



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

Header 1

[List View](#)

General Information | [Contact](#) | [Default Values](#) | [Discount](#) | [Document Information](#) | [Clarification Request](#)
Procurement Folder: 949806

Procurement Type: Central Purchase Order

Vendor ID: 000000181088

Legal Name: ROLTA ADVIZEX TECHNOLOGIES LLC

Alias/DBA:
Total Bid: \$149,632.32

Response Date: 10/26/2021

Response Time: 7:12

Responded By User ID: mbostaph

First Name: Mika

Last Name: Munoz

Email: mmunoz@advizex.com

Phone: 304-615-3301

SO Doc Code: CRFQ

SO Dept: 0313

SO Doc ID: DEP2200000015

Published Date: 10/15/21

Close Date: 10/26/21

Close Time: 13:30

Status: Closed

Solicitation Description: BTO145-21 NetApp FAS (FlexArray Storage) 8200 or

Total of Header Attachments: 1

Total of All Attachments: 1



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

State of West Virginia
Solicitation Response

Proc Folder: 949806
Solicitation Description: BTO145-21 NetApp FAS (FlexArray Storage) 8200 or Equal & Sup
Proc Type: Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2021-10-26 13:30	SR 0313 ESR10262100000002603	1

VENDOR
000000181088
ROLTA ADVIZEX TECHNOLOGIES LLC

Solicitation Number: CRFQ 0313 DEP2200000015
Total Bid: 149632.3200000000069849193096
Response Date: 2021-10-26
Response Time: 07:12:57
Comments: Please contact Mika Munoz at mmunoz@advizex.com with any questions. Thank you.

FOR INFORMATION CONTACT THE BUYER
Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor Signature X	FEIN#	DATE
---------------------------	--------------	-------------

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

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	NetApp FAS (FlexArray Stor) 8200 or equal & add. equip 4.1.1	1.00000	EA	134676.180000	134676.18

Comm Code	Manufacturer	Specification	Model #
43201802			

Commodity Line Comments: Please see attachment for solution details.

Extended Description:

BTO145-21 NetApp FAS (FlexArray Storage) 8200 or equal and additional equipment 4.1.1
See section 4.1.1 through 4.1.1.7

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Technical Support and Parts Replacement 4.1.2				10770.62

Comm Code	Manufacturer	Specification	Model #
81111812			

Commodity Line Comments:

Extended Description:

Technical Support and Parts Replacement
See section 4.1.2

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Software Licenses 4.1.4	1.00000	EA	0.000000	0.00

Comm Code	Manufacturer	Specification	Model #
43230000			

Commodity Line Comments: Included in line item 1.

Extended Description:

Software Licenses
See section 4.1.4

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	Training 4.1.3				4185.52

Comm Code	Manufacturer	Specification	Model #
86000000			

Commodity Line Comments:

Extended Description:

Training
See section 4.1.3

WV Environmental Protection Office of Administration
BT0145-21 NetApp FAS (FlexArray Storage) 8200 or Equal
Advizex Response to CRFQ 0313 DEP2200000015



Bid Due Date: 10/26/2021

Bid Due Time: 1:30pm

Version: 1.6 FINAL

Presented to:

Joseph E Hager III
Environmental Protection
Office of Administration
601 57th St. SE
Charleston, WV 25304
(304) 558-2306
joseph.e.hageriii@wv.gov

Submitted by:

Mika Munoz
Account Executive
Advizex Technologies, LLC
680 Andersen Drive
Foster Plaza 10, 2nd Floor
Pittsburgh, PA 15220
304-615-3301 [mobile]
412-446-8300 [office]
412-937-0537 [fax]
mmunoz@advizex.com

Advizex Technologies, LLC (Advizex) has prepared this document solely for the State of West Virginia WV Environmental Protection Office of Administration (DEP).

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Distribution or reproduction of this document is restricted to DEP.

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Advizex

October 25, 2021

Joseph E Hager III
Environmental Protection
Office of Administration
601 57th St. SE
Charleston, WV 25304

RE: **WV Environmental Protection Office of Administration**
BT0145-21 NetApp FAS (FlexArray Storage) 8200 or Equal
Advizex Response to CRFQ 0313 DEP2200000015

Mr. Hager:

On behalf of Advizex Technologies, LLC (Advizex) I am pleased to submit our response to the State of West Virginia Environmental Protection Office of Administration BT0145-21 NetApp FAS (FlexArray Storage) 8200 or Equal CRFQ.

I, Mika Munoz, and your Account Executive and can always be reached at:

Mika Munoz
Account Executive
304-615-3301 [mobile]
mmunoz@advizex.com

680 Andersen Drive
Foster Plaza 10, 2nd Floor
Pittsburgh, PA 15220
412-446-8300 [office]
412-937-0537 [fax]

Advizex is an industry-leading information technology provider that combines the technical expertise of our highly-skilled consultants and leverages solutions from the industry's top technology partners. We have done this for over forty-five (46) years. Our practices include:

- Networking
- Application Modernization
- Microservices / Microsegmentation
- Microsoft Consulting and Platforms
- ServiceNow
- Business Process Engineering
- Virtualization
- Platforms and Systems
- Storage
- Hyper-converged Systems
- Scaled Agile Framework
- Cloud Native Application Development
- Mobile Computing
- Security
- Backup & Recovery
- Business Continuity
- Managed Services
- Cloud Computing
- Database Technologies
- Oracle Applications and Platforms

Advizex takes customer satisfaction seriously and maintains a 96% client retention rate, industry leader partnerships, and frequent recognition by the industry.

We currently employ over 175 technical consultants holding over 800 certifications.

Advizex has been recognized for its capabilities and excellence by our partners, for example:

- **HPE / Aruba** - Platinum Partner (44 Consecutive Years)
- **ServiceNow**
 - Expertise with ITSM, ITOM, GRC, SecOps and ITBM
- **CRN**
 - 2021 Elite 250
 - 2020 MSP500 and Tech Elite
 - 2016 through 2019 Top 500 Solution Providers (SP500)
- **VMware**
 - 2019 North America Services Delivery Partner of the Year
 - 2018 North America Services Delivery Partner of the Year
 - 2017 Americas Empower the Digital Workspace Partner of the Year
 - 2016 Global Professional Services Partner of the Year Award
 - 2016 Americas Professional Services Partner Innovation Award
 - 2014 Global Software Defined Data Center Partner of the Year
- **Oracle** -- Platinum Partner - 9 TITAN Awards
- **Microsoft** – Gold Partner for 12+ years
- **Dell / EMC**
 - 2018 and 2019 Dell EMC Services Delivery Partner of the Year – North America
 - Titanium Partner 2016 to 2020
 - Partner Services Quality Award (9th Consecutive Year)
 - 2014 EMC Americas Services Partner of the Year
- **Cisco** – Premier Partner
- **Palo Alto** -- Platinum Partner
- **Varonis** -- Gold Partner
- **Citrix, Pivotal, Cloudera, Trend Micro, Vormetric, and Red Hat**

As you see above, we have been awarded multiple times for the exact same products we have proposed in our solution to you; including our technical resources.

I need to recognize Jason Mayhue, a Senior Architect from Advizex, as the designer of the proposed solution. He is available, at any time, to discuss any questions related to this proposal and will play a pivotal role in the shortlisted presentations with your procurement and technical teams. His contact information is 540-761-0069 or jmayhue@advizex.com.



We have worked closely with every OEM whose products are included with this proposal and are 100% sure that this meets your expressed and future growth needs.

I Thank you for this opportunity and look forward to future reviews of this proposal with your technical teams.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mika Munoz", with a stylized flourish at the end.

Mika Munoz
Account Executive
Advizex Technologies, LLC



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1. LEGAL DOCUMENTS

1.1 OPENING DOCUMENTS



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

State of West Virginia
Centralized Request for Quote
Info Technology

Proc Folder: 949806

Doc Description: BTO145-21 NetApp FAS (FlexArray Storage) 8200 or Equal & Sup

Proc Type: Central Purchase Order

Reason for Modification:

Dell EMC Unity XT 380 storage is proposed as an alternate solution that offers greater capacity and performance.

Date Issued	Solicitation Closes	Solicitation No	Version
2021-10-07	2021-10-26 13:30	CRFQ 0313 DEP2200000015	1

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code: 000000181088

Vendor Name : Advizex Technologies, LLC

Address : 680 Anderson Drive

Street : Foster Plaza 10, 2nd Floor

City : Pittsburgh

State : PA

Country : USA

Zip : 15220

Principal Contact : Mika Munoz mmunoz@advizex.com

Vendor Contact Phone: 304-615-3301

Extension:

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X

FEIN# 37-1504931

DATE 10/25/2021

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

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Department of Environmental Protection to establish a contract for the one-time purchase of NetApp FAS (FlexArray Storage) 8200 or equal.

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON US	WV	ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NetApp FAS (FlexArray Stor) 8200 or equal & add. equip 4.1.1	1.00000	EA	\$134,676.18	\$134,676.18

Comm Code	Manufacturer	Specification	Model #
43201802			

Extended Description:

BTO145-21 NetApp FAS (FlexArray Storage) 8200 or equal and additional equipment 4.1.1

See section 4.1.1 through 4.1.1.7

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON US	WV	ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Technical Support and Parts Replacement 4.1.2	1	EA	\$10,770.62	\$10,770.62

Comm Code	Manufacturer	Specification	Model #
81111812			

Extended Description:

Technical Support and Parts Replacement

See section 4.1.2

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Software Licenses 4.1.4	1.00000	EA	Included in Line Item #1	

Comm Code	Manufacturer	Specification	Model #
43230000			

Extended Description:

Software Licenses

See section 4.1.4

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Training 4.1.3	1	EA	\$4,185.52	\$4,185.52

Comm Code	Manufacturer	Specification	Model #
86000000			

Extended Description:

Training

See section 4.1.3

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
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1.2 PRIMARY CONTACT / TERMS AND CONDITIONS

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.

Cindy Manley, VP of Operations

(Name, Title)

Cindy Manley, VP of Operations

(Printed Name and Title)

6480 Rockside Woods Blvd. S. Suite 190 Independence, OH 44131-2224

(Address)

216-901-1818 / 216-901-1447

(Phone Number) / (Fax Number)

cmanley@advizex.com


(email address)

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

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

Advizex Technologies, LLC

(Company)


(Authorized Signature) (Representative Name, Title)

Mika Munoz, Account Executive

(Printed Name and Title of Authorized Representative)

10/25/2021

(Date)

304-615-3301 / 216-901-1447

(Phone Number) (Fax Number)



1.3 ADDENDUM ACKNOWLEDGEMENT

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ 0313 DEP2200000015

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

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

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that 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.

Advizex Technologies, LLC

Company

Authorized Signature

10/25/2021

Date

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



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

State of West Virginia
Centralized Request for Quote
Info Technology

Proc Folder: 949806

Doc Description: BTO145-21 NetApp FAS (FlexArray Storage) 8200 or Equal & Sup

Reason for Modification:

Addendum #1 issued to publish agency responses to all vendor submitted questions.

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2021-10-15	2021-10-26 13:30	CRFQ 0313 DEP2200000015	2

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code:

Vendor Name : Advizex Technologies, LLC

Address : 680 Anderson Drive

Street : Foster Plaza 10, 2nd Floor

City : Pittsburgh

State : PA

Country : USA

Zip : 15220

Principal Contact : Mika Munoz

Vendor Contact Phone: 304-615-3301

Extension:

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

**Vendor
Signature X**

FEIN# 37-1504931

DATE 10/25/21

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

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Department of Environmental Protection to establish a contract for the one-time purchase of NetApp FAS (FlexArray Storage) 8200 or equal.

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NetApp FAS (FlexArray Stor) 8200 or equal & add. equip 4.1.1	1.00000	EA	\$134,676.18	\$134,676.18

Comm Code	Manufacturer	Specification	Model #
43201802			

Extended Description:

BTO145-21 NetApp FAS (FlexArray Storage) 8200 or equal and additional equipment 4.1.1

See section 4.1.1 through 4.1.1.7

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Technical Support and Parts Replacement 4.1.2	1	EA	\$10,770.62	\$10,770.62

Comm Code	Manufacturer	Specification	Model #
81111812			

Extended Description:

Technical Support and Parts Replacement

See section 4.1.2

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Software Licenses 4.1.4	1.00000	EA	Included in Line Item #1	

Comm Code	Manufacturer	Specification	Model #
43230000			

Extended Description:

Software Licenses

See section 4.1.4

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Training 4.1.3	1	EA	\$4,185.52	\$4,185.52

Comm Code	Manufacturer	Specification	Model #
86000000			

Extended Description:

Training

See section 4.1.3

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
-------------	--------------	-------------------

SOLICITATION NUMBER: CRFQ 0313 DEP2200000015

Addendum Number: No.01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☐ | Modify bid opening date and time
- ☐ | Modify specifications of product or service being sought
- ☒ | Attachment of vendor questions and responses
- ☐ | Attachment of pre-bid sign-in sheet
- ☐ | Correction of error
- ☐ | Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. To publish agency responses to all vendor submitted questions

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, 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.

ATTACHMENT A

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DEP22*15

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

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

Addendum Numbers Received:

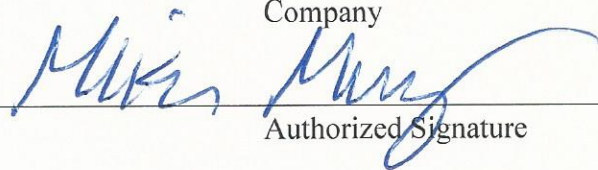
(Check the box next to each addendum received)

<input checked="" type="checkbox"/> Addendum No. 1	<input type="checkbox"/> Addendum No. 6
<input type="checkbox"/> Addendum No. 2	<input type="checkbox"/> Addendum No. 7
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Advizex Technologies, LLC

Company



Authorized Signature

10/25/2021

Date

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

Revised 6/8/2012

RFI: Questions from vendors for CRFQ DEP 22*15 NetApp FAS 8200 or Equal

Q.1 For us to provide an accurate quote we would need the serial number and AutoSupport Files. Attached are directions on how to pull them. Is this something you would be able to provide?

A. We do not currently have a NETAPP storage system.

Q.2.What were the changes from the previous RFQ

A. Section 4.1 on the previous RFQ had flaws and they have all been addressed and the resulting changes required rebid as we removed and/or added some requirements.

Q.3. Are there any specific performance requirements for this storage?

A. See section 4.1.1. These are the minimum requirements that must be met.

Q.4. Does the system require hot spare drives to be included?

A. Yes.

Q.5. Is the 120TB raw capacity, formatted usable capacity or formatted usable capacity after deduplication and compression? If after deduplication and compression, please provide the types of data to be stored so that may be calculated.

A. Formatted usable capacity.

Q.6. Is the 120TB volume a RAW or usable measurement

A. Formatted usable capacity.

Q.7. Is there any performance guidance IE. IOPS or throughput?

A. No.



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Purchasing Division
2019 Washington Street East
Post Office Box 50130
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State of West Virginia
Centralized Request for Quote
Info Technology

Proc Folder: 949806

Doc Description: BTO145-21 NetApp FAS (FlexArray Storage) 8200 or Equal & Sup

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Dell EMC Unity XT 380 storage is proposed as an alternate solution that offers greater capacity and performance.

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DEPARTMENT OF ADMINISTRATION
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2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code: 000000181088

Vendor Name : Advizex Technologies, LLC

Address : 680 Anderson Drive

Street : Foster Plaza 10, 2nd Floor

City : Pittsburgh

State : PA

Country : USA

Zip : 15220

Principal Contact : Mika Munoz mmunoz@advizex.com

Vendor Contact Phone: 304-615-3301

Extension:

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X

FEIN# 37-1504931

DATE 10/25/2021

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

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of West Virginia Department of Environmental Protection to establish a contract for the one-time purchase of NetApp FAS (FlexArray Storage) 8200 or equal.

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ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
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Comm Code	Manufacturer	Specification	Model #
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Extended Description:

BTO145-21 NetApp FAS (FlexArray Storage) 8200 or equal and additional equipment 4.1.1

See section 4.1.1 through 4.1.1.7

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Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
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Comm Code	Manufacturer	Specification	Model #
81111812			

Extended Description:

Technical Support and Parts Replacement

See section 4.1.2

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Software Licenses 4.1.4	1.00000	EA	Included in Line Item #1	

Comm Code	Manufacturer	Specification	Model #
43230000			

Extended Description:

Software Licenses

See section 4.1.4

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION OFFICE OF ADMINISTRATION 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	Training 4.1.3	1	EA	\$4,185.52	\$4,185.52

Comm Code	Manufacturer	Specification	Model #
86000000			

Extended Description:

Training

See section 4.1.3

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
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1.4 CERTIFICATE OF INSURANCE (COI)

ACORDTM**CERTIFICATE OF LIABILITY INSURANCE**

DATE (MM/DD/YYYY)

5/18/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER CBIZ Insurance Services, Inc. 6050 Oak Tree Blvd., South #500 Cleveland, OH 44131	CONTACT NAME: Erika Schabo PHONE (A/C, No, Ext): 216-447-9000 FAX (A/C, No): 216-447-9007 E-MAIL ADDRESS: elahti@cbiz.com														
INSURED AdvizeX Technologies, LLC 6480 Rockside Woods Blvd. S Suite 190 Cleveland, OH 44131	<table border="1"> <thead> <tr> <th data-bbox="816 426 1433 451">INSURER(S) AFFORDING COVERAGE</th> <th data-bbox="1433 426 1563 451">NAIC #</th> </tr> </thead> <tbody> <tr> <td data-bbox="816 451 1433 478">INSURER A : Phoenix Insurance Co.</td> <td data-bbox="1433 451 1563 478">25623</td> </tr> <tr> <td data-bbox="816 478 1433 506">INSURER B : Travelers Prop. Cas. Co. of America</td> <td data-bbox="1433 478 1563 506">25674</td> </tr> <tr> <td data-bbox="816 506 1433 533">INSURER C : Hartford Insurance</td> <td data-bbox="1433 506 1563 533"></td> </tr> <tr> <td data-bbox="816 533 1433 560">INSURER D :</td> <td data-bbox="1433 533 1563 560"></td> </tr> <tr> <td data-bbox="816 560 1433 588">INSURER E :</td> <td data-bbox="1433 560 1563 588"></td> </tr> <tr> <td data-bbox="816 588 1433 615">INSURER F :</td> <td data-bbox="1433 588 1563 615"></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Phoenix Insurance Co.	25623	INSURER B : Travelers Prop. Cas. Co. of America	25674	INSURER C : Hartford Insurance		INSURER D :		INSURER E :		INSURER F :	
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INSURER D :															
INSURER E :															
INSURER F :															


COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			6301S684339	05/01/2021	05/01/2022	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$1,000,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY			BA1S687237	05/01/2021	05/01/2022	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB <input checked="" type="checkbox"/> RETENTION \$10,000			CUP1S687458	05/01/2021	05/01/2022	EACH OCCURRENCE \$15,000,000 AGGREGATE \$15,000,000 \$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input checked="" type="checkbox"/> N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	45WECAA7S8F	11/01/2020	11/01/2021	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 



1.5 PURCHASING AFFIDAVIT

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract 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.

ALL CONTRACTS: 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: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, 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: Advizex Technologies, LLC

Authorized Signature: *[Signature]* Date: 10/25/2021

State of Ohio

County of Cuyahoga, to-wit:

Taken, subscribed, and sworn to before me this 25th day of October, 2021.

My Commission expires 12/26, 2022.

SCOTT HESS
NOTARY PUBLIC
STATE OF OHIO
Recorded in
Cuyahoga County
My Comm. Exp. 12/26/2022

NOTARY PUBLIC *[Signature]*

2. SOLUTION MANDATORY COMPLIANCE

The recommended solution addresses your mandatory requirements in the following manner:

4.1.1 Vendor must provide NetApp FAS (FlexArray Storage) 8200 or equal storage array. The FlexArray Storage must meet the minimum requirements listed below:	
4.1.1.1 The Storage Array must provide dual storage controllers that function as a highly available clustered pair and must meet the following minimum requirements:	<p>The Dell-EMC Unity XT 380F All Flash Meets or exceeds the specifications requested.</p> <p>The UnityXT380F Storage array includes dual storage controllers that function as a highly available clustered Active/Active pair.</p>
4.1.1.1.1 64 GB of RAM	The Advizex recommended Unity 380XT includes 128GB of RAM.
4.1.1.1.2 8GB of NVRAM	The Advizex recommended Unity 380XT includes 340GB NVRAM.
4.1.1.1.3 1 x RJ45 10gb Ethernet ports	The Advizex recommended Unity 380XT includes (4) RJ45 10Gb Ethernet Ports.
4.1.1.1.4 2 x SFP+ 10gb Ethernet ports or Fiber Channel ports	The Advizex recommended Unity 380XT includes (8) SFP+ 10Gb Ethernet or Fiber Channel ports
4.1.1.1.5 2 x 12gb SAS ports or Fiber Channel ports	The Advizex recommended Unity 380XT includes (4) 12 Gb SAS ports.
4.1.1.1.6 2 x 64-bit 12 core intel 1.70GHz CPU	The Advizex recommended Unity 380XT includes (2) 64-bit 12 core Intel 1.70GHz CPU

4.1.1.2 The storage array must have the following storage capacity:	
4.1.1.2.1 120 TiB (Tebibyte/Binary Terabytes) of storage.	<p>The All-flash Dell-EMC Unity XT solution proposed in response to WV DEP's solicitation contains 123TiB of <i>usable</i> (prior to advanced data reduction) but after spare and raid protection storage capacity.</p> <p>Because the Unity XT all flash is a modern all flash storage array with Advanced in-line data reduction – this configuration is</p>

	<p>guaranteed (within Dell Future Proof Program guidelines) to deliver over 370TiB of effective, usable capacity. Advizex's knowledge of WV DEP workloads would lead us to assume that your Effective capacity would exceed what it would be with guaranteed minimum Data Reduction ratios.</p> <p>Advizex's recommendation is to reduce the amount of flash in this configuration, and leverage Advanced Data Reduction on a modern, All flash array. Our experience shows that Dell All Flash storage with Advanced Data Reduction delivers massive performance improvements, along with lower acquisition cost per TiB of data stored, as well as significantly reduced energy consumption, longer lifecycle, and lower HW warranty and maintenance costs. Because of the way this RFQ defined Usable storage, Advizex is compelled to offer a solution that meets the definition, although it is clearly not in the best interest of the agency as worded and clarified in Addendum #1. The result is that our solution, while the best value – is grossly oversized for the Agency's needs.</p>
4.1.1.2.2 Must be expandable to increase storage by up to 50%.	<p>Unity XT 380 RAW max capacity is 2.4PB. The Advizex solution as quoted already includes 200% more effective capacity than requested.</p>
4.1.1.2.3 Must support clustering with additional controllers with a minimum cluster size of eight (8) or more controllers providing live mobility of storage volumes between controllers with zero downtime.	<p>The Unity XT380 supports clustering capability of 8 controllers providing live mobility of storage volumes between controllers with zero downtime.</p>

4.1.1.3 The storage array must provide the following functionality:	
4.1.1.3.1 Must provide a single management interface for both block and file storage functionality.	The Unity XT380 provides a single HTML 5 Web interface for both block and file storage functionality.
4.1.1.3.2 Must have Microsoft shadow copy integration such that the storage system creates shadow copy information on a read only storage snapshot LUNs that are accessible by Microsoft servers to restore using the previous versions features available to end users in a self-help manner.	The Unity XT380 has Microsoft shadow copy integration such that the storage system creates shadow copy information on a read only storage snapshot LUNs that are accessible by Microsoft servers to restore using the previous versions features available to end users in a self-help manner.
4.1.1.3.3 Must have a policy to block common ransomware file extensions.	The Unity XT 380 has a variety of features capable of blocking common ransomware file extensions. Not limited to static policies.
4.1.1.3.4 Must support single, double, and triple parity RAID.	The Unity XT380 exceeds the data protection capabilities of legacy single, double, triple parity RAID. The Unity XT All flash leverages advanced dynamic RAID capabilities that automatically deliver RAID protection, automated distributed Sparing, as well as SSD health and endurance management. This delivers the highest data protection, faster rebuild times, and allows single drive capacity additions. The Legacy Static RAID leveraged by other solutions require minimum capacity adds of 12 or more drives for the smallest capacity increases. This will dramatically increase cost of a minor expansion as compared to Unity XT 380. The dynamic RAID protection with Unity XT 380 also levels wear rates on storage media, which increases reliability, extends product useable life, and increases value.
4.1.1.3.5 Must support Volume Encryption.	The Unity XT 380 includes Volume Encryption with built in key management features.

4.1.1.3.6 Must support per volume deduplication that can be enabled or disabled, during and after volume creation.	The Unity XT380 includes advanced, in-line (not postprocessed) per volume deduplication that can be enabled or disabled, during and after volume creation.
4.1.1.3.7 Must support per volume compression that can be enabled or disabled, during and after volume creation.	The Unity XT380 includes advanced, in-line (not postprocessed) per volume compression that can be enabled or disabled, during and after volume creation.
4.1.1.3.8 Must support the ability to natively offload/de-stage cold data to the on and/or off premise private or commercial cloud (S3).	The Unity XT380 supports the ability to natively offload/de-stage cold data to the on and/or off premise private or commercial cloud (S3).
4.1.1.3.9 Must be able to create redirect on write snapshots within the storage array.	The Unity XT 380 can create redirect on write snapshots within the storage array, it is also able to replicate native snapshots between the storage contained in the WV Office of Technology Converged Data Center Solution (commonly known as DC2.0). (Snapshot Shipping) This could be used by WV DEP to house data snapshots from production and to accelerate any DR recovery activity, or just to retain redundant copies for higher availability.
4.1.1.3.10 Must support zero downtime firmware and OS upgrades to the storage controllers.	The Unity XT 380 is fully redundant and supports zero-downtime firmware and OS upgrades for the storage controllers, as well as drives.
4.1.1.3.11 Must support hot spare drive capability.	The Unity XT 380 includes hot spare drive capability

4.1.1.4 The storage array must support the following protocols:	
4.1.1.4.1 iSCSI (interne small computer systems interface) or Fiber Channel.	Dell EMC Unity XT 380 supports the following protocols: NFSv3 , NFSv4 , NFSv4.1 (pNFS is part of 4.1) ; CIFS (SMB 1), SMB 2, SMB 3.0, SMB 3.2, SMB 3.1.1; FTP and SFTP; FC, iSCSI , and VVols 2.0.
4.1.1.4.2 NFS (network file system).	
4.1.1.4.3 pNFS (parallel network file system).	
4.1.1.4.4 Must support ODX extension when utilized with Microsoft Hyper- V virtualization platform.	The Unity XT 380 supports ODX extension when utilized with Microsoft Hyper- V virtualization platform.

4.1.1.5 The storage array must support at a minimum the following Agency owned operating systems:	
4.1.1.5.1 Windows Server 2008	The proposed Unity XT 380 supports the following operating systems: Citrix XenServer , HPE HP-UX, HPE Open VMS, IBM AIX, IBM VIOS, Microsoft Windows Server 2008, Microsoft Windows Server 2012, Microsoft Windows Server 2016, Microsoft Windows Server 2019 , Microsoft Windows Storage Server 2012, Oracle Linux OL, Oracle Solaris, Red Hat RHEL, Red Hat Virtualization , SUSE SLES, VMS Software VSI OpenVMS, and VMware ESXi.
4.1.1.5.2 Windows Server 2012	
4.1.1.5.3 Windows Server 2016	
4.1.1.5.4 Windows Server 2019	
4.1.1.5.5 Xen Hypervisor and Red Hat Virtualization Hypervisor	
4.1.1.6 The storage array must include a Virtual Storage Console for Citrix XenServer.	The Unity XT 380 includes a wide variety of virtual storage console capabilities including from within Citrix Xenserver. Unity XT also includes fully documented REST API's, support for CSI (Container Storage Interface) drivers, Ansible plug-ins, as well as other ways to fully provide automated storage reporting and management from with integrated applications.
4.1.1.7 Additional equipment cost must be included in the total cost of the NetApp FAS (FlexArray Storage) 8200 or equal quote. All cables and connectors to connect all equipment must work together at full speed and with redundancy. The power cables will need to have a C20 end to fit our existing PDUs.	The Unity XT 380 solution pricing is all-inclusive as requested.

4.1.2 Technical Support and Parts Replacement	
4.1.2.1 Must include 24x7 remote and on-site technical support and parts replacement for a duration of no less than one (1) year from the date of equipment testing and acceptance by the WVDEP.	<p>Configuration of the storage and readiness for WV DEP utilization is included in the solution. In addition, On-site installation, and provisioning of Call Home support features, is included.</p> <p>The Unity XT380 includes advanced hardware replacement for the term of the initial support term, and any subsequent extensions of coverage. The OEM will</p>

	provide notification regarding replaced or removed components which will include item name, serial number and/or WVDEP property tag if applicable.
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4.1.2.2 Must adhere to the following support response times:	
4.1.2.2.1 Priority 1: Thirty (30) minutes (storage down and unable to serve data or a state of frequent "panic" or "hang" states, or storage performance is degraded to prevent normal business operations).	Requested support level is included.
4.1.2.2.2 Priority 2: Two (2) hours (storage experiencing infrequent, isolated, or intermittent "panic" or "hang" states, or performance is in a degraded state that still allows normal business operations but is inconsistent or less than optimal state).	Requested support level is included.
4.1.2.2.3 Priority 3: Eight (8) hours (storage experiencing an issue, anomaly, or cosmetic defect that inflicts little or no business impact).	Requested support level is included.
4.1.2.2.4 Priority 4: Twenty-four (24) hours (Normal requests for information regarding installation, configuration, use, and maintenance of the storage system).	Requested support level is included.
4.1.2.3 Support for configuration of the storage arrays and the switching hardware to allow new compute resources (blade servers).	Requested support level is included.
4.1.2.4 Support for configuring "Call Home" feature, register the solution with vendor support and assist in registration of WVDEP personnel on the support site.	Requested support level is included.
4.1.2.5 Support must include advance hardware replacement. If the original equipment is not returned to the agency, vendor must provide a communication regarding the removed item which shall include item name, serial number and/or WVDEP property tag (if applicable).	Requested support level is included.

4.1.3 Training: This section will outline training required as part of this solicitation. Training must include information so that DEP personnel can perform the following:	
4.1.3.1 Vendor must train DEP personnel to install and configure the new equipment.	OEM provided installation services will perform installation and provide knowledge transfer to WV DEP personnel.
4.1.3.2 Vendor must train DEP personnel to perform day to day administrative activities.	OEM provided installation services and/or Advizex will train DEP personnel to perform day to day administrative activities.

<p>4.1.3.3 Vendor must train DEP personnel to perform system maintenance such as software and firmware upgrades.</p>	<p>OEM provided installation serviced and/or Advizex will train DEP personnel to perform system maintenance such as software or firmware upgrades.</p>
<p>4.1.4 Software Licenses:</p>	
<p>4.1.4.1 Vendor must include any additional software licenses needed for the process in their bid response. The NetApp storage arrays on which the storage requirements were based provides native replication tools for this functionality.</p>	<p>The Dell EMC Unity XT 380 solution is an all-inclusive base software licensed solution. One of the major unique advantages of Dell EMC Unity XT 380 is that it is the same storage product that is included within WV OOT DC2.0 converged data center solution. For WVDEP, this is a major advantage over all other storage products.</p> <p>The following are unique licensed software capabilities for Dell EMC Unity XT that are included for native data protection and migration to/from the converged solution in WV OOT DC 2.0.</p> <ul style="list-style-type: none"> • Native Asynchronous Block & File Replication, including bandwidth throttling • Native Synchronous Block & File Replication, including bandwidth throttling • Snapshot Shipping • Dell EMC RecoverPoint Basic
<p>4.1.4.2 All software and software licenses needed for this solicitation must be included with vendors bid. Software licenses will be retained by WVDEP.</p>	<p>All software and software licenses needed for this solicitation (as well as many others) are included in our bid. WV DEP will retain all licenses.</p>

3. QUOTATIONS / BOMs



TO:

Name: Joseph E Hager III
 Company: WV Dept. Environmental Protection
 Address: 601 57TH ST SE
 Address: Charleston, WV 25304
 Phone: (304) 558-2306
 Email: joseph.e.hageriii@wv.gov

ITEM	DESCRIPTION	QTY
210-ASLP	UNITY 380F DPE 25X2.5" DELL FIELD RACK	1
528-CNRZ	FILE LEVEL RETENTION=IC	1
528-CNSB	UNITY ISCSI=IC	1
528-CNSC	UNITY NFS=IC	1
528-CNSD	FILE SYSTEM EVENTS PUBLISHING=IC	1
528-CNSE	UNITY D@RE=IC	1
528-CNSF	UNITY VASA/VVOLS=IC	1
528-CNSH	UNITY REPLICATION=IC	1
528-CNSI	UNITY QUALITY OF SERVICE=IC	1
528-CNSJ	UNITY ESA ADAPTER=IC	1
528-CNSK	INLINE COMPRESSION=IC	1
528-CNSL	UNITY EMC PROACTIVE ASSIST=IC	1
528-CNSM	CLOUD TIERING	1
528-CNSN	UNITY LOCAL COPIES	1
528-CNSO	UNITY FIBRE CHANNEL=IC	1
528-CNSQ	UNITY ANTIVIRUS=IC	1
528-CNSR	UNITY UNISPHERE CENTRAL=IC	1
528-CNSS	OPERATING SYSTEM V4.0=IC	1
528-CNST	UNITY CIFS=IC	1
528-CNSU	UNITY THIN PROVISIONING=IC	1
528-CNSV	UNITY UNISPHERE=IC	1
528-CNSW	IP MULTI-TENANCY=IC	1
400-BFUQ	UNITY F 7.68TB ALL FLASH 25X2.5 SSD	23
406-BBNH	UNITY CNA 4X10GBE OPT SFPS AF	1
470-ADRN	UNITY 2X3M OM4 FIBER CBL AF	2
379-BDOI	PAIR OF C13/C14 CABLES (HIGHLINE POWER) OR C19/C20 CABLES (480/680 LOWLINE POWER) INCLUDED WITH DPE	1
343-BBMQ	UNITY 380F DPE INSTALL KIT	1
379-BDPD	ISG PRODUCT (INFO)	1
826-6669	DELL HARDWARE LIMITED WARRANTY INITIAL YEAR	1
826-6678	PROSUPPORT: MISSION CRITICAL 4-HOUR 7X24 ON- SITE SERVICE WITH EMERGENCY DISPATCH 1 YEAR	1
826-6682	PROSUPPORT MISSION CRITICAL 7X24 HW TECH SUPPORT AND ASSISTANCE 1 YEAR	1
989-3439	THANK YOU CHOOSING DELL PROSUPPORT. FOR TECH SUPPORT, VISIT //WWW.DELL.COM/SUPPORT OR CALL 1-800- 945-3355	1
826-9563	PROSUPPORT: MISSION CRITICAL 4-HOUR 7X24 ON- SITE MEDIUM CAPACITY SSD ADD-ON, 1 YEAR	23
826-9744	PROSUPPORT MISSION CRITICAL, SOFTWARE SUPPORT MAINTENANCE 1 YEAR	1
825-0177	PRODEPLOY FOR UNITY X80 DPE HYBRID AND ALL FLASH	1
825-0178	PRODEPLOY FOR UNITY X80 DPE HYBRID AND ALL FLASH DEPLOYMENT VERIFICATION	1

**TO:**

Name: Joseph E Hager III
Company: WV Dept. Environmental Protection
Address: 601 57TH ST SE
Address: Charleston, WV 25304
Phone: (304) 558-2306
Email: joseph.e.hageriii@wv.gov

ITEM	DESCRIPTION	QTY
332-1286	US ORDER	1
210-ASON	APPSYNC UNITY AF	1
658-BEJV	APPSYNC BSC FOR UNITY 300F/350F/380F=IC	1
900-9997	ON-SITE INSTALLATION DECLINED	1
626-BBBG	STORAGE SOFTWARE INFO	1
929-3709	THANK YOU FOR YOUR ORDER	1
935-6720	THANK YOU FOR YOUR ORDER	1
210-ATUQ	RECOVERPOINT FOR UNITY XT AF	1
528-COYI	RP BASIC REM FOR UNITY =IC	1
528-COYJ	RP BASIC LOC FOR UNITY =IC	1
900-9997	ON-SITE INSTALLATION DECLINED	1
825-7317	PROSUPPORT MISSION CRITICAL, RECOVERPOINT BASIC - ALL-FLASH, SOFTWARE SUPPORT/MAINTENANCE. 1 YEAR	1
626-BBBG	STORAGE SOFTWARE INFO	1
929-3709	THANK YOU FOR YOUR ORDER	1
935-6720	THANK YOU FOR YOUR ORDER	1
210-ATUP	STORAGE M&R FOR UNITY XT	1
528-BTYG	STORAGE M&R FOR UNITY XT =IC	1
825-6775	PROSUPPORT MISSION CRITICAL, STORAGE MONITORING/REPORTING, SOFTWARE SUPPORT/MAINTENANCE 3 YEARS	1
900-9997	ON-SITE INSTALLATION DECLINED	1
929-3709	THANK YOU FOR YOUR ORDER	1
935-6720	THANK YOU FOR YOUR ORDER	1
626-BBBG	STORAGE SOFTWARE INFO	1
TOTAL:		\$149,632.32

4. DELL EMC UNITY XT 380 TECHNICAL DOCUMENTATION



DELL EMC UNITY XT STORAGE SERIES

Simplify the path to IT transformation and unlock the full potential of your data capital with the new Dell EMC Unity XT storage arrays that feature up to 2X more IOPS, more memory, and up to 50% more drives than previous Dell EMC Unity models. These All-Flash and Hybrid storage systems with dual-active controller architecture and enterprise-class features are designed for performance, optimized for efficiency with up to 5:1 data reduction, and built to simplify your multi-cloud journey.

Architecture

Based on the powerful family of Intel Xeon™ processors, Dell EMC's Unity XT storage systems implement an integrated architecture for block, file, and VMware VVols with concurrent support for native NAS, iSCSI, and Fibre Channel protocols. Each system leverages dual storage processors, full 12 Gb SAS back end connectivity and Dell EMC's patented multicore architected operating environment to deliver unparalleled performance & efficiency. Additional storage capacity is added via Disk Array Enclosures (DAEs).

Physical Specifications

	380F/380	480F/480	680F/680	880F/880
Min/Max Drives	6/500	6/750	6/1000	6/1500
Array Enclosure	A 2U Disk Processor Enclosure (DPE) with twenty five 2.5" drives			
Drive Enclosure (DAE - Disk Array Enclosure)	All-Flash (F) models support 2.5" drives in 2U twenty five drive and 3U eighty drive trays. Hybrid models support 2.5" drives in 2U twenty five drive and 3U eighty drive trays; and 3.5" drives in 3U fifteen drive trays.			
Standby Power System	Dell EMC Unity systems are powered by 2 power supplies (PS) per DPE/DAE. Each power supply can provide power to the entire module if the peer PS has been removed or is faulted. DPE power during a power failure is provided by a Battery Back Up (BBU) module. BBU is located within the SP enclosure and provides power to a single module (power zone)			
RAID Options	1/0, 5, 6			
CPU per Array	2 x Intel CPUs, 12 cores per Array, 1.7GHz	2 x dual-socket Intel CPUs, 32 cores per Array, 1.8GHz	2 x dual-socket Intel CPUs, 48 cores per Array, 2.1GHz	2 x dual-socket Intel CPUs 64 cores per Array, 2.1GHz
System Memory/Cache per Array	128 GB	192 GB	384 GB	768 GB
Max FAST Cache per Array*	Up to 800 GBs	Up to 1.2 TBs	Up to 3.2 TBs	Up to 6.0TBs
Total Cache ^A	Up to 928 GBs	Up to 1.39 TBs	Up to 3.58 TBs	Up to 6.76 TBs
Max Mezzanine cards per Array ^B	NA	2	2	2
Max IO Modules per Array ^C	4	4	4	4

DELL EMC UNITY XT

	380F/380	480F/480	680F/680	880F/880
Embedded SAS IO Ports per Array	4 x 4 lane 12Gb/s SAS ports for BE (back end) Connection	4 x 4 lane 12Gb/s SAS ports for BE Connection	4 x 4 lane 12Gb/s SAS ports for BE Connection	4 x 4 lane 12Gb/s SAS ports for BE Connection
Optional SAS IO ports per Array	NA	8 x 4 lane or 4 x 8 lane 12Gb/s SAS ports (for BE Connection)	8 x 4 lane or 4 x 8 lane 12Gb/s SAS ports (for BE Connection)	8 x 4 lane or 4 x 8 lane 12Gb/s SAS ports (for BE Connection)
Base 12 Gb/s SAS BE Buses per Array	2 x 4 Lane	2 x 4 Lane	2 x 4 Lane	2 x 4 Lane
Max 12 Gb/s SAS BE Buses per Array	2 x 4 Lane	6 x 4 Lane; or 2 x 4 lane and 2 x 8 lane	6 x 4 Lane; or 2 x 4 lane and 2 x 8 lane	6 x 4 Lane; or 2 x 4 lane and 2 x 8 lane
Max FE (front end) Total Ports per Array (all types)	24	24	24	24
Max Initiators per Array	1,024	2,048	2,048	4,096
Max FC Ports per Array	20	16	16	16
Embedded 10GbaseT Ports per Array	4	NA	NA	NA
Embedded CNA ports per Array	4 ports: 8/16 Gb FC ^D , 10Gb IP/iSCSI, or 1Gb RJ45	NA	NA	NA
1 Gbase-T/iSCSI Max Total Ports per Array	24	24	24	24
10/25 GbE/iSCSI Max Total Ports per Array	24 – 10GbE 16 – 25GbE	24	24	24
Max Raw Capacity ^E	2.4 PBs	4.0 PBs	8.0 PBs	16.0 PBs
Max SAN Hosts	512	1,024	1,024	2,048
Max Number of Pools	20	30	40	100
Max Number of LUNs per Array	1,000	1,500	2,000	6,000
Max LUN Size	256 TB	256 TB	256 TB	256 TB
Max file systems per Array	1000	1500	2000	4000
Max File System Size	256 TB	256 TB	256 TB	256 TB
Max attached snapshots per Array (Block)	1000	1500	2000	6000
IOPS ^F (All Flash Models 380F – 880F)	up to 600K	up to 1.68M	up to 2.36M	up to 2.56M
OS Support	See the Dell EMC Simple Support Matrix on dell EMC.com			
^A Specific to Hybrid Arrays ^B One Mezzanine card per Storage Processor (SP), mirrored. ^C Two IO Modules per Storage Processor (SP), mirrored. ^D 16Gb available in both single mode and multimode. ^E Maximum raw capacity will vary based on drive sizes available at time of purchase. ^F 100% sequential Reads, 4K block size, thick LUNs. Based on internal testing (June 2019). Your results may vary.				

Connectivity

Connectivity options via Mezzanine cards and IO modules for both the file for NFS/SMB connectivity and the block storage for FC and iSCSI host connectivity (see above table for number of modules supported per SP).

Connectivity Options		
Type	Description	Details
Mezzanine card or IO Module	Four-Port 10Gbase-T Module (File & Block)	Four port 10Gbase-T Ethernet IP/iSCSI module with four 10Gbase-T Ethernet ports with copper connection to Ethernet switch
Mezzanine card or IO Module	Four-Port 10 Gb/s Optical Module (File & Block)	Four port 10GbE IP/iSCSI module with choice of SFP+ optical connection or active/passive twinax copper connection to Ethernet switch
Mezzanine card or IO Module	Four-Port 25 Gb/s Optical Module (File & Block)	Four port 10GbE IP/iSCSI module with choice of SFP+ optical connection or passive twinax copper connection to Ethernet switch
IO Module	Four-Port 32 Gb/s Fibre Channel Module (Block only)	Four port FC module with four ports auto-negotiating to 4/8/16 or 8/16/32 Gbps; uses single mode or multimode optical SFP and OM2/OM3/OM4 cabling to connect directly to host HBA or FC switch
IO Module	Four-Port 12 Gb/s SAS V3.0 Module*	Four port SAS module, used for back-end storage (DAE) connectivity to Storage Processors. Each SAS port has 4 lanes/port @ 12Gbps, delivering 48Gbps nominal throughput. Also available specifically for the 80 drive DAE is 8 lane connectivity utilizing a pair of SAS ports to deliver high bandwidth for added performance.
* For 480F/480, 680F/680 and 880F/880 models		

Maximum Cable Lengths

Shortwave optical OM4: 125 meters (16 Gb) 190 meters (8 Gb), 400 meters (4 Gb), and 500 meters (2 Gb)

Back-end (Drive) Connectivity

Each storage processor connects to one side of each of two redundant pairs of four-lane x 12 Gb/s Serial Attached SCSI (SAS) buses, providing continuous drive access to hosts in the event of a storage processor or bus fault. All models require four “system” drives and support a platform specific maximum number of disks (see Physical Specifications table above). 107 GBs per system drive on the Dell EMC Unity XT 380 models and 150 GBs on the Dell EMC Unity XT 480, 680, and 880 models is consumed by the operating environment software and data structures.

Disk Array Enclosure (DAE)			
	25 X 2.5" Drive DAE	80 X 2.5" Drive DAE	15 X 3.5" Drive DAE (Hybrid Arrays only)
Drive Types Supported	FLASH & SAS	FLASH & SAS	NL-SAS
Controller Interface	12 Gb SAS	12 Gb SAS	12 Gb SAS

Supported Media									
System Category	Type	Usage/ Purpose	Nominal Capacity	Formatted Capacity*	Interface	DPE 25 Drive	25 X 2.5" Drive DAE	80 X 2.5" Drive DAE	15 X 3.5" Drive DAE
All-Flash	SSD (SAS)	All-Flash	800 GB	733.5 GB	12 Gb SAS	✓	✓	✓	
All-Flash	SSD (SAS)	All-Flash	1.92 TB	1751.9 GB	12 Gb SAS	✓	✓	✓	

All-Flash	SSD (SAS)	All-Flash	3.84 TB	3503.9 GB	12 Gb SAS	✓	✓	✓	
All-Flash	SSD (SAS)	All-Flash	7.68 TB	7006.9 GB	12 Gb SAS	✓	✓	✓	
All-Flash	SSD (SAS)	All-Flash	15.36 TB	14014.9 GB	12 Gb SAS	✓	✓	✓	
Hybrid	SSD (SAS)	FAST Cache & Mixed Pool	400 GB	366.7 GB	12 Gb SAS	✓	✓	✓	
Hybrid	SSD (SAS)	Mixed Pool	800 GB	733.5 GB	12 Gb SAS	✓	✓	✓	
Hybrid	SSD (SAS)	Mixed Pool	1.6 TB	1467.45 GB	12 Gb SAS	✓	✓	✓	
Hybrid	SSD (SAS)	Mixed Pool	3.2 TB	2919.9 GB	12 Gb SAS	✓	✓	✓	
Hybrid	SSD (SAS)	All-Flash	7.6 TB	7006.9 GB	12 Gb SAS	✓	✓	✓	
Hybrid	10K HDD (SAS)	Mixed Pool	600 GB	536.7 GB	12 Gb SAS	✓	✓	✓	
Hybrid	10K HDD (SAS)	Mixed Pool	1.2 TB	1100.5 GB	12 Gb SAS	✓	✓	✓	
Hybrid	10K HDD (SAS)	Mixed Pool	1.8 TB	1650.8 GB	12 Gb SAS	✓	✓	✓	
Hybrid	7.2K HDD (NL-SAS)	Mixed Pool	4.0 TB	3668.6 GB	12 Gb SAS				✓
Hybrid	7.2K HDD (NL-SAS)	Mixed Pool	6.0 TB	5505.0 GB	12 Gb SAS				✓
Hybrid	7.2K HDD (NL-SAS)	Mixed Pool	12.0 TB	10948.7 GB	12 Gb SAS				✓
*GB = Base2 GiB (GiB = 1024x1024x1024) All drives are 520 bytes/sector. All drives are non-SED. Data at Rest Encryption is done via the storage controller									

Dell EMC Unity OE Protocols and Software Facilities

Support is provided for a wide variety of protocols and advanced features available via various software suites, plug-ins, drivers and packs.

Protocols and Facilities Supported		
Access-based Enumeration (ABE) for SMB protocol	Address Resolution Protocol (ARP)	Block Protocols: iSCSI, Fibre Channel (FCP SCSI-3)
Container Storage Interface (CSI) Driver	Controller based Data at Rest Encryption (D@RE), with self-managed keys	DFS Distributed File System (Microsoft) as Leaf node or Standalone Root Server
Direct Host Attach for Fibre Channel and iSCSI	Dynamic Access Control (DAC) with claims support	Fail-Safe Networking (FSN)
Internet Control Message Protocol (ICMP)	Kerberos Authentication	Key Management Interoperability Protocol (KMIP) compliant external key manager for D@RE
LDAP (Lightweight Directory Access Protocol)	LDAP SSL	Link Aggregation for File (IEEE 802.3ad)
Lock Manager (NLM) v1, v2, v3, and v4	Management & Data Ports IPv4 and/or IPv6	NAS Servers Multi-protocol for UNIX and SMB clients (Microsoft, Apple, Samba)
Network Data Management Protocol (NDMP) v1-v4, 2-way & 3-way	Network Information Service (NIS) Client	Network Status Monitor (NSM) v1 Network Status Monitor (NSM) v1
Network Time Protocol (NTP) client	NFS v3/v4 Secure Support	NT LAN Manager (NTLM)
Portmapper v2	REST API: Open API that uses HTTP requests to provide management	Restriction of Hazardous Substances (RoHS) compliance
RSVD v1 for Microsoft Hyper-V	Simple Home Directory access for SMB protocol	SMI-S v1.6.1 compatible Dell EMC Unity Block & File client
Simple Mail Transfer Protocol (SMTP)	Simple Network Management Protocol v2c & v3 (SNMP)	Virtual LAN (IEEE 802.1q)
VMware® Virtual Volumes (VVols) 2.0	VMware® vRealize™ Orchestrator (vRO) Plug-in	

Security & Compliance (applies to all Dell EMC Unity XT systems, except Dell EMC UnityVSA)

Department of Defense Information Network Approved Products List (DODIN APL) – Dell EMC Unity O.E. v5.1 Listed

Common Criteria

Controller based Data at Rest Encryption (D@RE) with self-managed keys

KMIP compliant external key manager for D@RE

FIPS 140-2 Level 1 validation

IPv6 and dual stack (IPv4) modes of operation

Native SHA2 certificate

Security Technical Implementation Guide /Security Requirements Guide (STIG/SRG)

TLS 1.2 support and TLS 1.0/1.1 disablement

File-Level Retention: Enterprise FLR-E and Compliance FLR-C with requirements for SEC rule 17a-4(f)

Software

All Inclusive Base Software

Management Software:

- Unisphere: Element Manager
- Unisphere Central: Consolidated dashboard and alerting
- CloudIQ: Cloud-based storage analytics
- Thin Provisioning
- Dynamic Pools - All-Flash Arrays (AFA) only
- Data Reduction: Zero Detect/Deduplication/Compression (AFA and All-Flash Pools in Hybrid Arrays, Block & File)
- Host Groups
- Proactive Assist: Configure remote support, online chat, open a service request, etc.
- Quality of Service (Block and VVols)
- Dell EMC Storage Analytics Adapter for VMware® vRealize™
- File & Block Tiering / Archiving to Public/Private Cloud (Cloud Tiering Appliance)
- File-Level Retention (FLR-E & FLR-C)

Unified Protocols:

- File
- Block
- VVols

Local Protection:

- Controller Based Encryption (optional), with self-managed or external key management
- Local Point-In-Time Copies (Snapshots and Thin Clones)
- AppSync Basic
- Dell EMC Common Event Enabler; AntiVirus Agent, Event Publishing Agent

Remote Protection:

- Native Asynchronous Block & File Replication, including bandwidth throttling
- Native Synchronous Block & File Replication, including bandwidth throttling
- MetroSync Manager (optional software to automate synchronous file replication sessions)
- Snapshot Shipping
- Dell EMC RecoverPoint Basic

Migration:

- Native Block & File migration from Dell EMC VNX
- SAN Copy Pull: Integrated Block migration from 3rd party arrays

Performance Optimization for Hybrid Arrays:

- FAST Cache
- FAST VP

Interface Protocols

NFSv3, NFSv4, NFSv4.1; CIFS (SMB 1), SMB 2, SMB 3.0, SMB 3.02, and SMB 3.1.1; FTP and SFTP; FC, iSCSI and VMware Virtual Volumes (VVols) 2.0

Optional Solutions

- AppSync Advanced
- Connectrix SAN
- Data Protection Suite: Backup, Archive and Collaboration Software
- Dell EMC RecoverPoint Advanced
- Dell EMC RP4VM
- PowerPath Migration Enabler
- PowerPath Multipathing
- Unity XT metro node
- VPLEX

Note: For more details on software licensing, please contact your sales representative

Virtualization Solutions

Dell EMC Unity offers support for a wide variety of protocol and advanced features available via various software suites and packs including but not limited to:

- OpenStack Cinder Driver: For provisioning and managing block volumes within an OpenStack environment
- OpenStack Manila Driver: For managing shared file systems within an OpenStack environment
- Dell EMC Virtual Storage Integrator (VSI) for VMware vSphere™: For provisioning, management, and cloning
- VMware Site Recovery Manager (SRM) Integration: Managing failover and failback making disaster recovery rapid and reliable
- Virtualization API Integration: VMware: VAAI and VASA. Hyper-V: Offloaded Data Transfer (ODX) and Offload Copy for File
- Ansible Module for Unity

Electrical Specifications

All power figures shown represent a worst case product configuration with max normal values operating in an ambient temperature environment of 20°C to 25°C.

The chassis power numbers provided may increase when operating in a higher ambient temperature environment.

Disk Processor Enclosure (DPE)				
	380F/380 DPE 25 2.5" SFF drives and four IO modules	480F/480 DPE 25 2.5" SFF drives and four IO modules	680F/680 DPE 25 2.5" SFF drives and four IO modules	880F/880 DPE 25 2.5" SFF drives and four IO modules
POWER				
AC Line Voltage	100 to 240 VAC ± 10%, single phase, 47 to 63 Hz			
AC Line Current (operating maximum)	10.07 A max at 100 VAC; 5.04 A max at 200VAC	10.6 A max at 100 VAC; 5.3 A max at 200VAC	11.72 A max at 100 VAC; 5.86 A max at 200VAC	14.41 A max at 100 VAC; 7.2 A max at 200VAC
Power Consumption (operating maximum)	1007 VA (970.5 W) max at 100 VAC; 1007 VA (970.5 W) max at 200 VAC	1060 VA (1050 W) max at 100 VAC; 1060 VA (1050 W) max at 200 VAC	1172 VA (1161 W) max at 100 VAC; 1172 VA (1161 W) max at 200 VAC	1440.77 VA (1411.96 W) max at 100 VAC; 1440.77 VA (1411.96 W) max at 200 VAC
Power Factor	0.95 minimum at full load, @ 100/ 200 VAC			
Heat Dissipation (operating maximum)	3.49 x 10 ⁶ J/hr, (3,311 Btu/hr) max at 100 VAC; 3.49 x 10 ⁶ J/hr, (3,311 Btu/hr) max (100V)	3.78 x 10 ⁶ J/hr, (3,581 Btu/hr) max at 100 VAC; 3.78 x 10 ⁶ J/hr, (3,581 Btu/hr) max 200VAC	4.18 x 10 ⁶ J/hr, (3,960 Btu/hr) max at 100 VAC; 4.18 x 10 ⁶ J/hr, (3,960 Btu/hr) max 200VAC	5.08 x 10 ⁶ J/hr, (4,818 Btu/hr) max at 100 VAC; 5.08 x 10 ⁶ J/hr, (4,818 Btu/hr) max 200VAC
In-rush Current	45 Apk "cold" per line cord, at any line voltage			
Startup Surge Current	120 Apk "hot" per line cord, at any line voltage			
AC Protection	15 A fuse on each power supply, single line	20 A fuse on each power supply, single line		
AC Inlet Type (High Line)	IEC320-C14 appliance coupler, per power zone			
AC Inlet Type (Low Line)	IEC320-C20 appliance coupler, per power zone			IEC320-C14 appliance coupler, per power zone*
Ride-through Time	10 ms min			
Current Sharing	± 5 percent of full load, between power supplies			
* Requires customer supplied step-up transformer				

DIMENSIONS				
Weight kgs/lbs	empty 24.60/54.11	empty 25.90/57.10	empty 25.90/57.10	empty 25.90/57.10
Vertical size	2 NEMA units	2 NEMA units	2 NEMA units	2 NEMA units
Height cm/inches	8.88/3.5	8.72/3.43	8.72/3.43	8.72/3.43
Width cm/inches	44.76/17.62	44.72/17.61	44.72/17.61	44.72/17.61
Depth cm/inches	61.39/24.17	79.55/31.32	79.55/31.32	79.55/31.32
Note: Power consumption values for DPEs and DAEs are based on fully populated enclosures (power supplies, drives and I/O modules).				

Disk Array Enclosure (DAE)			
	25 X 2.5" Drive DAE	80 X 2.5" Drive DAE	15 X 3.5" Drive DAE
POWER			
AC Line Voltage	100 to 240 VAC ± 10%, single phase, 47 to 63 Hz		
AC Line Current (operating maximum)	4.50 A max at 100 VAC, 2.40 A max at 200 VAC	13.18 A max at 100 VAC, 6.59 A max at 200 VAC	2.90 A max at 100 VAC, 1.60 A max at 200 VAC
Power Consumption (operating maximum)	453.0 VA/ 432.0 W max at 100 VAC 485.0 VA/ 427.0 W max at 200VAC	1318.0 VA/ 1233.0 W max at 100 VAC 1318.0 VA/ 1233.0 W max at 200VAC	287.0 VA/ 281.0 W max at 100 VAC 313.0 VA/ 277.0 W max at 200VAC
Power Factor	0.95 minimum at full load, @ 100V/200V		0.90 minimum at full load, @ 100V/200V
Heat Dissipation (operating maximum)	1.56 x 10 ⁶ J/hr, (1,474 Btu/hr) max at 100 VAC 1.54 x 10 ⁶ J/hr, (1,457 Btu/hr) max at 200 VAC	4.43 x 10 ⁶ J/hr, (4,207 Btu/hr) max at 100 VAC 4.43 x 10 ⁶ J/hr, (4,207 Btu/hr) max at 200 VAC	1.01 x 10 ⁶ J/hr, (959 Btu/hr) max at 100 VAC 1.00 x 10 ⁶ J/hr, (945 Btu/hr) max at 200 VAC
In-rush Current	30 Apk "cold" per line cord, at any line voltage	45 Apk "cold" per line cord, at any line voltage	30 A max "cold" for ½ line cycle, per line cord at 240 VAC
Startup Surge Current	40 Apk "cold" per line cord, at any line voltage	120 Apk "hot" per line cord, at any line voltage	25 Amps peak max per line cord, at any line voltage
AC Protection	15 A fuse on each power supply, single line		10 A fuse on each power supply, single line
AC Inlet Type	IEC320-C14 appliance coupler, per power zone		
Ride-through Time	12 ms minimum	10 ms minimum	30 ms minimum
Current Sharing	± 5 percent of full load, between power supplies		Droop Load Sharing
WEIGHT AND DIMENSIONS			
Weight kg/lbs	Empty: 10.0/22.1 Full: 20.23/44.61	Empty: 11.33/25 Full: 58.9/130	Empty: 14.5/32 Full: 30.8/68
Vertical size	2 NEMA units	3 NEMA units	3 NEMA units
Height cm/inches	8.46/3.40	13.21/5.20	13.33/5.25
Width cm/inches	44.45/17.5	44.70/17.6	44.45/17.5
Depth cm/inches	33.02/13	76.20/30	35.56/14
Note: Power consumption values for DPEs and DAEs are based on fully populated enclosures (power supplies, drives and I/O modules).			

Cabinets	
	Standard 40U Cabinet
AC Line Voltage	200 to 240 VAC \pm 10%, single-phase, 47 to 63 Hz
Power Configuration	One, two, three or four power domains, each redundant
Power Inlet Count	Two, four, six, or eight (two per domain)
Plug Types	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)
Input Power Capacity	1 Domain: 4,800 VA @ 200 VAC, 5,760 VA @ 240 VAC 2 Domain: 9,600 VA @ 200 VAC, 11,520 VA @ 240 VAC 3 Domain: 14,400 VA @ 200 VAC, 17,280 VA @ 240 VAC 4 Domain: 19,200 VA @ 200 VAC, 20,040 VA @ 240 VAC
AC Protection	30 A site circuit breakers on each power branch
40U Cabinet Dimensions	Height - 75 in (190.8 cm); Width - 24.0 in (61.1 cm); Depth - 39.0 in (99.2 cm); Weight Empty – 380 lb (173 kg)

Operating environment

The Dell EMC Unity XT 480F/480 – 880F/880 models meet ASHRAE Equipment Class A3 and the 380F/380 models meet ASHRAE Equipment Class A4.

Description		Specification
Recommended Range Operation	The limits under which equipment will operate the most reliably while still achieving reasonably energy-efficient data center operation.	18°C to 27°C (64.4°F to 80.6°F) at 5.5°C (59°F) dew.
Continuous Allowable Range Operation	Data center economization techniques (e.g. free cooling) may be employed to improve overall data center efficiency. These techniques may cause equipment inlet conditions to fall outside the recommended range but still within the continuously allowable range. Equipment may be operated without any hourly limitations in this range.	5°C to 35°C (50°F to 95°F) at 20% to 80% relative humidity with 21°C (69.8°F) maximum dew point (maximum wet bulb temperature). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 950m (1°F per 547 ft above 3117 ft).
Improbable Operation (Excursion Limited)	During certain times of the day or year, equipment inlet conditions may fall outside the continuously allowable range but still within the expanded improbable range. Equipment operation is limited to ≤ 10% of annual operating hours in this range.	35°C to 40°C (with no direct sunlight on the equipment) at -12°C dew point and 8% to 85% relative humidity with 24°C dew point (maximum wet bulb temperature). Outside the continuously allowable range (10°C to 35°C), the system can operate down to 5°C or up to 40°C for a maximum of 10% of its annual operating hours. For temperatures between 35°C and 40°C (95°F to 104°F), de-rate maximum allowable dry bulb temperature by 1°C per 175m above 950m (1°F per 319 ft above 3117 ft).
Exceptional Operation (Excursion Limited) ASHRAE 4 only	During certain times of the day or year, equipment inlet conditions may fall outside the continuously allowable range but still within the expanded exceptional range. Equipment operation is limited to ≤ 1% of annual operating hours in this range.	40°C to 45°C (with no direct sunlight on the equipment) at -12°C dew point and 8% to 90% relative humidity with 24°C dew point (maximum wet bulb temperature). Outside the continuously allowable range (10°C to 35°C), the system can operate down to 5°C or up to 45°C for a maximum of 1% of its annual operating hours. For temperatures between 35°C and 45°C (95°F to 104°F), de-rate maximum allowable dry bulb temperature by 1°C per 125m above 950m (1°F per 228 ft above 3117 ft).
Temperature Gradient		20°C / hour (36°F / hour)
Altitude	Max Operating	3050m (10,000ft)

Statement of Compliance

Dell EMC Information Technology Equipment is compliant with all currently applicable regulatory requirements for Electromagnetic Compatibility, Product Safety, and Environmental Regulations where placed on market.

Detailed regulatory information and verification of compliance is available at the Dell Regulatory Compliance website. http://dell.com/regulatory_compliance

UNITY XT HYBRID STORAGE ARRAYS

No compromise storage built for a multi-cloud world

ESSENTIALS

- **Modern:** 2U NVMe-ready design future proofs your investment; scalable to 1500 drives and 16PB raw capacity.
- **Powerful:** Dual-socket Intel™ CPUs, more cores and memory to drive more performance & less latency than previous models.
- **All-inclusive:** Every Unity XT comes to you with all-inclusive software making your investment easy to purchase and own.
- **Simple:** Install & configure in 25 minutes, with intuitive easy-to-use web based (HTML5) management
- **Flexible:** Deploy as a physical appliance, software defined storage or as part of a converged infrastructure - all sharing one OS and GUI
- **Multi-Cloud:** Unity XT supports multiple cloud deployment options that help simplify operations, lower costs and reduce complexity

BENEFITS

- **Performance:** New processors drive 2X more Read, Write and Mixed workload performance accelerating virtualized workloads
- **Efficiency:** Unity XT arrays are up to 85% efficient delivering higher utilization of your investment.
- **Consolidation:** Consolidate all your mixed workloads (file, block, vVol data) onto a single array.
- **DevOps integrations:** Unity XT provides simplified integrations with VMWare vRO and Kubernetes.
- **Metro node:** True active-active synchronous replication over metro distances

Designed for price-performance

Unity XT storage systems continue the Dell midrange storage tradition of increasing performance with each product generation. With up to three times the transactional performance of the VNX2, Unity XT X80 systems take full advantage of newer Intel™ dual-socket processors and more cores and memory to deliver a 2x increase in Read, Write, and Mixed Workload performance compared to the previous Unity models. Unity XT hybrid storage systems have the raw performance to ensure that controllers don't become the limiting factor, enabling users to scale as needed to keep pace with application IOPS, latency and capacity growth and are designed for 5-9's availability. Unity XT hybrid array IO is accelerated with FAST Cache or SSD Read Cache to deliver the performance of flash with lower-priced MLC flash drives.

Optimized for efficiency

Unity XT enables organizations to deal with the pressing issues of data growth and data center sprawl, leveraging the latest storage technologies to drive digital transformation with unified consolidation and superior all-inclusive data services functionality. Also, unlike some competitive systems, Unity XT is an active-dual controller architecture that ensures data access with 5-9's availability.

Lower capex/opex – Entire racks of legacy systems can be replaced by only a few rack units of Unity XT hybrid storage, freeing up datacenter resources, and dramatically reducing co-lo costs, power and cabling needs.

Consolidate applications – If you have several demanding environments, such as databases and transactional processing, Unity XT systems are the easy way to consolidate them to save space and cost, while improving performance, efficiency and response time.

Auto-tiering – Unity XT hybrid arrays include the automated/policy-based FAST VP that will automate the internal tiering of infrequently used data to lower cost/high capacity SAS and NL-SAS drives via policies.

Data migration – Even if you've been using legacy Dell EMC systems (Dell EMC Unity, VNX) or 3rd party storage systems, migrating data to Unity XT couldn't be simpler. Unity XT provides you with built-in and best practice data migration capabilities for file and block data directly managed from Unisphere making your transition seamless. File migration from NetApp and VNX is also available through Cloud Tiering Appliance.

Expanded file capabilities – Unity XT's integrated block and file design supports a 64-bit file system that scales four times larger than VNX, and adds features like file system shrink and reclaim that improves utilization and flexibility, use of Top Talkers or file correlated stats and full sync/async file replication capabilities with Metrosync file failover management.

Built for multi-cloud

Customers now demand their storage infrastructure be cloud ready. Unity XT All-Flash and Hybrid models are built for a multi-cloud world, so you can easily leverage these platforms with flexible cloud deployment options:

Validated designs

- Unity XT was the first external storage platform to be validated for use with VMware Cloud Foundation (VCF) enabling you to build your own hybrid cloud on VCF with NFS and best of breed components to easily provision storage.

Multi-cloud Data Services enabled by Faction for Unity XT

- VMware customers can consume services in the cloud with and benefit from an automated DRaaS solution with Unity XT in VMware Cloud on AWS for seamless, enterprise-grade, pay-as-you-go DR in the cloud. Through this same infrastructure model, you can achieve agile, multi-cloud access that allows you to easily leverage and switch between multiple clouds for use cases such as workload migration, analytics, test/dev and more to maximize business outcomes.

Expand to the Cloud

- Expand to the cloud with Dell EMC Cloud Tiering Appliance, an automated policy-based virtual appliance for file tiering and block snapshot archiving to four S3-based clouds and PowerScale freeing up valuable capacity and reducing backup windows.



UNITY XT HYBRID STORAGE ARRAYS

Consume in the Cloud

- Consume Dell EMC Cloud Edition in the cloud. This is a full featured Unity XT software-defined storage solution with HA deployed with VMware Cloud Foundation on AWS that brings file services to the cloud and used for running a VDI environment, Test/Dev, replication services to a third site – and more.

Cloud Data Insights

- CloudIQ is a secure and no cost cloud-based storage analytics application that uses machine learning, proactive monitoring and predictive analytics to provide a comprehensive health score on every connected array helping IT to proactively troubleshoot their storage environment from anywhere.

Data protection

Enterprise data protection solutions deliver the resilience and availability to protect your organization from data and application outages or worse. Unity XT takes the financial pain out of availability and disaster recovery deployment by including a complete suite of all-inclusive data protection software such as unified snapshots and thin clones, unified synch/asynch replication with throttling and snapshot replication, metro node synch replication, data-at-rest encryption and file level retention. Unity XT also supports RecoverPoint continuous data protection and remote replication.

Unified Snapshots – Unity XT simplifies daily operations by providing a single interface for creating and managing snapshots and thin clones for block and file storage, reducing operational complexity. And with UFS64, you get up to 256 snaps per file system and the ability to create thin clones direct from snapshots. Snapshots can be replicated, refreshed, applied to vVols and compared to report back differences.

Integrated copy data management - Unity XT supports snapshot mobility & thin clone interoperability with Dell EMC AppSync application-aware and orchestration to provide customers with integrated copy data management (iCDM) saving capacity and costs.

Local and remote replication – Unity XT includes a full complement of enterprise-grade array-based synch/asynch replication services as well as RecoverPoint replication options, providing robust protection with no additional investment. Replicate snapshots for greater data protection and recovery options. Unity XT includes native asynchronous and synchronous replication for both file and block data with async throttling, asynch interface pairing and full copy avoidance. Unity XT also supports the use of Metrosync Manager for automated file level failover and synch replication over metro distances.

File protection – Unity XT file data is protected with File-level Retention (FLR) for safeguarding files from modification or deletion until a specified retention date. FLR allows you to create a permanent, unalterable set of files and directories and ensure the integrity of data. There are two different types of file-level retention available: Enterprise (FLR-E) and Compliance (FLR-C).

Simplified management

Unity XT brings new levels of visibility and control to your storage operations, augmenting the global management capability of Unisphere Central with a modern HTML5 element management interface. Additionally, Unity XT is supported by Dell EMC's cloud-based storage analytics application – CloudIQ. A REST API supported on all Unity XT arrays leverages the Unity XT HTTP interface to flexibly manage and automate operations for your Unity XT storage and other REST-enabled platforms.

DevOps integrations

Containers are fast becoming the new software architecture paradigm and Kubernetes has emerged as a popular Container Orchestration platform choice. Dell EMC is at the forefront of developing solutions that enable customers to efficiently run containerized workloads while leveraging powerful storage integrations for DevOps workflows. Dell EMC Unity XT now supports the Container Storage Interface (CSI) plugin to run Kubernetes workloads.

Automation is a major theme in IT Procurement discussions. The good thing is Automation no longer means programming-intensive and hard-to-maintain scripting. Tools like VMware vRealize Orchestrator (vRO) provides a drag and drop environment to quickly automate infrastructure operations and service delivery tasks. Unity XT supports vRO plugin enabling customers to automate end to end workflows spanning the entire infrastructure stack.

Metro node appliance

Metro node is a hardware add-on feature for Unity XT All-Flash systems that provides true active-active synchronous replication over metro distances. In addition, metro node supports data mobility to non-disruptively relocate workloads to enable storage technology refresh without application downtime. Metro node is also the only solution available that provides true active-active configurations by allowing simultaneous writes at both sites and supports Recovery Point Objective (RPO) and Recover Time Objective (RTO) equal to zero downtime.

Service and support

Dell continues to expand Services with a focus on making it easier than ever to purchase, consume, adopt and optimize technology from a single source. Whether purchasing a single system or planning a transformational expansion across the data center, we're architecting the most adaptive, intelligent service experience — all with less customer effort and an accelerated path to productivity including:

- ProDeploy and ProDeploy Plus: Get more out of technology starting day one
- ProSupport and ProSupport Plus: Comprehensive support for complex environments
- Optimize for Infrastructure: In-depth analysis and strategic guidance to keep systems optimized and configured for peak performance
- Data Migration Services: Move data faster, more securely and with minimal disruption
- And for those customers looking to have their Unity XT storage environment managed by the team that knows it best, our skilled managed services operations experts are ready to help you achieve business outcomes.



[Learn more](#) about Dell EMC Unity XT solutions



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