



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
STO12007

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER 304-558-2316

VENDOR

RFQ COPY
 TYPE NAME/ADDRESS HERE

SHIP TO

STATE TREASURER
 MAIN CAPITOL BUILDING
 SUITE E-145
 CHARLESTON, WV
 25305 304-343-4000

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
03/26/2012				

BID OPENING DATE: 04/10/2012 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 THE ATTACHED MANDATORY PRE-BID SIGN IN SHEET						
2) PROVIDE THE ATTACHED CLARIFICATIONS AND ADDITIONS TO THE MANDATORY REQUIREMENTS CONTAINED IN SECTION 2.5 OF THE SPECIFICATIONS.						
3) PROVIDE THE ATTACHED TECHNICAL QUESTIONS & ANSWERS.						
***** END ADDENDUM NO. 1 *****						
0001	1	LS	205-05	COMPUTER NETWORK INFRASTRUCTURE		
***** THIS IS THE END OF RFQ STO12007 ***** TOTAL:						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
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TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
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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.html 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/noticéConfidentiality.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 are **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).

Addendum 1
Responses to Vendor Questions and Agency Clarifications
RFP# STO12007

WVSTO Additions/Clarifications to RFP

Clarifications in Section 2.5 – Mandatory Requirements

Replace the previous items as noted below with the updated clarifications:

2.5.1.11 The proposed storage array must be able to use both 10K RPM and 15K RPM high speed Fiber Channel or Serial Attached SCSI (SAS) drives. The proposed storage array does not have to include both drive types in the configuration. Please use the drives appropriate to meet the capacity and IOP requirements as outlined in this RFP.

2.5.4.4 Each server must have a minimum of 192 GB of RAM installed.

Additions to Section 2.5 – Mandatory Requirements

2.5.7 General Requirements for Proposed Solution

2.5.7.1 The proposed solution must include the cabinet(s) for the equipment. The cabinet(s) must have locks and provide adequate air flow to keep installed equipment cool.

2.5.7.2 The proposed solution must include all required power distribution units (PDUs) inside the cabinet(s) to provide power to all installed equipment.

2.5.7.3 All equipment must be mounted in the cabinet(s).

2.5.7.4 All wiring inside the cabinet must be complete. This includes power cables from equipment to PDUs and network and fiber interconnects between servers, storage and switches.

2.5.7.5 The proposed solution must include maintenance agreements on the hardware and software included in the proposal for five years. These maintenance agreements must, at a minimum, provide break fix support, software upgrades and general technical support (knowledge base, trouble tickets) on the included components via phone and/or online support sites.

2.5.7.6 The proposed solution must include only the professional services required to get the equipment into our data centers, installed in the cabinet(s) as outlined above and brought online and ready for end-user configuration. The vendor must also perform any configuration on the equipment (for example, the storage pools on the storage array and other array features such as cache settings) required to ensure the equipment meets the capacity and performance requirements outlined in this RFP. Any additional professional services such as configuration of replication features on the arrays, configuration of VMware Site Recovery Manager (SRM) to work with array replication or any assistance with data migration or other tasks will be acquired through a separate procurement(s).

Vendor Submitted Questions

Question 1: Attachment B, Section 2.5.1.11 – The proposed storage array must support high speed (10K and 15KRPM) Fiber Channel or Serial Attached SCSI (SAS) drivers (Tier 1 and Tier 2). I believe that this sentence has 2 typos:

(10K and 15K RPM) should say “and/or”, maybe just “or”. We do not have 10K and 15K on the same disk array. There is no need to have both.

Answer to Q. 1: This is not a typo, but will be clarified, or amended, as follows – same as STO replacement language stated above:

2.5.1.11 – The proposed storage array must be able to use both 10K RPM and 15K RPM high speed Fiber Channel or Serial Attached SCSI (SAS) drives. The proposed storage array does not have to include both drive types in the configuration. Please use the drives appropriate to meet the capacity and IOP requirements as outlined in this RFP.

Question 2: (SAS) drivers should say drives.

Answer to Q. 2: Yes, that is a typo and it should say drives instead of drivers.

Question 3: Attachment B. Section 2.5.1.20 – The proposed storage array must be able to support data-at-rest encryption. Is this a firm requirement, because it will limit the number of vendors who can respond? Would fiber channel based encryption be an acceptable alternative? It is very expensive.

Answer to Q. 3: This question does not quote the requirement correctly. The vendor removed the word “capability” from the quoted requirement which alters the meaning; however, this requirement as written might be interpreted in a couple of ways.

To clarify: this requirement is completely future-focused and the storage array bid as part of this response does not need to include any components or licenses to allow data-at-rest encryption. We simply want to ensure that the storage array received as part of this procurement has no limitation or incompatibility that will prevent us from doing data-at-rest encryption at a later date.

Question 4: Attachment B. Section 2.5.1.24 – The proposed storage array must include plug-ins for VMware vCenter to enable the creation and management of LUNs (from assigned storage pools) for the vSphere environment to ensure proper alignment and optimization of the LUNs.

Creation of the LUNs is done through a single management tool, which is actually what is required in Section 2.5.1.21. This requirement in Section 2.2.1.24 appears to be in direct conflict with that section. We create all LUNs in a single tool. VMware vCenter allows any of these LUNs to be assigned to any server, but not created. If creation is a requirement, then we cannot meet this point and will be eliminated.

Answer to Q. 4: The alignment of data store LUNs with the VMFS file system is important to ensure maximum performance from the disk subsystem. With this in mind, the requirement for a vCenter plug-in that can create data store LUNs that are file system aligned from a pre-assigned storage

pool on the array along with support of all of the primitives and functionality in VAAI with vSphere 5.0 stands as written in the original RFP document. This does not conflict with the other requirement; it is simply an additional VMware specific requirement that provides a plug-in to allow the creation of data store LUNs through the vCenter interface in addition to the functionality provided by the native array management tools.

Question 5: Please fully define the requirement for “Unified Storage”?

Answer to Q.5: The requirement for Unified Storage represents our desire to have the capability to present storage through multiple file and block level protocols, initially Fiber Channel and CIFS, from a single storage array with a unified management tool. A storage system that has separate pieces of hardware (controllers, storage processors, filers, etc.) dedicated to file and block level protocols is acceptable as long as they are well integrated and managed through a utility that provides a “single pane of glass” experience to allow configuration of the system(s) and reports on storage utilization, performance and overall health.

Question 6: Please fully define the requirement for “Single Management Tool”?

Answer: A single management tool will be defined as a management interface that provides a “single pane of glass” experience to allow configuration of the system including creation of RAID arrays and/or storage pools, creation of LUNs/disks, presentation of LUNs/disks to hosts, creation of NAS file systems and shares, configuration of snapshots and clones and reports on storage utilization, performance and overall health.

Question 7: Section 2.2 Background and Current Operating Environment

Will the approximately 60 virtual desktops to be deployed on the new infrastructure be persistent or non-persistent?

Answer to Q. 7: This is still to be decided. We anticipate there will be a mix of persistent and non-persistent virtual desktops depending on the particular job duties of the individuals involved. The capacity requirement for the VDI pool was set based on the utilization of linked clones for the VDI pools and utilization of View 5.0’s personal management capabilities for user profiles.

Question 8: The text includes the following phrase, “There are currently no plans to utilize the Ethernet network for storage traffic via either iSCSI or FCoE...” Should this be interpreted that use of FCoE is prohibited, even within a bladed infrastructure and before egress to upstream Ethernet and SAN networks?

Answer to Q. 8: We are placing no restrictions on the internal communications within a blade center. If the internal communications flow over a unified, high speed backplane within the blade center and then the blade center (via switch modules, virtual connects, etc.) makes upstream (egress) connections to the fiber channel switches and Ethernet switches requested as part of this RFP then that would be acceptable.

Question 9: Section 2.5.4 Server Hardware

2.5.4.3 Specifies the use of Intel 5600 Series (6-core) or E7 Series processors (10-core). Intel recently announced the E5 Series (aka Sandy Bridge) that can have up to 8 cores. Are E5 Series processors also acceptable and, if so, what is the desired core count per processor?

Answer to Q.9: The wording of our requirement includes the qualifier "or superior" into which category these newer E5 series processors would fall. We are looking for a solution that will satisfy the needs of our office for the next five years so the "latest and greatest" is always preferred. The minimum core count for a vendor bidding the E5 series processors would be equivalent to the older 5600 series processors at 6-cores, although the 8-core models would be preferred.

Question 10: Are AMD processors acceptable? If so, what is the desired core count per processor?

Answer to Q. 10: Yes, AMD 6200-series processors would be acceptable due to the fact they support the desired RAM density per processor and are the closest equivalent products to the Intel processors mentioned in the RFP. The minimum core count for a vendor bidding AMD 6200-series processors would be 8-cores with the higher core counts being preferred.

Question 11: Sections 2.5.4.5 and 2.5.4.6 specify 2 x 10Gb network and 2 x 8Gb fibre channel connections for each server. Is the 8Gb fibre channel requirement included in the 10Gb network requirement, or are the two requirements separate and distinct? This question is relevant for blade infrastructures that utilize FCoE internally, but have native Ethernet and fibre channel egress to the upstream switching network.

Answer to Q. 11: In a blade environment, each blade center should support multiple uplinks to both the Ethernet and fiber channel switches to provide scalability on total bandwidth available to the blades installed within the blade center. The individual blades should have redundant connectivity to the back plane over which the Ethernet and fiber channel traffic is carried and should see two redundant connections (whether physical, bridged connections or virtual connections) to the Ethernet network and the fiber channel network to allow configuration of native redundancy and load balancing features within VMware ESXi for storage adapters and virtual Ethernet switches.

Question 12: Section 2.5.6 Blade Servers

Is the two-chassis per site requirement noted in 2.5.6.1 relevant to blade chassis that use a passive mid-plane, so long as all active components (fans, power supplies, IO interfaces, etc.) are redundant? It is common to a single such chassis per location for an infrastructure the size that WVSTO requests.

Answer to Q. 12: This requirement was put in the RFP partially to ensure that a blade-based solution would be fully redundant as well as providing enough empty slots at each location for future expandability as the needs of the office change over the next five years. If a vendor is bidding a blade-based solution where the chassis itself is just a passive mid-plane connecting the blades to the other components (I/O modules, power supplies, fans, etc.) then a single blade center chassis would be acceptable as long as it provides adequate room to install up to 5 additional blades of a similar configuration as the hosts requested in this RFP without requiring the purchase of an additional blade center chassis or other components (I/O modules, power supplies, fans, etc.).

Question 13: Will you need UPS's, Cooling, Enclosure's, fiber, cooper etc...typically found in a Data Center environment on this project?

Answer to Q. 13: With the exceptions of cabinets, PDUs, and interconnects, as outlined in section 2.5.7 as part of this addendum, any such needs will be separate and outside of the scope of this RFP.

Question 14: The Cost Sheet asks for (A) Total Cost of All Equipment, ALL equipment must have an expected product of at least 5 years. Extended warranty costs must be included to attain this requirement if the manufacturer does not offer a standard full five year warranty.

Can the Total Cost include the 5 Maintenance and Support costs without breaking out the warranty in five one year increments?

Our solution will include 5 years of Extended Warranty. How should we show that on the cost sheet?

Answer to Q.14: The total cost of 5 years 'warranty' may be shown as a single cost as noted as item (A) on the Cost Sheet. If there are not separate costs for maintenance and support, and it is included in the initial term of the purchase as part of a warranty, then simply use a "zero" in those categories or note that it is included.

Question 15: The RFP asks for 4 switches total – 2 per site and aggregated ISLs. These 2 statements suggest you are going to connect the two switches together (1 from each site x2). If this is correct, what is the distance of the fiber between sites? Also, is the site connectivity FCIP? If not, what will it be?

Answer to Q. 15: Inter-site connectivity is outside of the scope of this RFP. The WVSTO is asking for the fiber channel switches to have the capability to support inter switch links (ISLs) in order to support future expansion of the SAN fabric at one or both locations.

Question 16: Pertaining to the Virtualized Server Environment:
 What is the type of Read/Write characteristic? (Random, Sequential)
 What is the percentage (%) Read/Write for that characteristic?
 What is the size of the Read/Write IO?

Answer to Q. 16: The 'background information' provided within this RFP was derived from an assessment that was done on our existing environment, and contains the only performance metrics available.

Question 17: Pertaining to the Virtual Desktop Environment:

How many desktop profiles?
 What protocol is required for VDI storage (NFS, FC)?
 For each discreet desktop profile:
 # of IOPS
 # end users of that profile
 Size of the virtual C: drive (GB)
 VM memory size (GB)?
 Unique data per VM (GB)?
 Read %
 Write %
 Working Set Size %
 Read I/O size (4k, 8k, etc)
 Write I/O size (4k, 8k, etc)
 Random Read Latency (ms)

Answer to Q. 17: Our current VDI deployment is a small, early pilot program, with limited user base. These questions largely cannot be answered by the pilot program. However the required protocol will be fiber channel.

Question 18: As WVSTO is 100% Virtualized, NetApp requests that, based on our published 50% less disk guaranty for Virtualized Environments, will we be allowed to quote half of the capacity you request for both production and DR systems without being disqualified for not meeting minimum requirements? This request is consistent with the WVSTO stated challenge of vendors to provide the best solution at the lowest possible cost and is core to our storage efficiency strategy.

Answer to Q. 18: No. The capacity requirements are for actual useable capacity available on the array before any de-duplication or compression is taken into consideration. Any additional capacity realized as a result of those technologies at either the file or block level will not be considered in the evaluation of the RFP responses.

Question 19: In Section/Question 2.4.x, please define that the file protocols referenced (CIFS/NFS) could be supporting Production/Tier 1, Tier 2, Backup and DR Applications of any type and that De-Duplication should be supported for all of these in order to respond "Yes" to this question.

Answer to Q.19: All potential applications should be supported; de-duplication for storage presented via file level protocols (CIFS/NFS) should be supported regardless of the application utilizing the presented storage to answer "Yes" to this question.

Question 20: In Section/Question 2.4.1.11, please define that FC/FCoE/iSCSI LUNS referenced could be supporting Production/Tier 1, Tier 2, Backup and DR Applications of any type and that De-Duplication should be supported for all of these in order to respond "Yes" to this question.

Answer to Q.20: All potential applications should be supported; de-duplication for storage presented via block level protocols (FC/FCoE/iSCSI) should be supported regardless of the application utilizing the presented storage to answer "Yes" to this question; however additional information about the operation and any limitations of the de-duplication at the block level is requested as this is not just a "Yes" or "No" question.

Question 21: In Section 2.5.1.1 WVSTO calls for a "Unified Storage System that must allow presentation of storage through block and file level protocols". Will you please clarify and define Unified Storage System as utilizing only one operating system to present both file and block level protocols with the ability to replicate ANY to ANY protocol/disk type. (ie. Being able to replicate a FC based LUN on SAS disk to a NFS based volume on SATA disk)?

Answer to Q.21: We are not limiting vendors to utilizing only one operating system for both file and block level protocols or asking for the capability to replicate a LUN presented via block protocols to a file system presented through file protocols. The following answer, provided to an earlier question, shall be the qualifications used to define a unified storage system:

The requirement for a Unified Storage System represents our desire to have the capability to present storage through multiple file and block level protocols, initially Fiber Channel and CIFS, from a single storage array with a unified management tool. A storage system that has separate pieces of hardware (controllers, storage processors, filers, etc.) dedicated to file and block level protocols is acceptable as long as they are well integrated and managed through a utility that provides a "single

pane of glass" experience to allow configuration of the system(s) and reports on storage utilization, performance and overall health.

Question 22: Questions about current environment:

- Can you please provide us with the current Blade Center Chassis' configurations (Model-Type of chassis', Blades & Switch Modules)?
- Are you currently using IBM Director to manage the Blade Center environment? If so, what features are you using?

Answer to Q. 22: All the existing, referenced equipment will be retired. For this reason, questions related to the equipment are deemed irrelevant.

Question 23: Section 2.5.4.4 - What does full clock speed mean? As more Ram is added to any servers the speed of the ram slows down. Please clarify on meaning

- What speed of memory is required (1066, 1333, or 1600MHz)?

*Answer to Q. 23: This requirement has been revised as part of this addendum; we are dropping references to the clock speed requirements. The revised requirement will be:
2.5.4.4 Each server must have a minimum of 192 GB of RAM installed.*

Question 24: Section 2.5.4.5 Single Dual Port Adapters accepted or Two Single Port Adapters Required?

Answer to Q.24: Yes, a single, dual-port adapter is acceptable.

Question 25: Section 2.5.4.6 Single Dual Port Adapters accepted or Two Single Port Adapters Required?

Answer to Q.25: Yes, a single, dual-port adapter is acceptable.

Question 26: Section 2.5.4.7 - What is meant by "Remote Management Capabilities"? Capabilities to see and watch boot process remotely and/or just Remote Desktop (RDP) Functions

Answer to Q. 26: Dedicated, OS independent remote management with remote console support to interact and watch the server boot process is required. A few examples would be HP iLO, Dell DRAC or IBM Advanced Management Module (AMM) for Blade Centers.

Question 27: Section 2.5.4.9 - What is meant by "Expected Product Life of at least 5 years"? Sold and/or Supported. If supported, Warranty (Break Fix) or Phone Support related to O/S and/or Applications?

Answer to Q. 27: The servers must be supported for at least 5 years from date of Installation/Acceptance by the STO. The support must include hardware break-fix support to replace defective components with 24x7x365 coverage and a guaranteed response time of 4 hours. No remote technical support from the server manufacturer for installed operating system or applications is required.

Question 28: Section 2.5.4.10 - Support? Warranty (Break Fix)? Looking for Phone Support to cover questions related to O/S and/or Applications running on servers?

Answer to Q.28: The support must include hardware break-fix support to replace defective components with 24x7x365 coverage and a guaranteed response time of 4 hours. No remote technical support from the server manufacturer for installed operating system or applications is required.

Question 29: Section 2.5.5.2 - "Must have at least Two available PCI-Express slots". Is this for the required Network (2.5.4.5) & SAN (2.5.4.6) adapter(s) or in addition to?

Answer to Q. 29: When bidding rack mount servers, the servers must have two additional, unoccupied PCI-Express slots available.

Question 30: Projected growth of VMware guests (Today 90, Tomorrow?)

Answer to Q. 30: Long term growth potential is unknown.

Question 31: Will Keyboard, Mouse & Monitor be required? Rack mounted tray?

Answer to Q. 31: No.

Question 32: Will KVM switching be required? If so, locally or remote (IP based)?

Answer to Q. 32: No.

Question 33: Will Rack be required? If not, how much current Rack Space is available in both locations?

Answer to Q.33: Yes, rack will be required. Please see above, Section 2.5.7 is being added as part of this addendum for specifics. Floor space is not an issue.

Question 34: Are you looking to have all Servers and Storage in same rack or separated into two racks per location?

Answer to Q. 34: The WVSTO has no preference on number of racks/cabinets provided as part of the solution.

Question 35: - Is it excepted to have ALL components integrated into Rack(s)? Integrated on-site or shipped integrated?

Answer to Q.35: The final product must have ALL components integrated into rack(s)/cabinet(s). This can be done prior to shipping or as part of the on-site setup provided by the vendor. Section 2.5.7, is being added as part of this addendum and provides more details on our strict requirements.

Question 36: - Will Power Distribution Units (PDU) be required?

Answer to Q. 36: If PDUs are required by the solution proposed, yes, they are required. See newly added section 2.5.7 in this addendum.

Question 37: Will Uninterruptible Power Supplies (UPS) be required?

Answer Q. 37: No.

Question 38: Will ALL necessary KVM, Network & SAN Cabling need to be quoted?

Answer to Q.38: KVM cabling: No. Network and SAN cabling inside the cabinet to interconnect the equipment included as part of the solution: Yes. Network and SAN cabling leading out of the cabinet to connect to existing WVSTO hardware: No. Please see newly added section 2.5.7 in this addendum.

Question 39: Will Optical Devices be required for servers - If so, CD-ROM, CD-RW, DVD or DVD Multi-Burner? Shared across servers or one per server?

Answer to Q.39: No.

Question 40: 8,000 IOPs for 100 VDI clients seems high. What applications will these desktops be running that requires 80 average IOPs per desktop, and, how did you arrive at 8,000 IOPs? If a best-practices reference document was used, can you provide an electronic copy or link to this document?

Answer to Q.41: The target number of 80 IOPs per VDI device was derived from discussions with VMware regarding View implementations with Windows 7 virtual desktops running typical office productivity tools, e-mail and some custom in-house applications.

Question 42: Will the vendor have the opportunity to run their own non-intrusive IO \ storage monitoring utility against all hosts in this environment to capture the IOPS?

Answer to Q.42: No. The 'background information' provided within this RFP was derived from an assessment that was done on our existing environment, and contains the only performance metrics available.

Question 43: Will the new Intel 'Sandy Bridge' processors (8-core) be accepted as processor options?

Answer to Q.43: The wording of our requirement includes the qualifier "or superior" into which category these newer E5 series processors would fall. We are looking for a solution that will satisfy the needs of our office for the next five years so the "latest and greatest" is always preferred. The minimum core count for a vendor bidding the E5 series processors would be equivalent to the older 5600 series processors at 6-cores, although the 8-core models would be preferred.

Question 44: How fast do you want the memory to run at (ie: 1600MHz, 1300MHz, 1066MHz, etc..) ?

Answer to Q.44: There are no requirements on memory speed, although we would prefer the fastest RAM available that will allow vendors to meet our stated minimum of 192 GB of memory per server.

Question 45: As it relates to (RACK MOUNT SERVERS), can you explain what you mean by ALL PCI-E Express slots must run at a minimum of 4x speed? Will PCI-e 2 or PCI-e 3 suffice?

Answer to Q. 45: *This requirement was placed in the document to make sure that available PCI-Express slots in rack mount servers would be able to utilize high-bandwidth add-on cards such as 10Gb Ethernet adapters to allow flexibility for future expansion of the servers. PCI-Express 2.0 is acceptable with a preference for PCI-Express 3.0 support.*

Question 46: As it relates to (BLADE SERVERS), if (7) blade servers are needed per location, can you confirm you want the blades to be installed on (2) separate blade chassis? What if the blade chassis can hold 16 blades?

Answer to Q. 46: *The requirement for two blade chassis was put in the RFP partially to ensure that a blade-based solution would be fully redundant as well as providing enough empty slots at each location for future expandability as the needs of the office change over the next five years. If a vendor is proposes a blade-based solution where the chassis itself is just a passive mid-plane connecting the blades to the other components (I/O modules, power supplies, fans, etc.) then a single blade center chassis would be acceptable as long as it provides adequate room to install up to 5 additional blades of a similar configuration as the hosts requested in this RFP without requiring the purchase of an additional blade center chassis or other components (I/O modules, power supplies, fans, etc.). If the blade chassis is not a passive mid-plane and contains active components that could fail and impact availability of the servers then there will be a two chassis per site requirement for blade server solutions.*

Question 47: You ask for the total available processing power of the servers in the proposed solution. Are you just looking for the speed of the processors and the # of cores in each socket? (ie: 2 socket server with 8 cores (2.6GHz) in each. Total 16 cores running at 2.6GHz?

Answer to Q.47: *We are looking for total processing power available per server, an example of how to respond to this question would be the following.*

"The proposed servers are dual socket, each socket contains an Intel E5-xxxx processor with 8 cores, each core is clocked at 2.0 GHz with hyper-threading support. This results in 32 processing threads and a total processing power of 32 GHz per server."

Question 48: You ask for the total numbers of DIMMS a server can hold without add-ons. What is an add-on?

Answer to Q. 48: *An add-on would be any piece of hardware that expands the server to allow additional RAM to be utilized by the system. An example would be a 1U chassis that connects to the server via a high-speed interconnect that allows each CPU to address an additional 6 DIMMs which are installed in the 1U chassis. There are other examples of add-ons such as boards or blade "side-cars" that also provide this functionality.*

Question 49: If there a preference for the speed of memory proposed?

Answer to Q. 49: *Although there is no requirement on memory speed we would prefer the fastest RAM available that will allow vendors to meet our stated minimum of 192 GB of memory per server.*

Question 50: If there a preference for the speed of the processors proposed?

Answer to Q.50: Although there is no requirement on processor speed we would prefer higher processor speeds for the additional performance and overhead to allow expansion of the environment without the need to purchase additional processing resources.

Question 51: You mention 5 years of product life of a server. Can you confirm this mean the product needs to be supported for 5 years?

Answer to Q.51: The servers must be supported for at least 5 years from date of installation/acceptance by the STO. The support must include hardware break-fix support to replace defective components with 24x7x365 coverage and a guaranteed response time of 4 hours. No remote technical support from the server manufacturer for installed operating system or applications is required.

Question 52: Section 2.4.3 - WVSTO staff as well as other state agencies preference of CISCO. Will alternative network switches to Cisco be considered if they meet technical requirements?

Answer to Q. 52: Yes, alternative network switches will be considered if they meet the requirements in section 2.5. Section 2.4 contains evaluation points and not strict requirements.

Question 53: Section 2.5.3.2 - "Network switch must have a minimum of 16 ports available" Please clarify: How many 10G ports and how many 1G ports should be available on each switch?

Answer to Q. 53: The network switches must be 10Gb capable on all ports.

Question 54: Section 2.5.3.12 - "Must include 4 hour parts response". Please provide the Postal Service Zip Codes for the locations where the switches will be installed.

Answer to Q.54: The production data center is in Charleston, WV 25305. The disaster recovery data center is in Sutton, WV 26601.

Question 55: Is it possible to get a copy of the RFP in word or an editable format?

Answer to Q. 55: The document is not available for dissemination in a Word or other editable format.

End of Questions/Responses

Date: 3/16/12

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* PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD

TELEPHONE & FAX NUMBERS

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