three levels of premium, high-touch services are available:

- Cisco High-Touch Operations Management Service
- Cisco High-Touch Technical Support Service
- Cisco High-Touch Engineering Service

Valid Cisco Smart Net Total Care or SP Base contracts are required on all network equipment

¹ Advance hardware replacement is available in various service-level combinations. For example, 8x5xNBD indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with next-business-day (NBD) delivery. Where NBD is not available, same day shipping is provided. Restrictions apply; please review the appropriate service descriptions for details.

² Cisco operating system updates include the following: maintenance releases, minor updates, and major updates within the licensed feature set.

Ordering Information

Table 23. Cisco Catalyst 2960-X Series Switches Ordering Information

Part Number	10/100/1000 Ethernet Interfaces	Uplink Interfaces	Cisco IOS Software Feature Set	Available PoE Power	FlexStack-Plus Stacking
WS-C2960X-48FPD-L	48	2 SFP+	LAN Base	740W	Optional
WS-C2960X-48LPD-L	48	2 SFP+	LAN Base	370W	Optional
WS-C2960X-24PD-L	24	2 SFP+	LAN Base	370W	Optional
WS-C2960X-48TD-L	48	2 SFP+	LAN Base	-	Optional
WS-C2960X-24TD-L	24	2 SFP+	LAN Base	-	Optional
WS-C2960X-48FPS-L	48	4 SFP	LAN Base	740W	Optional
WS-C2960X-48LPS-L	48	4 SFP	LAN Base	370W	Optional
WS-C2960X-24PS-L	24	4 SFP	LAN Base	370W	Optional
WS-C2960X-24PSQ-L	24	2 SFP, 2 10/100/1000BT	LAN Base	110W	No
WS-C2960X-48TS-L	48	4 SFP	LAN Base	-	Optional
WS-C2960X-24TS-L	24	4 SFP	LAN Base	-	Optional
WS-C2960X-48TS-LL	48	2 SFP	LAN Lite	-	No
WS-C2960X-24TS-LL	24	2 SFP	LAN Lite	-	No

Table 24. Cisco Catalyst 2960-XR Configurations Ordering Information

Part Number	10/100/1000 Ethernet Interfaces	Uplink Interfaces	Cisco IOS Software Feature Set	Available PoE Power	Second FRU Power Supply Option	FlexStack-Plus Stacking
WS-C2960XR-48FPD-I	48	2 SFP+	IP Lite	740W	1025W	Optional
WS-C2960XR-48LPD-I	48	2 SFP+	IP Lite	370W	640W	Optional
WS-C2960XR-24PD-I	24	2 SFP+	IP Lite	370W	640W	Optional
WS-C2960XR-48TD-I	48	2 SFP+	IP Lite	-	250W	Optional
WS-C2960XR-24TD-I	24	2 SFP+	IP Lite	-	250W	Optional
WS-C2960XR-48FPS-I	48	4 SFP	IP Lite	740W	1025W	Optional
WS-C2960XR-48LPS-I	48	4 SFP	IP Lite	370W	640W	Optional
WS-C2960XR-24PS-I	24	4 SFP	IP Lite	370W	640W	Optional
WS-C2960XR-48TS-I	48	4 SFP	IP Lite	-	250W	Optional
WS-C2960XR-24TS-I	24	4 SFP	IP Lite	-	250W	Optional

Table 25. Cisco Catalyst 2960-X Accessories

Part Numbers	Description
C2960X-STACK	FlexStack-Plus hot-swappable stacking module
CAB-STK-E-0.5M	FlexStack-Plus stacking cable with a 0.5 m length
CAB-STK-E-1M	FlexStack-Plus stacking cable with a 1.0 m length
CAB-STK-E-3M	FlexStack-Plus stacking cable with a 3.0 m length
CAB-CONSOLE-RJ45	Console cable 6 feet with RJ45
CAB-CONSOLE-USB	Console cable 6 feet with USB Type A and mini-B connectors
PWR-CLP	Power cable restraining clip
RCKMNT-1RU-2KX=	Spare rack-mount kit for Cisco Catalyst 2960-X and 2960-XR Series for 19-inch racks
RCKMNT-REC-2KX=	1 RU recessed rack-mount kit for Cisco Catalyst 2960-X and 2960-XR Series

Table 26. Cisco Catalyst 2960-X Redundant Power Supply Options

Part Numbers	Description
PWR-RPS2300	Cisco Redundant Power System 2300 and blower, no power supply
BLNK-RPS2300=	Spare bay insert for Cisco Redundant Power System 2300 for Cisco Catalyst 2960 and Cisco Catalyst 2960-X switches
CAB-RPS2300-E=	Spare RPS2300 cable for Cisco Catalyst 2960-X switches
BLWR-RPS2300=	Spare 45 CFM blower for RPS 2300
C3K-PWR-750WAC=	RPS 2300 750W AC power supply spare for Cisco Catalyst 2960-X

For more information about the RPS-2300, visit [cisco.com/en/US/products/ps7130/index.html](https://www.cisco.com/en/US/products/ps7130/index.html).

Table 27. Cisco Catalyst 2960-XR Power Supply Options

Part Numbers	Description
PWR-C2-250WAC ⁴	Second FRU power supply and fan for all non-PoE 2960-XR switches, provides 250W AC of power
PWR-C2-640WAC ⁴	Second FRU power supply and fan for all 370W PoE+ 2960-XR switches, provides 640W AC of power
PWR-C2-1025WAC ⁴	Second FRU power supply and fan for all 740W PoE+ 2960-XR switches, provides 1025W AC of power
PWR-C2-250WAC=	Spare FRU power supply and fan for all non-PoE 2960-XR switches, provides 250W AC of power

⁴ The first FRU power supply and fan module is configured automatically when the switch is ordered. The second redundant FRU power supply and fan module is an option while configuring the order.

Part Numbers	Description
PWR-C2-640WAC=	Spare FRU power supply and fan for all 370W PoE+ 2960-XR switches, provides 640W AC of power
PWR-C2-1025WAC=	Spare FRU power supply and fan for all 740W PoE+ 2960-XR switches, provides 1025W AC of power

Table 28. Cisco Catalyst 2960-X and 2960-XR SFP/SFP+ Modules

SFP and SFP+ Modules
For the list of supported SFP and SFP+ modules, visit http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html .

Table 29. Power Cords for Cisco Catalyst 2960-X Product Family

Part Numbers	Description
CAB-16AWG-AC	AC power cord, 16AWG
CAB-ACE	AC power cord (Europe), C13, CEE 7, 1.5M
CAB-L620P-C13-US	Power cord, 250VAC, 15A, NEMA L6-20 to C13, US
CAB-ACI	AC power cord (Italy), C13, CEI 23-16, 2.5m
CAB-ACU	AC power cord (UK), C13, BS 1363, 2.5m
CAB-ACA	AC power cord (China/Australia), C13, AS 3112, 2.5m
CAB-ACS	AC power cord (Switzerland), C13, IEC 60884-1, 2.5m
CAB-ACR	AC power cord (Argentina), C13, EL 219 (IRAM 2073), 2.5m
CAB-ACC	CORD, PWR, CHINA, 10A, IEC 320, C13 (APN=CS-PWR-CH)
CAB-JPN-12A	CABASY, POWER CORD, JAPAN 2P, PSE, 12A @125VAC
CAB-L620P-C13-JPN	Power cord, 250VAC, 15A, NEMA L6-20 to C13, JAPAN
CAB-IND	Power cable for India
CAB-C15-ISR	Power cable for Israel
CAB-ACSA	Power cable for South Africa
CAB-AC15A-90L-US	15A AC power cord, left angle (United States)
CAB-ACE-RA	Power cord Europe, right angle
CAB-ACI-RA	Power cord Italian, right angle
CAB-ACU-RA	Power cord UK, right angle
CAB-ACC-RA	Power cord China, right angle
CAB-ACA-RA	Power cord, Australian, right angle
CAB-ACS-RA	Power cord for Switzerland, right angle
CAB-ACR-RA	Power cord, Argentina, right angle
CAB-JPN-RA	Power cord, Japan, right angle
CAB-C15-CBN	Cabinet jumper power cord, 250 VAC 13A, C14-C15 connectors
CAB-ACBZ-12A	AC power cord (Brazil) 12A/125V BR-3-20 plug for less than 12A device

Table 30. Power Cords for Cisco Catalyst 2960-XR Product Family

Part Numbers	Description
CAB-TA-NA=	AC power cord for Cisco Catalyst 2960XR (North America)
CAB-TA-AP=	AC power cord for Cisco Catalyst 2960XR (Australia)
CAB-TA-AR=	AC power cord for Cisco Catalyst 2960XR (Argentina)
CAB-TA-SW=	AC power cord for Cisco Catalyst 2960XR (Switzerland)
CAB-TA-UK=	AC power cord for Cisco Catalyst 2960XR (United Kingdom)
CAB-TA-JP=	AC power cord for Cisco Catalyst 2960XR (Japan)

Part Numbers	Description
CAB-TA-250V-JP=	Japan 250VAC power cord for Cisco Catalyst 2960XR (Japan)
CAB-TA-EU=	AC power cord for Cisco Catalyst 2960XR (Europe)
CAB-TA-IT=	AC power cord for Cisco Catalyst 2960XR (Italy)
CAB-TA-IN=	AC power cord for Cisco Catalyst 2960XR (India)
CAB-TA-CN=	AC power cord for Cisco Catalyst 2960XR (China)
CAB-TA-DN=	AC power cord for Cisco Catalyst 2960XR (Denmark)
CAB-TA-IS=	AC power cord for Cisco Catalyst 2960XR (Israel)
CAB-C15-CBN=	Cabinet jumper power cord, 250 VAC 13A, C14-C15 connectors
CAB-C15-CBN-JP=	Japan Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15
CAB-TA-JP-RA=	Japan AC Right Angled Power Cord for Cisco Catalyst 2960XR

Contact Cisco

For more information about Cisco products, contact:

- Phone: +1 800 553-NETS (6387)
- [Worldwide Product Support](#)
- Company Website: cisco.com

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)