



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

### Request for Quotation

|            |
|------------|
| RFQ NUMBER |
| ISCL0083   |

|      |
|------|
| PAGE |
| 1    |

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| ADDRESS CORRESPONDENCE TO ATTENTION OF |
| KRISTA FERRELL<br>B04-558-2596         |

VENDOR

RFQ COPY  
 TYPE NAME/ADDRESS HERE

SHIP TO

DEPARTMENT OF ADMINISTRATION  
 IS&C - DATA CENTER MANAGER  
 BUILDING 6, ROOM B110  
 1900 KANAWHA BOULEVARD, EAST  
 CHARLESTON, WV  
 25305-0135      304-558-5914

|              |               |          |        |               |
|--------------|---------------|----------|--------|---------------|
| DATE PRINTED | TERMS OF SALE | SHIP VIA | F.O.B. | FREIGHT TERMS |
| 06/21/2011   |               |          |        |               |

BID OPENING DATE: 06/29/2011      BID OPENING TIME 01:30PM

| LINE | QUANTITY | UOP  | CAT NO | ITEM NUMBER | UNIT PRICE | AMOUNT |
|------|----------|--|--------|-------------|------------|--------|
|      |          | ADDENDUM NO. 1   |        |             |            |        |
|      |          | THIS ADDENDUM IS ISSUED TO:  |        |             |            |        |
|      |          | 1.) PROVIDE A COPY OF THE MANDATORY PRE-BID ATTENDEE LIST,   |        |             |            |        |
|      |          | 2.) PROVIDE ANSWERS TO ALL TECHNICAL QUESTIONS SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ORIGINAL RFQ (ISCL0083), AND |        |             |            |        |
|      |          | 3.) REISSUE THE SPECIFICATIONS PER THE ATTACHED.   |        |             |            |        |
|      |          | BID OPENING DATE REMAINS: 06/29/2011   |        |             |            |        |
|      |          | BID OPENING TIME REMAINS: 1:30 PM  |        |             |            |        |
|      |          | ***** END ADDENDUM NO. 1 *****   |        |             |            |        |
| 0001 |          | EA   |        | 205-43      |            |        |
|      | 1        | ENTRIPRISE STORAGE ARRAYS SOLUTIONS  |        |             |            |        |

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

|           |           |                                   |
|-----------|-----------|-----------------------------------|
| SIGNATURE | TELEPHONE | DATE                              |
| TITLE     | FEIN      | ADDRESS CHANGES TO BE NOTED ABOVE |

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS**  
**REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at [www.state.wv.us/admin/purchase/vrc/hipaa.htm](http://www.state.wv.us/admin/purchase/vrc/hipaa.htm) and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

**INSTRUCTIONS TO BIDDERS**

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

PRE-BID CONFERENCE  
SIGN IN SHEET

Request for Quotation Number:

15CL0083

Date:

6/9/2011

Project Description:

Enterprise Storage Array

PLEASE PRINT LEGIBLY. THIS INFORMATION IS ESSENTIAL TO CONTACT THE ATTENDEES IN A TIMELY MANNER. FAILURE TO DO SO MAY RESULT IN DELAYS IN YOUR COMPANY GETTING IMPORTANT BID INFORMATION.

Firm Name:

Firm Address:

EMC Corporation  
102 Centre Street Rd  
Charleston WV  
25314

Representative Attending:

Phone Number:

Fax Number:

Email Address:

Loni Caldwell  
304 541 3400  
304 545 2928  
Loni.Caldwell@emc.com

Firm Name:

Firm Address:

Pomeroy  
1409 Washington St. West  
Charleston, WV 25213

Representative Attending:

Phone Number:

Fax Number:

Email Address:

Richard Sylvester  
304-946-4934 x5768  
1800 450 650-1703  
Richard.Sylvester@Pomeroy.com

Firm Name:

Firm Address:

Adventure  
803 Quanter Street #300  
Charleston WV 25301

Representative Attending:

Phone Number:

Fax Number:

Email Address:

David Anderson  
304-943-1114  
304 545 2928  
danderson@adventure.com

Firm Name:

Firm Address:

Pomeroy  
1409 Washington St. West  
Charleston, WV 25213

Representative Attending:

Phone Number:

Fax Number:

Email Address:

Blaise Martney  
304-610-9835  
304-746-4439  
MMartney@Pomeroy.com

Firm Name:

Firm Address:

DWD Data Systems  
60 Denise Hollow Access  
Frankfort KY 40601

Representative Attending:

Phone Number:

Fax Number:

Email Address:

Brian Fox  
853-285-0196  
859-665-2007  
bfox@dwdsystems.com

Firm Name:

Firm Address:

Verizon  
4700 Main Colliette Ave  
Charleston, WV 25314

Representative Attending:

Phone Number:

Fax Number:

Email Address:

Chad Mages II  
304-590-6999  
304-356-3580  
chad.mages@verizonbusiness.com

PRE-BID CONFERENCE  
SIGN IN SHEET

Request for Quotation Number:

ISCL0083

Date:

6/9/2011

Project Description:

Enterprise Storage Array

PLEASE PRINT LEGIBLY. THIS INFORMATION IS ESSENTIAL TO CONTACT THE ATTENDEES IN A TIMELY MANNER. FAILURE TO DO SO  
MAY RESULT IN DELAYS IN YOUR COMPANY GETTING IMPORTANT BID INFORMATION.

Firm Name:

Dell

Firm Address:

6509 Cherry Leaf Ct  
Mason, OH 45040

Representative Attending:

Mich Makorney

Phone Number:

513-227-6885

Fax Number:

513-492-8375

Email Address:

Mich.Makorney@dell.com

Firm Name:

Howlett Packard Company

Firm Address:

52 Westerville Sq. PMB 290  
Westerville, OH 43081

Representative Attending:

Rajesh Difeena

Phone Number:

614-918-9741

Fax Number:

N/A

Email Address:

rajesh.difeena@hp.com

Firm Name:

Howlett Packard

Firm Address:

1180 AIRBORNE DR  
BETHEL SPRING PA 15702

Representative Attending:

LARRY MULHEARD

Phone Number:

412-854-5577

Fax Number:

---

Email Address:

LADD@HP.MULHEARD@HP.COM

Firm Name:

Storage Information Systems

Firm Address:

200 Aberdeen Drive  
Suite 500  
Charleston, WV 25311

Representative Attending:

Charles D. Hueff

Phone Number:

304 768-1645

Fax Number:

304 768-1631

Email Address:

charles@hisl.com

Firm Name:

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Firm Address:

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Representative Attending:

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Phone Number:

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Firm Name:

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Firm Address:

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Representative Attending:

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**Lori A. Caldwell**

Senior Account Executive

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# West Virginia office of Technology (WVOT) Request for Quotation (RFQ) ISCL0083

## OBJECTIVE

The WV State Purchasing Division for the agency WV Office of Technology (WVOT) is soliciting bids to acquire a new Enterprise Storage Array at the State of West Virginia Flatwoods Data Center located at 89 Richard D. Minnich Dr., Sutton, WV. This procurement is to include all hardware, software, maintenance, installation and training. The system **must** be manufactured by a company who is listed in the Gartner Leaders Quadrant for Midrange Disk Arrays.

## PRE-BID CONFERENCE

A **mandatory** pre-bid conference will be held at the Capitol Complex, 1900 Kanawha Blvd E, Building 5, 10<sup>th</sup> Floor, Charleston, WV 25305 at 00:00 am/pm on 00/00/00.

The Enterprise Storage Array is needed to support Network Attached Storage (NAS) functionality, a VMware ESX Cluster and stand-alone servers' storage needs running on Microsoft Windows Server 2000-2008, VMware vSphere 4.1, Red Hat/SUSE Linux and HP-UX 11i. It **must** have initial useable capacity of 15 TB for File Protocols (CIFS, NFS) and 10 TB for Block Protocols (iSCSI, FC, FCoE).

The system **must** support NDMP via IP. The WVOT currently hosts a backup solution called Avamar in production which is manufactured by EMC. The bid must be compatible with the current system. Vendor's bidding "or equal" systems should include manufacturer's literature documenting compliance with the existing system. WVOT reserves the right to determine compatibility.

**The system must support native block- and file-based replication to an array of the same family."**

The system **must** support Windows, UNIX & Linux Operating Systems.

The system **must** be VAAI Compliant for ALL Block Protocols.

The system **must** support FC or SAS, SATA and SSD Drive types.

The system **must** have a minimum 200 Drive Capacity (across all drive types).

The system **must** have redundant Storage Processors and Filers.

The system **must** support the following Protocols

- iSCSI (10 Gbps) minimum 4 ports per Storage Processor
- CIFS(1 Gbps) minimum 4 connections per filer

The system **must** be capable of the following Protocols for future expansion

- FC (8Gbps) minimum 4 ports per Storage Processor

The system **must** be Unified or have Gateway for CIFS by the same manufacturer that supports filer-based replication.

The system **must** be capable of Virtual/Thin Provisioning.

The system **must** be capable of native IP-based replication of both Block and File Protocols.

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The system **must** have Host Multipathing Support.

The system **must** have Dial Home / Remote Support.

The system **must** be installed by the hardware manufacturer.

## **BID RESPONSE REQUIREMENTS**

All costs for the Enterprise Storage Array **must** be included on the attached itemized Cost sheet and include quantities, part numbers, product descriptions and cost information for all items necessary to install. **The intent and purpose of the cost sheet is for agency billing purposes only.**

The Cost sheet **must** include all common system components (redundant storage processors (Active/Active), redundant filers (Active/Passive minimum) and drive enclosures to support initial capacity, redundant power supplies, and array/cache battery backup components).

The Cost sheet **must** include the initial feature cost and any incremental costs (per TB, etc) for separately licensed features.

The Cost sheet **must** include Manufacturer Support/Maintenance costs, Dial Home/Remote Support for 60 months on all hardware and 60 months on all software (broken down by individually licensed features). The maintenance and support for each phase will be added via change order upon successful installation and acceptance of the system by WVOT.

The Cost sheet **must** include "rack and stack" installation by the manufacturer.

The Cost sheet **must** include factory training for 2 individuals.

The Cost sheet **must** include multipath licensing costs for UNIX, Microsoft Windows and Linux hosts (tiered costs if appropriate for hosts with 1-4 processors).

## **DELIVERY REQUIREMENTS AND INSTALLATION ADDRESSES**

Delivery of the equipment **shall** be made during normal working hours. The normal working hours of the Office of Technology are 7:30 AM to 5:00 PM, Monday through Friday. However, designated State holidays, weekends, and after hours schedules will be accommodated if given advance notice and permission by the Office of Technology.

The equipment **must** be delivered and installed at the Flatwoods Data Center located at 89 Richard D. Minnich Drive, Sutton WV, 26601. All deliveries **MUST** include **INSIDE** delivery and will need to be made via a truck with a lift gate (NO LOADING DOCK). All deliveries **MUST** be scheduled 24 HOURS IN ADVANCE of delivery. Delivery and installation must be completed within 45 days from issuance of purchase order.

## **EQUAL EMPLOYMENT OPPORTUNITY**

The successful vendor **must** be an Equal Opportunity Employer, and **shall** take all employment actions without regard to an individual's race, color, national origin, ancestry, sex, religion, age, physical handicap, disability, or political affiliation.

## **CONDUCT AND MANAGEMENT**

While employed on this contract, all personnel will remain employees of the vendor. The vendor **shall** make this condition clearly known to his or her employees and **shall** be responsible for their conduct and management. The State of West Virginia **shall** not be considered a re-employer. If a vendor employee displays improper work conduct, unsatisfactory performance, or is deemed to be unqualified to perform the assignment, the Office of



Technology may request a replacement employee from the vendor. The Vendor **shall** be solely responsible for conformity with all applicable health, safety and sanitation standards, laws and regulations at the State's facilities. 9

### **SMOKE FREE / DRUG FREE / ALCOHOL FREE**

In keeping with the policies of the State of West Virginia, the Vendor **must** maintain a drug free / alcohol free work environment.

### **IMMIGRATION REFORM AND CONTROL ACT OF 1986**

By submitting this response, the vendor certifies that it does not and will not, during the performance of the contract, employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986.

### **SUPPORT**

The Office of Technology will have an employee available during all installation. Additionally, the Office of Technology will provide a list of contact and support personnel that will be available to the successful vendor.

### **GLOSSARY**

CIFS – Common Internet File System  
FC – Fibre Channel  
FCoE – Fibre Channel over Ethernet  
IP – Internet Protocol  
iSCSI – Internet Small Computer Systems Interface  
NDMP – Network Data Management Protocol  
NFS – Network File System  
SAS – Serial Attached SCSI  
SATA – Serial Advanced Technology Attachment  
SSD – Solid State Drive  
TB – Terabyte  
VAAI – vStorage APIs for Array Integration

### Itemized Cost Proposal ISCL008, Storage Array (attach additional pages if necessary) (To be used by the agency for internal billing purposes only)

List items in the following order: hardware, software, delivery costs, installation, training & maintenance. Include cost totals for each category, each phase, each array, and a final total cost.

| Quantity | Part Number | Product Description | Cost |
|----------|-------------|---------------------|------|
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| TOTAL    |             |                     | \$   |

By signing below, vendor certifies that all specifications will be followed, that vendor meets all criteria, and will adhere to the schedule (*submitted with additional services provided by the vendor*) if awarded the purchase order.

---

Print Name \_\_\_\_\_

---

Signature/ Title \_\_\_\_\_

---

Vendors Name \_\_\_\_\_

## ISCL0083

### TECHNICAL QUESTIONS

- Q.** Under Objective: The system must be manufactured by a company who is listed in the Gartner Leaders Quadrant for Midrange Disk Arrays.  
Under Pre-Bid Conference: The Enterprise Storage Array is needed to support NAS functionality. Is this supposed to be a midrange box or an enterprise class box? When I think of midrange I think of VNX, DS5300, FAS3200 series boxes. When I think of Enterprise class boxes, I think of DS8700,8800, VMAX, DMX, FAS6000 series boxes. Big, robust machines. Most of the must haves indicate this should be a midrange storage box, not an enterprise class storage box.
- A.** We are looking for a midrange storage solution for the disaster recovery site that meets the requirements listed in the RFQ.
- Q.** The system must support native, array-based replication to a mainframe compatible, FICON-attached storage array within the product line. Array itself will not need FICON based mainframe connectivity. If it doesn't need connectivity, why is this a requirement?
- A.** This requirement has been removed and replaced by the following requirement: The system must support native block- and file-based replication to an array of the same family.
- Q.** Is the State open to the Storage Refresh RFP being a proposal under WSCA terms and conditions?
- A.** No. (These terms and conditions are not approved by the WV Attorney General's Office and as such are not to be considered a part of this or any bid for the State.)
- Q.** Given the dates outlined in the proposal for technical questions and the resulting response dates, we respectfully request a 2 week extension for this proposal response. We are concerned that we will not have adequate time to produce the most cost-effective solution available given the limited time between the responses to vendor questions and the current due date for proposal responses.
- A.** Since technical questions were discussed and answered in the pre-bid conference dated June 9, 2011, we feel this is adequate time to produce a cost-effective solution and cannot extend the bid opening date at this time.

- Q.** Would you consider an alternative to the requirement for a “array based replication to a mainframe-compatible, FICON-attached array within the product line”?
- A.** This requirement has been removed and replaced by the following requirement: The system must support native block- and file-based replication to an array of the same family.
- Q.** What versions of Red Hat are in use?
- A.** None exist at this time. We anticipate Red Hat (RHEL) 5, Red Hat (RHEL) 6 and CentOS 5 as possible OS versions.
- Q.** What versions of Suse Linux are in use?
- A.** None exist at this time. We anticipate SUSE (SLES) 11 or OpenSUSE 11 as possible OS versions.
- Q.** What specific versions of HP-UX 11i are in use? 11i v1, 11iv2, or 11iv3 or all 3?
- A.** None exist at this time. We anticipate any HP-UX 11i version as possible OS versions.
- Q.** How many windows 2000 hosts are in use?
- A.** None exist at this time. We anticipate there being zero servers installed with Windows 2000
- Q.** Do you have a detailed list of hosts, O/S versions, HBAs, HBA driver versions, and SAN Equipment and SAN Equipment microcode versions you could provide?
- A.** The only initial OS that will be connected is VMware vSphere 4.1. All SAN connectivity will be done via 10GbE on a Cisco Nexus 5548. The HBAs are Cisco N2XX-ABPC102 and will have the latest firmware version supported by the array at the time of installation.
- Q.** Is there a preferred drive size?
- A.** The preferred drive size for block protocols is 15k, 300GB or 450GB FC/SAS. The preferred drive size for file protocols is 7.2k, 1 TB SATA (or equivalent).
- Q.** Is there a preferred Raid-level?

- A. The preferred RAID level for block protocols is RAID-5 preferably around the 6+1 drive count. The preferred RAID level for file protocols is RAID-5 preferably around the 6+1 drive count. There should be adequate global hot spares in the array based on manufacturer recommendations.
- Q. Does the system that is bid have to have room for 200 drives or the ability to grow to 200 drives if the initial 25TB is satisfied with less than 200 disks?
- A. The array must support at least 200 drives in total when fully expanded. The initial configuration need only have as many drive enclosures as necessary to fulfill the usable storage requirement.
- Q. What is the minimum support level that is required?
- A. Minimum support shall include dial home, remote support and 24 hour x 7day, 365 day, 4-hour response technical support
- Q. Is a support level higher than the minimum preferred?
- A. The requirements stated above are sufficient.
- Q. What is the number of NAS users required for this solution?
- A. In the event of a disaster, we anticipate 4,000 to 5,000 users. The proposed solution must be able to handle the anticipated load in the event of a disaster.
- Q. How many 8Gbps FC ports are estimated to be needed in the future?
- A. When, at a future time, we move to FC for SAN connectivity, we will require purchasing a minimum of 4 ports per active storage processor. The ports must be a minimum of 4 Gbps
- Q. What SAN equipment is in use?
- A. All SAN connectivity will be done via 10GbE on a Cisco Nexus 5548. The HBAs are Cisco N2XX-ABPC102 and will have the latest firmware version supported by the array at the time of installation.
- Q. What SAN facilities are currently in place to get FC onto the IP network for replication in both facilities?
- A. FC will not be in use initially as SAN Infrastructure

- Q.** What networking facilities are in place to connect the two sites? Please give as much detail as possible.
- A.** Initially, there will be one or two 1GbE data circuit between the Building 6 Data Center and the Flatwoods Data Center and will be either Switched Ethernet or point-to-point circuits.
- Q.** What carrier and technology is in place to provide data communications between the sites?
- A.** Frontier will be the provider and the technology will either be a point-to-point or Switched Ethernet 1GbE circuit(s).
- Q.** You require 4 x 10Gbps iSCSI connections per storage processor. If the solution is a cluster, do you mean a total of 4 ports or 8 ports?
- A.** 4 ports per active storage processor, 2 active storage processors.
- Q.** You require 4 x 1Gbps of CIFS connections per filer. If the solution is a cluster, do you mean a total of 4 ports or 8 ports?
- A.** 4 ports per filer, minimum 1 active and 1 passive filer. If the Ethernet connections are shared by both filers, there only needs to be 4 ports.
- Q.** You are asking for filer based replication as well as block based array replication. If the filer data resides on a block device with array replication will that be sufficient?
- A.** As long as the replication is seamless and automated. The replicated filer data should be accessible to the filer at the DR site with no manual intervention so that a cutover in a disaster situation can be done quickly.
- Q.** The document states that the system **must** be capable of native IP-based replication of both Block and File Protocols. Does this mean native data replication or replication via the protocol (NFS/CIFS)?
- A.** If there are seamless replication technologies that replicate CIFS data between frames via another protocol, it is acceptable.
- Q.** The 15TBs being used for File need to be SATA or FC drives?
- A.** SATA (or equivalent)
- Q.** The 10TBs being used for Block need to be Flash, FC or SATA Drives?
- A.** FC/SAS

Q. Are there any performance requirements?

A. Capability of replication is required for future consideration. There are no IOP or other performance requirements that must be met as part of this RFQ.

Q. For replication, is there a certain RPO (Recover Point Objective) and RTO (Recover Time Objective) that needs to be met?

A. Capability of replication is required for future consideration. There are no RPO or RTO guidelines included for consideration as part of this RFQ.

Q. How many Hosts need to be replicated?

A. Capability of replication is required for future consideration.

Q. Does the array need to support FC or SAS, SSD and SATA drives all at the same time?

A. Yes, the array must have the capability to utilize FC/SAS, SATA (or equivalent) and SSD drive types. Initially, the only drive types installed in the array will be SATA (or equivalent) and FC/SAS to fulfill the usable storage requirements in this RFQ. Installation of additional storage and other drive types are a future consideration.

Q. Does the array need to support all three drive tiers for Auto Tiering?

A. Yes, the array needs to support all three drive types and some method of automatic data tiering. The actual configuration and use of automatic data tiering will be a future consideration.

Q. Does the array need to handle 200 drives in this solution or does the array only need to be able to be upgraded to 200 drives?

A. The array must be expandable to a minimum of 200 drives. The array only needs to include the number of drives (based on drive preference) and drive enclosures necessary to meet the useable storage requirements in the specifications.

Q. For this solution, is the array going to be using iSCSI for block and CIFS for File?

A. Yes.

**Q.** Are you wanting the 8GB FC ports in this Bid or does the array only need to be able to have the 8GB ports added at a later date.

**A.** FC ports will be a future expansion so the array only needs to have the capability for them to be added at a later date. The ports must be a minimum of 4 Gbps

**Q.** Installation: Are you looking for the manufacturer to migrate data from an existing array to this new solution?

**A.** No.

**Q.** Does the manufacturer need to setup replication?

**A.** No, capability of replication is required for future consideration

**Q.** Does the installation only need to be Rack and Stack?

**A.** Rack and stack, powered up and all installed software and hardware validated operational.

**Q.** Does this solution need to have and CIFS setup on the array?

**A.** Any initial configuration that must be done to validate that the CIFS filers are installed and operational must be performed, but no storage needs to be configured during setup.

**Q.** Does the manufacturer need to setup Thin Virtual Provisioning?

**A.** Any initial configuration that must be done to validate that thin provisioning is installed and operational must be performed, but no storage needs to be configured during setup.

**Q.** What type of training is needed for 2 people?

**A.** Operation and Administration

**Q.** I attended the Pre-bid conference today and it appears that there is a specification that limits the bidding to only EMC and its resellers. It was discussed that this specification was too stringent and it excluded all other manufacturers... and we were told it was unintentional. To comply with a basic tenant "that there shall not be any brand or vendor preference" we ask that this requirement be removed to permit open and competitive bidding: "The system must support native, array-based replication to a mainframe-compatible, FICON-attached storage array within the product line. Array itself will not need FICON-based mainframe connectivity"



- A.** This requirement has been removed and replaced by the following requirement: The system must support native block- and file-based replication to an array of the same family.
- Q.** Also, can you please clarify: The system must be installed by the hardware manufacturer. Can a Business Partner of the manufacturer also meet this requirement?
- A.** No, The equipment must be installed by the manufacturer.
- Q.** And, can you please clarify what is meant by installed? Rack and stack, power-up, configure, etc.
- A.** Rack and stack, powered up and all installed software and hardware validated operational.
- Q.** Does it need to support 200 drives of each type concurrently? (page 7 of RFQ)
- A.** No, minimum 200 drive capacity total across all drive types is required.
- Q.** Define native IP-based replication. Does this mean that no 3<sup>rd</sup> party solution? (page 7)
- A.** Native IP-based replication means that the array, while solely connected to Ethernet networking equipment, can replicate to a similar array on the other side of a data circuit via IP without any additional equipment between.
- Q.** Is dial-home by phone only, or can it be Internet based notification? Are emails OK? (page 8)
- A.** All three are acceptable
- Q.** Does the array need to be VAAI compliant or VAAI certified?
- A.** The array must support VAAI over both FC and iSCSI protocols and must support all three basic capabilities (primitives) of VAAI. These primitives include Block Zeroing, Full Copy and Hardware Assisted Locking.
- Q.** Does the array need to support CIFS, NFS, FC, iSCSI and FCoE?
- A.** The array must have the capability to support CIFS, NFS, FC and iSCSI. The requirements in the RFQ only require CIFS and iSCSI protocols to be

enabled. The other protocols must only be supported and available for future expansion.

**Q.** Is there any storage that will be traded in with this purchase? If so, please provide model and capacity.

**A.** No, there will be no trade in as part of this purchase.

**Q.** The system must support the following Protocols

iSCSI (10 Gbps) minimum 4 ports per Storage Processor

CIFS (1 Gbps) minimum 4 connections per filer

The system must be capable of the following Protocols for future expansion.

FC (8Gbps) minimum 4 ports per Storage Processor

Per the discussion (as reviewed from our pre-bid iPad recording) it was stated that the infrastructure was going to be 10GB iSCSI, CIFS shares, and VMware using 10Gbps iSCSI, therefore we would like the 8Gbps Fiber Channel to be relaxed to 4Gbps or removed since there is nothing that says there is an 8Gbps performance requirement. We would like the FC (8Gbps) minimum 4 ports per Storage Processor removed. There was no reason given to support the 8Gbps performance requirement.

**A.** We require that the array be capable to of supporting Fibre Channel for future upgrades. After reviewing this requirement, we have elected to reduce the Fibre Channel port speed to 4Gbps

**Q.** The system must support the following Protocols ISCSI (10Gbps) minimum 4 ports per Storage Processor. (My interpretation of this is that if a box has two controllers, then the box needs qty 8 of 10 Gbps ports, is this interpretation correct) CIFS (1 Gbps) minimum 4 connections per filer (My interpretation of this is that if a box has two controllers, then the box needs qty 4 of 1 Gbps ports because it is treated as 1 filer. Is this correct or should the qty be 8 and the ports should be based on the number of controllers? Also, can these ports be used for other functionality or do they have to be dedicated CIFS ports.)

**A.** The array must have (4) 10 Gb ports per active controller for block protocols. There must be 2 active controllers therefore there must be 8 ports for iSCSI. The array must have (4) 1 Gb ports per filer and must have a minimum of 1 active filer and 1 passive filer and therefore must have 8 ports. The only other acceptable use for the filer ports are for replication and NDMP operations