



Dave Cummings
Chief Information Officer

Technology Services

121 Library Court Oregon City, OR 97045

Board of County Commissioners
Clackamas County

Members of the Board:

Approval to Purchase HPE Aruba network switches for access layer networks in County buildings

Purpose/Outcome	<i>Replace aging and out of support network switches across all County buildings. This will improve network performance, reliability, feature/functionality, and help ensure the County can meet security based compliance requirements for CJIS, HIPAA, etc.</i>
Dollar Amount and Fiscal Impact	<i>\$231,209.97 Total Purchase cost from CDW</i>
Funding Source	<i>Existing Technology Services Allocated budget. Specifically, 747-0227 capital fund.</i>
Duration	<i>FY 2021</i>
Previous Board Action/Review	<i>Issues Hearing 4/27/21</i>
Strategic Plan Alignment	<i>Direct support for County and Technology Service initiatives to: Build a strong infrastructure Build public trust through good government</i>
Counsel Review	<i>Counsel Reviewed approved transaction method 4/20/21 Counsel Initials: AN</i>
Procurement Review	<i>Was this project processed through procurement? Yes</i>
Contact Person	<i>Dave Devore (503) 723-4996</i>

BACKGROUND:

Clackamas County's access switching network equipment is approaching or past End-of-Support (EoS) status. This situation provided an opportunity to evaluate the current landscape for access switching products from competing vendors and establish a standard for the next rollout cycle as these aging devices are replaced.

Access layer network switches are the devices that computers, printers, cameras, sensors and related technology equipment connect to directly via physical cables. The access layer network

switches are then connected to campus distribution switches and ultimately network and related IT infrastructure within the County datacenters.

Funds for this Agreement are budgeted in the Technology Services budget in Fund 747 Program 227. TS the cost of this purchase is fully accounted for in FY 21

PROCUREMENT PROCESS:

Technology Services staff obtained three quotes from vendors for the exact same services quantities. The quotes ranged \$265,199.00 to \$231,209.97. The lowest cost quote is under contract that meets the requirements of Permissive Cooperative Procurements under LCRB Rule C-046-0430. By obtaining multiple quotes and taking advantage of a special pricing offer under a cooperative contract, Technology Services was able to realize substantial cost savings for the County.

RECOMMENDATION:

Staff respectfully recommends approval of the purchase of HPE Aruba network switches through CDW. Staff further recommends that the Board delegate authority to the Technology Services Director to sign agreements necessary in the ongoing performance of this agreement.

Respectfully submitted,



David Cummings, CIO
Director, Clackamas County Technology Services

Placed on the _____ Agenda by the Procurement Division.

Approval of purchase _____
Chair

Recording Secretary



Bid/Quote Tabulation Form

PACS 47
Board memo
4/12

To be used for all purchases between \$5,000.01 - \$50,000.00, unless otherwise approved by Procurement. Three bids must be obtained from different vendors.

Date: 3-24-21

To: Procurement Division: PACSrequest@clackamas.us

Contract Facilitator:	Casi Potter, Stephanie Cry	Phone Ext:	8322
Contract Administrator:	Chris Fricke	Phone Ext:	4941
Department/Division:	Technology Services		

Were at least three bids/quotes obtained? Yes No, explain reason:

Reason:

Bid/Quote #	Vendor Name	Price	Not Quoting
#1	Connection	265,199.00	<input type="checkbox"/>
Date Contacted	3/16/21	Date bid/quote received	3/17/21
#2	CDW	231,209.97	<input type="checkbox"/>
Date Contacted	3/16/21	Date bid/quote received	3/18/21
#3	SHI	260,580.62	<input type="checkbox"/>
Date Contacted	3/16/21	Date bid/quote received	3/22/21
#4			<input type="checkbox"/>
Date Contacted		Date bid/quote received	

Selected Vendor: CDW

Contact Name: Adam Ryan Email: AdamRya@cdw.com

Address: 120 S Riverside plz Phone: 312-705-8589

Chicago IL 60606

Account String: 747-0227-00-485330

Generally the contract should be awarded to the vendor with the lowest price conforming Bid/Quote. If you request exception to the low price award, explain justification:

Reason:

How is the purchase to be completed?

- Department Issued Field PO # Request that Procurement Issue PO, Create Contract, or pay with Procurement P-Card.
- [Purchase of Goods only]*

Goods & Services/Professional

Contract Effective Date:

Contract Expiration Date:

Construction Trades

Substantial Completion:

Final Completion:

BOLI/Davis Bacon No Yes

CCB#:

Is this project grant funded? No Yes – If Yes, attach a copy of the grant.

Note: You must submit subrecipient vs. contractor determination if grant funded.

By submission of this Bid/Quote Tabulation Form, I certify that there are sufficient funds in the above referenced account string for the purchase.

Budget Authority Approval: Date: 12-23-20

Submit with Form: All written quotes, scope of work, and any specifications sent to vendors

Dave DeVore for
Dave Cummings



CLACKAMAS
C O U N T Y

Technology Services

HPE Aruba Network Hardware

Scope of work 2020

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1. Scope

Clackamas County Technology Services (CCTS) has recognized the need to replace aging and out of support network switches across all County buildings. This will improve network performance, reliability, and help ensure the County can meet compliance requirements for CJIS, HIPAA, or other similar rulesets. The intent of this document is to provide an overview of the new design as well as insight into the factors that have led us to choose this design strategy.

2. Background

Clackamas County's access switching network equipment is approaching or past End-of-Support (EoS) status. The bulk of the edge/access network hardware located in data closets around the County are Cisco Catalyst 2960S, which are already EoS. More recent deployments have also used Juniper EX3300 models, which have recently had an EoS announcement published as well.

This situation provided an opportunity to evaluate the current landscape for access switching products from competing vendors, and establish a standard for the next rollout cycle as these aging devices are replaced.

Access layer network switches are the devices that computers, printers, and related equipment connect to directly via physical cables. They are patched in from wall jacks within office spaces to network switches in data closets within County buildings. The access layer network switches are then connected to campus distribution switches and ultimately network and related IT infrastructure within the County datacenters.

3. Goals

For the next generation of the County's access layer network switches, CCTS has considered several technology goals in our aim to modernize the switching infrastructure with consideration to security and integration to public cloud infrastructure.

3.1. Standards Based

The selected solution needs to support all modern network protocols and switch features including (but not limited to) STP, LACP, 802.1x, port-security, PoE+ support, dedicated stacking ports (preferably modular), ~80+ Mpps chassis throughput, 10Gb or higher uplink port capacity, modular (and optionally redundant) power supplies..

3.2. Modular

In addition to providing the features listed above. The network switch design should be modular in that components can added or removed based on the needs of a particular site without having to change the model of the switch. This enables the same switch model to be flexible enough to serve multiple roles (ie 1Gb vs 10Gb, stacking, POE options, power supplies, etc.).

3.3. POE Support

POE (Power Over Ethernet) is required to support all existing wireless access points, security cameras, and potentially other networked appliances that don't have independent power supplies. The best solution will be able to provide full POE support to half or better ports per switch.

3.4. Integration

The County has invested heavily into wireless networking and security solutions. The best networking solution will integrate with the existing network topologies (such as multicast or wireless infrastructure) and not require any proprietary integration software or hardware.

3.5. Cost

Considers total cost of ownership for acquisition, maintenance, licensing, and expansion/upgrades.

3.6. Additional features considered

While not priority requirements, some solutions allow for additional features that differentiate between solution offerings and provide unanticipated value.

4. Solutions Overview

For simplicity we've narrowed down the scope of solutions overviewed in this document to the specific brands and models that were the top candidates after a competitive research and review process.

4.1. Cisco

The Cisco Catalyst 9200 48-port switch has fixed or modular uplinks. Cheaper option is to get the 4x fixed 10GE. The C9200L-48P-4X would be our standard 48-port PoE version. It seems to be a \$7275 list price or so. It doesn't come with a stacking module, which needs to be bought separately. The 9200 is positioned as the replacement for the 2960X, but it's also brand new as of Dec 2018.

4.2. Juniper

The Juniper EX3400 48-port switch has dedicated 40Gb stack ports, dual power supply option, hot swappable PS and fan modules, and supports the new ELS code base. Online pricing that suggests a 48-port PoE EX3400 would run about \$8150. This switch has been on the market about 2.5 years as of Dec 2018.

4.3. HPE

The HPE Aruba 2930M switch has multiple variants based on PoE and port density/speed needs. All models have a stacking module slot (module purchased separately) and 2 power supply slots. Pricing is based on the loadout, but looks to be in the \$6500 list range. It has been on the market approx. 18 months as of Dec 2018.

5. Solution comparison

5.1. Solution Summary

Given the goals outlined in section 3, we reviewed multiple top tier solutions to meet our objectives. The comparison and notes in the matrix below represent the top solutions compared and is not exhaustive of every solution considered.

5.2. Scoring Matrix

	Cisco	Juniper	HPE Aruba	Winner
Standards Based 3.1	Supports All standard protocols.	Supports All standard protocols.	Supports All standard protocols.	Tie for all
Modular 3.2	Multiple models required for various configuration scenarios. Single power supply only	Most components hot swappable. Capable of dual power supply.	Most components hot swappable. Capable of dual power supply. Has more options than others	HPE Aruba
POE Support 3.3	Meets/exceeds expectations	Meets/exceeds expectations	Meets/exceeds expectations	Tie for all.
Integration 3.4	Compatible with existing network. No discernable advantages or disadvantages.	Compatible with existing network. No discernable advantages or disadvantages.	Integrates directly with existing wireless infrastructure(also HPE Aruba) to simplify administration.	HPE Aruba
Other features 3.5	No notable extras.	Dual power provides superior high availability.	Supports Dynamic Segmentation for added security functionality when paired with HPE Clearpass.	HPE Aruba
Cost 3.6	Second most expensive to buy. Annual maintenance for hardware and licenses required.	Most expensive to buy and maintain. Annual maintenance for hardware required.	Lowest overall cost to purchase. Hardware maintenance included for life. No licensing costs.	HPE Aruba
Final	Basic feature set and no real added value beyond brand recognition.	Excellent technology but most expensive to own overall.	Lowest TCO, most modular and added functionality for security and integrated administration.	HPE Aruba

5.3. Conclusion

Our recommendation is to standardize on the Aruba 2930M high performance, PoE+, stacking, multi-gigabit Ethernet switch for upcoming access switch purchases.

The platform is a rebranding of the long-running HPE switch product line, which has a strong industry presence. We have evaluated this equipment onsite in our lab, testing a multitude of features, performance metrics, and interoperability checks, and have found it to be as advertised. Furthermore, the operating system running on these switches is somewhat Cisco-like, such that it will be no problem for the network admin team to adapt to the new OS.

The selected 2930M model has some future-proofing features including modular dual-power supplies for powering more demanding PoE devices such as newer wireless APs and video cameras. It also supports multi-gigabit ports for emerging high-bandwidth wireless APs. The switches also have additional proprietary functionality called Dynamic Segmentation which would come into play when we finish the deployment of Aruba's ClearPass identity-management product. The Dynamic Segmentation feature would allow us to employ "colorless" ports that can dynamically adjust VLAN assignment and security profile based on the type of device connected to it (county-managed laptop, guest laptop, printer, IoT, etc.). It's also worth noting that our wireless networks have already been standardized on HPE Aruba hardware.

Aruba is aggressive on pricing, with list prices observably lower than the competition and simplified licensing model that is pro-customer when compared to Cisco, for example. Another primary factor in our decision to recommend Aruba is their popular lifetime hardware warranty, which reduces maintenance costs.

We believe the solution provided by HPE Aruba best meets the goals for our access switching in the foreseeable future.

QUOTE CONFIRMATION



DEAR TS PURCHASING,

Thank you for considering CDW•G for your computing needs. The details of your quote are below. [Click here](#) to convert your quote to an order.

QUOTE #	QUOTE DATE	QUOTE REFERENCE	CUSTOMER #	GRAND TOTAL
LZLK579	3/15/2021	ARUBA	11239970	\$231,209.97

QUOTE DETAILS				
ITEM	QTY	CDW#	UNIT PRICE	EXT. PRICE
HPE stacking cable - 3.3 ft Mfg. Part#: J9735A UNSPSC: 26121609 Contract: Oregon IT Hardware VAR Contract (5603)	4	4361343	\$101.02	\$404.08
HPE stacking cable - 1.6 ft Mfg. Part#: J9734A UNSPSC: 26121609 Contract: Oregon IT Hardware VAR Contract (5603)	19	4361342	\$80.82	\$1,535.58
HPE Aruba - expansion module Mfg. Part#: JL083A UNSPSC: 43201404 Contract: Oregon IT Hardware VAR Contract (5603)	45	4360867	\$669.33	\$30,119.85
HPE Aruba X372 - power supply - hot-plug / redundant - 680 W Mfg. Part#: JL086A#ABA UNSPSC: 39121004 Contract: Oregon IT Hardware VAR Contract (5603)	100	4360870	\$385.00	\$38,500.00
HPE Aruba 2930M 48G POE+ 1-Slot - switch - 48 ports - managed - rack-mounta Mfg. Part#: JL322A UNSPSC: 43222612 Contract: Oregon IT Hardware VAR Contract (5603)	50	4524263	\$2,964.37	\$148,218.50
HPE Aruba - network stacking module Mfg. Part#: JL325A UNSPSC: 43201404 Contract: Oregon IT Hardware VAR Contract (5603)	23	4554280	\$540.52	\$12,431.96

PURCHASER BILLING INFO	SUBTOTAL	\$231,209.97
Billing Address: CLACKAMAS COUNTY TECHNOLOGY SERV 121 LIBRARY CT ACCTS PAYABLE OREGON CITY, OR 97045-4039 Phone: (503) 655-8322 Payment Terms: Net 30 Days-Govt State/Local	SHIPPING	\$0.00
	SALES TAX	\$0.00
	GRAND TOTAL	\$231,209.97
	DELIVER TO	Please remit payments to:

Shipping Address:
 CLACKAMAS COUNTY
 TECHNOLOGY SERV
 121 LIBRARY CT
 ACCTS PAYABLE
 OREGON CITY, OR 97045-4039
Phone: (503) 655-8322
Shipping Method: DROP SHIP-GROUND

CDW Government
 75 Remittance Drive
 Suite 1515
 Chicago, IL 60675-1515

Need Assistance? CDW•G SALES CONTACT INFORMATION



Adam Ryan

(866) 682-0927

adamrya@cdw.com

LEASE OPTIONS

FMV TOTAL	FMV LEASE OPTION	BO TOTAL	BO LEASE OPTION
\$231,209.97	\$6,136.31/Month	\$231,209.97	\$7,105.08/Month

Monthly payment based on 36 month lease. Other terms and options are available. Contact your Account Manager for details. Payment quoted is subject to change.

Why finance?

- Lower Upfront Costs. Get the products you need without impacting cash flow. Preserve your working capital and existing credit line.
- Flexible Payment Terms. 100% financing with no money down, payment deferrals and payment schedules that match your company's business cycles.
- Predictable, Low Monthly Payments. Pay over time. Lease payments are fixed and can be tailored to your budget levels or revenue streams.
- Technology Refresh. Keep current technology with minimal financial impact or risk. Add-on or upgrade during the lease term and choose to return or purchase the equipment at end of lease.
- Bundle Costs. You can combine hardware, software, and services into a single transaction and pay for your software licenses over time! We know your challenges and understand the need for flexibility.

General Terms and Conditions:

This quote is not legally binding and is for discussion purposes only. The rates are estimate only and are based on a collection of industry data from numerous sources. All rates and financial quotes are subject to final review, approval, and documentation by our leasing partners. Payments above exclude all applicable taxes. Financing is subject to credit approval and review of final equipment and services configuration. Fair Market Value leases are structured with the assumption that the equipment has a residual value at the end of the lease term.

This quote is subject to CDW's Terms and Conditions of Sales and Service Projects at <http://www.cdw.com/content/terms-conditions/product-sales.aspx>
 For more information, contact a CDW account manager

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SALES QUOTE

GovConnection, Inc.
732 Milford Road
Merrimack, NH 03054

Account Executive: Kenneth Whittenburg
Phone: (800) 800-0019 ext. 34054
Fax: (603) 683-0918
Email: kenneth.whittenburg@connection.com

25125817.02

PLEASE REFER TO THE ABOVE
QUOTE # WHEN ORDERING

Date: 3/17/2021
Valid Through: 4/16/2021
Account #: S01829

Account Manager:
Phone:
Fax:
Email:

Customer Contact: Chris Fricke
Email: chrisfri@co.clackamas.or.us

Phone: (503) 723-4941
Fax:

QUOTE PROVIDED TO: AB#: 9054103 CLACKAMAS COUNTY FINANCE DEPARTMENT 2051 KAEN ROAD PUBLIC SVCS BLDG OREGON CITY, OR 97045 (503) 742-5444	SHIP TO: AB#: 15472659 CLACKAMAS COUNTY CHRIS FRICKE 121 LIBRARY CT OREGON CITY, OR 97045 (503) 723-4941
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DELIVERY	FOB	SHIP VIA	SHIP WEIGHT	TERMS	CONTRACT ID#
5-30 Days A/R/O	Destination	Small Pkg Ground Service Level	1,340.00 lbs	Net 30	R160202

Important Notice: — THIS QUOTATION IS SUBJECT TO THE FOLLOWING Terms of Sale: All purchases from GovConnection, Inc. are subject to the Terms and Conditions of our NIPA-TCPN Contract # R160202. Any Order accepted by GovConnection for the items included in this Quotation is expressly limited to those Terms and Conditions; any other terms and conditions referenced or appearing in your Purchase Order are considered null and void. No other terms and conditions shall apply without the written consent of GovConnection, Inc. Please refer to our Quote Number in your order.

* Line #	Qty	Item #	Mfg. Part #	Description	Mfg.	Price	Ext
1	50	33822748	JL322A	2930M 1U RM L3 Managed Switch ARM Cortex-A9 1.0GHz / 1GB RAM / 4GB Flash / 44xGbE PoE+ / 4xGbE Aruba HPE	Aruba HPE	\$ 3,559.38	\$ 177,969.00
2	45	30945849	JL083A	4-port SFP+ 3810M Module for Aruba Aruba HPE	Aruba HPE	\$ 708.15	\$ 31,866.75
3	100	30945873	JL086A#ABA	Aruba X372 54VDC 680W P / S Aruba HPE	Aruba HPE	\$ 400.31	\$ 40,031.00
4	23	33822756	JL325A	Aruba 2930 2-Port Stacking Module Aruba HPE	Aruba HPE	\$ 571.86	\$ 13,152.78
5	4	15264210	J9735A	2920 Stacking Cable, 1m Aruba HPE	Aruba HPE	\$ 115.80	\$ 463.20
6	19	15264201	J9734A	2920 Stacking Cable, 0.5m Aruba HPE	Aruba HPE	\$ 90.33	\$ 1,716.27
						Subtotal	\$ 265,199.00
						Fee	\$ 0.00
						Shipping and Handling	\$ 0.00
						Tax	Exempt!
						Total	\$ 265,199.00



ORDERING INFORMATION
GovConnection, Inc. DBA Connection
National IPA Contract #R160202
Contract Expiration: 31 July 2021

Please contact your account manager with any questions.

Ordering Address
GovConnection, Inc.
732 Milford Road
Merrimack, NH 03054

Remittance Address
GovConnection, Inc.
Box 536477
Pittsburgh, PA 15253-5906

Please reference the Contract # on all purchase orders.

TERMS & CONDITIONS

Payment Terms:	NET 30 (subject to approved credit)
FOB Point:	DESTINATION (within Continental US)
Maximum Order Limitation:	NONE
FEIN:	52-1837891
DUNS Number:	80-967-8782
CEC:	80-068888K
Cage Code:	OGTJ3
Business Size:	LARGE

WARRANTY: Manufacturer's Standard Commercial Warranty

NOTE: It is the end user's responsibility to review, understand and agree to the terms of any End User License Agreement (EULA).

Important Notice: --- THIS QUOTATION IS SUBJECT TO THE FOLLOWING Terms of Sale: All purchases from GovConnection, Inc. are subject to the Terms and Conditions of our National IPA Contract #R160202. Any Order accepted by GovConnection for the items included in this Quotation is expressly limited to those Terms and Conditions; any other terms and conditions referenced or appearing in your Purchase Order are considered null and void. No other terms and conditions shall apply without the written consent of GovConnection, Inc. Please refer to our Quote Number in your order.

If you require a hard copy invoice for your credit card order, please visit the link below and click on the Proof of Purchase/Invoice link on the left side of the page to print one:
<https://www.govconnection.com/web/Shopping/ProofOfPurchase.htm>

Please forward your Contract or Purchase Order to:

SLEDOPS@connection.com

QUESTIONS: Call 800-800-0019

FAX: 603.683.0374



Pricing Proposal
Quotation #: 20230578
Created On: 3/22/2021
Valid Until: 4/22/2021

County of Clackamas

Chris Fricke

OR
United States
Phone: (503) 655-8322
Fax:
Email: CFricke@clackamas.us

Inside Account Manager

Alexander Clark

3828 Pecana Trail
Austin, TX 78749
Phone: 800-527-6389 EXT:
Fax:
Email: alexander_clark@shi.com

All Prices are in US Dollar (USD)

Product	Qty	Your Price	Total
1 HEWLETT PACKARD ENTERPRISE : Aruba 2930M 48G PoE+ 1-slot Switch Hewlett Packard Enterprise - Part#: JL322A Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	50	\$3,499.09	\$174,954.50
2 HEWLETT PACKARD ENTERPRISE : HP Stackable 4p 10GbE SFP+ Module Hewlett Packard Enterprise - Part#: JL083A Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	45	\$696.15	\$31,326.75
3 HEWLETT PACKARD ENTERPRISE : HP X372 54VDC 680W 100-240VAC PS Hewlett Packard Enterprise - Part#: JL086A#ABA Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	100	\$393.52	\$39,352.00
4 HEWLETT PACKARD ENTERPRISE : Aruba 2930 2-port Stacking Module Hewlett Packard Enterprise - Part#: JL325A Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	23	\$562.17	\$12,929.91
5 HEWLETT PACKARD ENTERPRISE : HP 2920 1.0m Stacking Cable Hewlett Packard Enterprise - Part#: J9735A Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	4	\$105.08	\$420.32
6 HEWLETT PACKARD ENTERPRISE : HP 2920 0.5m Stacking Cable Hewlett Packard Enterprise - Part#: J9734A Contract Name: Omnia Partners - IT Solutions Contract #: 2018011-02	19	\$84.06	\$1,597.14
		Total	\$260,580.62

Additional Comments

Please Note: Hewlett Packard Enterprise has a zero returns policy on custom build machines.

Hardware items on this quote may be updated to reflect changes due to industry wide constraints and fluctuations.

Purchase orders and inquiries can be sent to the team at TeamOregon@shi.com.

Thank you for choosing SHI International Corp! The pricing offered on this quote proposal is valid through the expiration date listed above. To ensure the best level of service, please provide End User Name, Phone Number, Email Address and applicable Contract Number when submitting a Purchase Order. For any additional information including Hardware, Software and Services Contracts, please contact an SHI Inside Sales Representative at (888) 744-4084. SHI International Corp. is 100% Minority Owned, Woman Owned Business. TAX ID# 22-3009648; DUNS# 61-1429481; CCR# 61-243957G; CAGE 1HTF0

The products offered under this proposal are resold in accordance with the terms and conditions of the Contract referenced under that applicable line item.