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licitation Response(SR) Dept: 0/0	J2 ID: ESR092	201700000001140 Ver.: 1 Fi	Inction: New Phase: Final	mounted by batch	1, 03/20/2017				
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General Information Contact	Default Value	S Discount Document Infor	mation						
Procurement Folder:	327916			SO Doc Co	de: CRFQ				
Procurement Type:	Central Purchase	e Order		SO De	ept: 0702				
Vendor ID:	000000199098	2		SO Doc	ID: TAX180000004				
Legal Name:	INNOVATIVE SY	STEMS & SOLUTIONS INC		Published Da	ate: 9/13/17				
Alias/DBA:				Close Da	ate: 9/20/17				
Total Bid:	\$518,563.50			Close Tir	me: 13:30				
Response Date:	09/20/2017			Stat	us: Closed				
Response Time:	10:58			olicitation Descripti	on: Addendum 3 - St Networks (SANs)	orage Area and Fiber	0		
			Total	of Header Attachmen	nts: 1				
			1	otal of All Attachmer	nts: 1				



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

State of West Virginia Solicitation Response

F	Proc Folder: 327916 Solicitation Description: Addendum 3 - Storage Area Networks (SANs) and Fiber Switches								
F	Proc Type : Central Purchase Order								
Date issued	Solicitation Closes	Solicitation	Response	Version					
	2017-09-20 13:30:00	SR	0702 ESR09201700000001140	1					

VENDOR

00000199098

INNOVATIVE SYSTEMS & SOLUTIONS INC

Solicitation Nu	mber:	CRFQ	0702	TAX1800000004			
Total Bid :	\$518,56	3.50		Response Date:	2017-09-20	Response Time:	10:58:48

Comments:

FOR INFORMATION CONTACT THE BUYER		
Michelle L Childers		
(304) 558-2063 michelle.1.childers@wv.gov		
Signature on File	FEIN #	DATE
	11 14 A	

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	SANs	2.00000	EA	\$152,797.420000	\$305,594.84
Comm Code	Manufacturer	Specification		Model #	
43212200					
Extended Des	scription : SEE 3.1.1 OF THE ATTA	ACHED SPECIFIC	ATIONS		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	FIBER SWITCHES	4.00000	EA	\$16,127.820000	\$64,511.28

Comm Code	Manufacturer	Specification	Model #	
43222612				
Extended Descrip	otion: SEE 3.1.2 OF TH	E ATTACHED SPECIFICATIONS		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	3 YEAR WARRANTY FOR SANs	2.00000	EA	\$54,868.560000	\$109,737.12

Comm Code	Manufacturer	Specification	Model #	
81111818				
Extended Descrip	otion: SEE 3.1.4 OF THI	E ATTACHED SPECIFICATIONS		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	3 YEAR WARRANTY FOR FIBER SWITCHES	4.00000	EA	\$2,550.190000	\$10,200.76
Comm Code	Manufacturer	Specification		Model #	
81111818					
Extended Des	scription : SEE 3.1.5 OF THE ATTA	CHED SPECIFIC	ATIONS		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	INSTALLATION, IMPLENTATION, AND TRAINING	1.00000	EA	\$28,519.500000	\$28,519.50
Comm Code	Manufacturer	Specification		Model #	
81111809					
Extended De	scription : SEE 3.1.6 OF THE ATTAC	CHED SPECIFIC	CATIONS		



Storage Area Networks (SANs) and Fiber Switches

CRFQ TAX180000004

Client: State of West Virginia

🕮 Due date 09-20-2017



Submitted by: ABS Technology Architects Matt Wedge, Account Manager 304.416.3923 wwedge@abstechnology.com



Table of Contents

Table of Contents	2
Design Assumptions	3
Solution Overview	3
Capacity for the Future	4
Superior Resiliency and Reliability	4
Visibility with InfoSight	5
Exhibit A- Pricing Page	6
Final RFQ	••••
Addendums	
Attachments	



Design Assumptions

The following assumptions have been made for the purpose of this proposal:

- Adequate floor space for new racks at each location
- Adequate power and cooling available at each location for the racks
- Client has a loading dock at each location for the delivery of the racks and equipment
- Client to provide cabling (Ethernet and fiber) based on distance requirements between components as required per site
- Section 3.1.16. SAN management system lockout requirements will be met by integration with Active Directory which will lock out the account as configured by group policy. The solution will, however, report all log-in attempts [failed and successful] from all users and groups, what IP address they attempted to login from and if it was via GUI, CLI or API. Additionally, we proactively report excessive root login attempts indicative of a DDoS attack
- Section 3.1.3.1 FCAP and DH-CHAP will be used for the switch-to-switch or compute host-to-switch access control. It is assumed the client's hosts support these technologies
- Migration of existing hosts to the new SAN will be done with the systems offline during the maintenance window in the RFP
- Both sites will be setup and configured during the same site visit
- Compute/Host configuration and updates are out of scope of this proposal
- Storage capacity based off of raw totals for SSD and HDD drives
- Client to provide location and projector/monitor for training session on the solution
- Client has adequate bandwidth and connectivity between locations to enable replication

Solution Overview

ABS Technology in partnership with HPE Nimble Storage has developed a solution which meets and exceeds the requirements of the RFQ. We have provided two storage arrays from Nimble Storage leveraging their CS5000 platform to deliver consistent application performance with the desired capacity of the request. Each array will be connected to a pair of Brocade 6510 fibre channel switches which will provide a 16Gbps storage fabric for secure and lossless connectivity between the hosts and storage. ABS Technology will install and configure the storage arrays, then connect them to the new fibre channel switching at both locations. ABS will enable encryption on the arrays to facilitate strong securitys both at rest and when replicated. Once installed and tested, ABS Technology will migrate the existing 11 hosts and VNX5300 storage array to the new SAN fabric during the maintenance window. At the end of the engagement, ABS Technology will also educate the client on the new solution and configurations in addition to providing a full documentation set.

The proposed Nimble CS5000 arrays will be delivered with 53.76TB of raw flash storage. Of this capacity, approximately 49TB will be accessible to adaptive flash caching as well as volume pinning. Adaptive flash caching is the efficient function for the NimbleOS to intelligently move 'hot' and 'warm' data blocks into cache to deliver a flash like experience with HDDs. This eliminates requiring 100% of a data to reside in expensive SSDs when only ~10% of the data set is actually being accessed. Nimble also delivers the ability to 'pin' volumes into cache which allows the storage admin to selectively put an entire volume / LUN into cache for a 100% cache experience.



The Nimble CS5000 array will also be delivered with 84TB of raw HDD storage leveraging drives with 12Gb SAS connectivity. Upon initialization of the array, the client will have over 67TB usable and based on InfoSight [our cloud based wellness analytics tool parsing over 20,000 arrays globally] we expect to hit an effective capacity of 100TB. The proposed CS5000 can support up to 147x HDDs for a maximum capacity 1.47PB raw. The proposed CS5000 can also support up to 90x SSDs / flash for a maximum cache capacity of 76TB.

Capacity for the Future

When responding to the West Virginia Tax Division's requirements of storage, HPE Nimble Storage feels there are additional facets which need to be addressed to fully inform as to what can be expected from a storage capacity in the future. With all Nimble arrays, we provide Triple Parity disk protection [the ability to sustain three drives in a RAID group without data loss] as a default configuration. With that we are still able to provide outstanding usable capacities [the amount of data available to the hosts when the array is first turned on]. After that, we apply data efficiency technologies that greatly enhance the amount of logical storage over the long run use of the systems.

Based on InfoSight data collected from over 20,000 arrays, we see an average of 1.5x data savings on our CS [HDD centric] arrays via in-line compression. Within our AF [SSD centric] family we leverage both in-line deduplication and compression to get the data savings number closer to 2.5x [or more, depending on the data sets]. The technologies are non-impacting to performance.

Numbers for this solution based on the requirements for 50TB raw of SSD and 50TB raw of HDDs.

SSD-tier: 52TB raw / 37.3TB usable / 56TB effective

HDD-tier: 84TB raw / 67.2TB usable / 100.8TB effective

Each site will have the ability to support 246-disks. Well exceeding the requirements for 150-disk growth.

Superior Resiliency and Reliability

Nimble storage arrays always use triple parity RAID, meaning that an enclosure can lose up to 3 disks before data integrity/availability becomes compromised. Unlike other solutions on the market, there is no performance impact to using triple parity RAID. This is because we don't use tiering or RAID types to delivery performance, integrity & capacity efficiency. This helps reduce management overhead significantly.

The dual controller model contained within the Nimble Storage array is by design active/standby. At present day, this is state-of-the-art with regards to sustaining storage I/O load, allowing for manipulation of the storage asset, and allowing for seamless non-interrupting upgrade processes such as firmware, hardware, storage capacity, and other maintenance tasks as defined.

VA - Virginia Beach | Richmond | Roanoke | WV - Huntington



Using active/standby, we have engineered our storage array in such a way as to completely prevent any downtime resulting from firmware upgrades, hardware upgrades, network modifications, or hardware failures resulting from network switch failure, controller failure, memory failure, or cooling fan failures. The simplest description of this behavior is to note that if and when a controller fails in a Nimble Storage array, or loses all network connectivity, it fails over to the alternate controller immediately.

The alternate controller sustains 100% of the workload, indefinitely. In traditional, or legacy active/active controller configurations, each controller is designated typically to sustain 50% of the workload, thus losing a controller results in degradation of performance by 50%.

Within a Nimble Storage Scale-Out group, all array nodes are completely active and the storage I/O workload is balanced between all nodes.

Visibility with InfoSight

InfoSight delivers a world-class, cloud-based predictive analytics solution that keeps getting better. InfoSight collects and analyzes information from millions of sensors per second and uses that data for cross-stack telemetry, global learning, and predictive analytics. The ability to predict and prevent problems has resulted in 86% of the infrastructure issues identified by InfoSight being automatically addressed (support cases opened and resolved automatically).

Global visibility has contributed significantly to the >99.9999% measured availability of Nimble Storage arrays. Because of InfoSight, support cases can be resolved as quickly and painlessly as possible. A staggering 54% of cases are resolved entirely outside of the storage realm. This fact shows that a system that can help fix problems with the whole infrastructure is far more valuable than a storage-centric system.

Although many tools in the market offer data and monitoring solutions, most of them provide just enough data and analysis to create questions. Being notified of an issue is a critical first step but too often customers are left with little or no direction on how to resolve the issue. A high-latency alarm does not help customers figure out why they have high latency or what to do to fix the problem.

InfoSight provides answers to problems by correlating data, providing recommendations, and managing cases automatically. If you nevertheless need to call Nimble Storage Support, you will be on the phone with a level-3 support engineer in a matter of minutes.

Exhibit A - Pricing Page Storage Area Networks (SANs) and Fiber Switches

ltem #	Part Number	Item Description	Brand of Equipment Bid	Unit of Measure	Quantity	Unit Cost	Extended Price
3.1.1		SANs		Each	2	\$ 152,797.42	\$ 305,594.84
3.1.2		Fiber Switches		Each	4	\$ 16,127.82	\$ 64,511.28
3.1.4		Warranty for SANs (3 years)		Each	2	\$ 54,868.56	\$ 109,737.12
3.1.5		Warranty for Fiber Switches (3 Years)		Each	4	\$ 2,550.19	\$ 10,200.76
3.1.6		Installation, Implentation, and Training		Each	1	\$ 28,519.50	\$ 28,519.50
						Total Bid Amount	\$ 518,563.50



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

F	Proc Folder: 327916							
[Doc Description: Addendum 3 - Storage Area Networks (SANs) and Fiber Switches							
F	Proc Type: Central Purchase Order							
Date Issued	Solicitation Closes	Solicitation No		Version				
2017-09-13	2017-09-20	CRFQ 0702 TAX18000000	14	4				
	13:30:00							

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

VENDOR

Vendor Name, Address and Telephone Number:

ABS Technology 2809 S. Lynnhaven Rd., Suite 250 Virginia Beach, VA 23452 757-466-0004

FOR INFORMATION (CONTACT THE BUYER				
Michelle L Childers					
(304) 558-2063					
michelle.l.childers@	wv.gov				
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ļ	MZ,		54 4054074		0/40/0047
Signature X	F	FEIN #	54-1954271	DATE	9/19/2017

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

Addendum

Addendum 3 issued to address the following:

Answer vendor questions.
Modify the specifications.

End of Addendum 3

Request for Quotation

The West Virginia Purchasing Division is soliciting bids on behalf of the Tax Division to establish a contract for the one-time purchase of hardware, software, licensing, and support for a Storage Area Network (SAN) solution.

INVOICE	то		SHIP TO				
OPERAT	TIONS DIVISION		INFORMATION TECH	NOLOGY DIVISION			
TAX DIV	ISION OF		TAX DIVISION OF				
PO BOX 11748			1001 LEE STREET ST	1001 LEE STREET STE M			
CHARLESTON		WV25339-1748	CHARLESTON WV 25301		5301		
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price		
1	SANs	2.00000	EA				

Comm Code	Manufacturer	Specification	Model #
43212200			

Extended Description :

SANs

SEE 3.1.1 OF THE ATTACHED SPECIFICATIONS

INVOICE TO		SHIP TO		
OPERATIONS DIVISION		INFORMATION TECHNOLOGY DIVISION		
TAX DIVISION OF		TAX DIVISION OF		
PO BOX 11748		1001 LEE STREET STE M		
CHARLESTON	WV25339-1748	CHARLESTON	WV 25301	
US		US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	FIBER SWITCHES	4.00000	EA		

Comm Code	Manufacturer	Specification	Model #	
43222612				

Extended Description :

SEE 3.1.2 OF THE ATTACHED SPECIFICATIONS

INVOICE TO				SHIP TO		
OPERATIONS DIVISION			INFORMATION TECHNOLOGY DIVISION			
TAX DIVISION OF			TAX DIVISION OF			
PO BOX 11748			1001 LEE STREET ST	EM		
CHARLEST	N	WV25339-1748	}	CHARLESTON	WV 2	25301
Line	Comm Ln Desc		Qty	Unit Issue	Unit Price	Total Price
3	3 YEAR WARRANTY FO	R SANs	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
81111818			

Extended Description :

SEE 3.1.4 OF THE ATTACHED SPECIFICATIONS

INVOICE TO		SHIP TO		
OPERATIONS DIVISION		INFORMATION TECHNOL	OGY DIVISION	
TAX DIVISION OF		TAX DIVISION OF		
PO BOX 11748		1001 LEE STREET STE M		
CHARLESTON US	WV25339-1748	CHARLESTON	WV	25301
Line Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price

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	4	3 YEAR WARRANTY FOR FIBER SWITCHES	4.00000	EA		

Comm Code	Manufacturer	Specification	Model #
81111818			

Extended Description :

SEE 3.1.5 OF THE ATTACHED SPECIFICATIONS

INVOICE TO		SHIP TO		
OPERATIONS DIVISION		INFORMATION TECHNOL	OGY DIVISION	
TAX DIVISION OF		TAX DIVISION OF		
PO BOX 11748		1001 LEE STREET STE M		
CHARLESTON US	WV25339-1748	CHARLESTON	WV	25301
	<u>.</u>			
Line Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price

Line	Comm Lin Desc	QLY	Unit issue	Unit Frice	Total Frice	
5	INSTALLATION, IMPLENTATION, AND TRAINING	1.00000	EA			

Comm Code	Manufacturer	Specification	Model #	
81111809				

Extended Description :

SEE 3.1.6 OF THE ATTACHED SPECIFICATIONS

SOLICITATION NUMBER: CRFQ TAX180000004 Addendum Number: 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:

- $[\checkmark]$ 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:

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To modify the bid opening date to September 13, 2017 at 1:30PM, EST.

No other changes.

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.

ADDENDUM ACKNOWLEDGEMENT FORM SOLICITATION NO.: CRFQ TAX180000004

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

[]	[]	Addendum No. 1	[]	Addendum No. 6
[]	Addendum No. 2	[]	Addendum No. 7
[]	Addendum No. 3	[]	Addendum No. 8
[]	Addendum No. 4	[]	Addendum No. 9
[]	Addendum No. 5	[]	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.

ABS Technology Company Authorized Signature 9/8/2017 Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing. Revised 6/8/2012

SOLICITATION NUMBER: CRFQ TAX180000004 Addendum Number: 02

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:

- $[\checkmark]$ 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:

This addendum is issued to modify the solicitation per the attached documentation and the following:

1. To modify the bid opening date to September 20, 2017 at 1:30PM, EST.

No other changes.

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.
- 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.

ADDENDUM ACKNOWLEDGEMENT FORM SOLICITATION NO.: CRFQ TAX1800000004

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

[]	Addendum No. 1	[]	Addendum No. 6
[x]	Addendum No. 2	[]	Addendum No. 7
[]	Addendum No. 3	[]	Addendum No. 8
[]	Addendum No. 4	[]	Addendum No. 9
[]	Addendum No. 5	[]	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.

ABS Technology	
 Company	
Authorized Signature	
9/12/2017	
 Date	

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing. Revised 6/8/2012

SOLICITATION NUMBER: CRFQ TAX180000004 Addendum Number: 03

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
- $[\checkmark]$ Modify specifications of product or service being sought
- $[\checkmark]$ Attachment of vendor questions and responses
- [| Attachment of pre-bid sign-in sheet
- [] Correction of error
- [] Other

Description of Modification to Solicitation:

This addendum is issued to modify the solicitation per the attached documentation and the following:

- 1. To publish the vendor questions and agency answers.
- 2. To modify specifications 3.1.1.9, 3.1.1.12, and 3.1.1.13 as attached.

No other changes.

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

.

Vendor Questions and Agency Answers CRFQ TAX180000004 Storage Area Networks and Fiber Switches

- Q1) Can we get a clear understanding of what the performance requirements are from an IOPS, latency and throughput perspective, i.e. reports from VNX Monitoring & Reporting Suite or the webUI of your VNX?
 - A1) We do not currently use VNX Monitoring & Reporting Suite. The following screen shots are from Solarwinds Orion SRM for current performance.

STORAGE POOL	LATENCY (TOTAL)	IOPS (TOTAL) 🔻	THROUGHPUT (TOTAL)
C Pool 0	2.90 ms	108	1.16 MB
🖯 🜑 Pool 0	0.61 ms	104	2.15 MB
C Pool 0	0.47 ms	11	1.44 MB
De Pool 0	0.49 ms	9	377.67 KB
Co Pool 0	3.36 ms	6	304.69 KB
De Pool 0	3.26 ms	5	295.25 KB
Co Pool 0	5.42 ms	5	184.43 KB
De Pool 0	5.31 ms	4	209.62 KB
Co Pool 0	2.58 ms	2	127.34 KB
Co Pool 0	0.30 ms	1	12.15 KB
De Pool 0	2.80 ms	0	186.77 KB
De Pool 0	34 ms	0	25.47 KB
C Pool 0	0.90 ms	0	1.79 KB
Co Pool 0	0.68 ms	0	3.08 KB
Co Pool 0	2.55 ms	0	0.41 KB
Co Pool 0	4.62 ms	0	5.17 KB

 Dep Pool 0	4.62 ms	0	5.17 KB
Co Pool 0	4,53 ms	0	4.21 KB
Co Pool 0	6.87 ms	0	0.63 KB
Do Pool 0	4.31 ms	0	3.77 КВ
Ce Pool 0	0.50 ms	0	0.05 KB
Co Pool 0	0.10 ms	0	0.05 KB
Co Pool 0	0.17 ms	0	0.05 KB
C Pool 0	0.16 ms	0	0.05 KB
Ce Pool 0	0.17 ms	0	0.05 KB
De Pool 0	0.16 ms	0	0.05 KB
Co Pool 0	0.18 ms	0	0.05 KB
De Pool 0	0.16 ms	0	0.05 KB
De Pool 0	0.16 ms	0	0.05 KB
De Pool 0	0.92 ms	0	0.40 KB
De Pool 0	4.77 ms	0	0.03 KB
Co Pool 0	14 ms	0	0.03 KB
De Pool 0	18 ms	0	0.03 KB
D@ Pool 0	0 ms	0	0.00 KB
De Pool 0	0 ms	0	0.00 KB
C Pool 0	0 ms	0	0.00 KB
De Pool 0	0 ms	0	0.00 КВ

De Pool 0	0 ms	0	0.00 KB
	0 ms	0	0.00 KB
Core o	0 ms	0	0.00 KB
Do Pool 0	0 ms	0	0.00 KB
Do Pool 0	0 ms	0	0.00 KB
Dool 0	0 ms	0	0.00 KB
Co Pool 0	0 ms	0	0.00 KB
Co Pool 0	0 ms	0	0.00 KB
Dool 0	0 ms	0	0.00 KB
C Pool 0	0 ms	0	0.00 KB
Co Pool 0	0 ms	0	0.00 KB
0001	0 ms	0	0.00 KB

Q2) What applications will be supported by the new SAN? Please break down the storage requirements based on application type.

A2) The SAN in question supports one Tax application, Gentax. This application runs on a Windows Server Platform. The SAN environment however needs to be broken down to provide disk storage for various Storage Pools, allowing for disk space to be allocated to different environments (eg. Production, Staging).

Q3) Please provide a breakdown of hosts, i.e. Hypervisor and version; physical hosts OS, version and application being supported.

A3) Hosts are ESXi 6.X hosts, in a Vmware vSphere. VM guests are Windows 201X server machines, BSD, and Linux.

Q4) You have requested 50TB of SSDs and 50TB of HDDs. Will these disks hold mutually exclusive data or will they be used for data tiering?

A4) They will be used for data tiering.

Q5) Will a solution be acceptable with a lesser amount of SSD capacity be acceptable if we can deliver the required latency and performance requirements?

A5) No

Q6) Are the 50TB of SSDs and 50TB of HDDs a raw or usable capacity? If we can meet your requirements of required capacity leveraging data efficiencies, i.e. compression, with less 'out of the box' capacity, will that be acceptable?

A6) Raw capacity. Compression to meet these requirements will not be acceptable.

- Q7) We need to get clarification on your future growth requirements based off of the request for an array supporting 150-disks. What are your long-term capacity requirements? Do you have anticipated annual growth percentages?
 - A7) We have had an historic growth rate of approximately 18% to 20% in our larger datasets.
- Q8) Will performance, capacity, latency and throughput requirements be the same at both the Charleston and Flatwoods, WV data centers? If not, please indicate the differences and considerations we would need to be aware of.

A8) Yes, the intention is to have identical systems.

Q9) Will Tax provide and share SPCollects and .nar (performance) data from the existing assets?

A9) Yes, to the winning bidder. Otherwise, we will not give that information out.

Q10) async replication - what is the max RPO?

AI0) 24 hours

Q11) What throughput exists between sites and what is the line latency?

All) There are not currently sites, or a dedicated line.

Q12) What is the change rate of the existing capacity on the primary VNX?

A12) The portion of the system that we will want to replicate is approximately 3.5 Terabytes; the rate of change for that portion of the system is 1.6%.

Q13) How much consumed capacity exists on the primary VNX?

A13) Current SAN capacity is 62.73 TB Usable, with 54.37 TB Used and 8.36 TB Remaining

- Q14) Is LDAP going to manage accounts, timeouts, etc? or will the storage array / SAN native tools (Seems like we are asking for both)?
 - A14) Typically any device will come with its own account management system, which is fine. In the event that LDAP authentication fails we still need to be able to access the device. A local account for administration in addition to the ability to assign account access and restriction through a LDAP interface is acceptable. So yes, we are asking for both.
- Q15) Should an all SSD option be considered if the pricing was within 15% of a hybrid option?

AI5) Yes

- Q16) Services and building access. What is the process required to gain access to facilities?
 - A16) The process to gain access to the facility is to contact Tax IT personnel and schedule any maintenance or deployment. Tax IT personnel must be present for any type of activity conducted by any vendor to this system.

Q17) 3.1.1.12/3.1.1.13 Are the listed capacities, raw, formatted, available, or usable capacities? Is the numbers binary or decimal capacity numbers?

A17) Raw capacity, with an expected 80% usable capacity, and the numbers are expressed in binary (multiples of 1024), thus 50 Terabytes is 54,975,581,388,800 bytes.

Q18) 3.1.1.18 Is the expiration timeout based upon inactivity or simply limiting sessions for 30 minutes each?

AI8) Inactivity

Specification Changes/Additions CRFQ TAX1800000004 Storage Area Networks and Fiber Switches

Remove Specification 3.1.1.9:

3.1.1.9 Each SAN must be able to disable or enable encryption at rest on a per LUN basis.

Replace with the following Specification:

3.1.1.9 Each SAN must have encryption at rest.

Remove Specification 3.1.1.12 & 3.1.1.13:

- 3.1.1.12 Each SAN must have a minimum of 50TB of hard disk drive storage installed. The hard disk drives must have 12 Gb SAS interfaces.
- 3.1.1.13 Each SAN must have at minimum of 50TB of flash storage installed.

Replace with the following Specification:

3.1.1.12 Each SAN must have a minimum of 100TB of storage installed. A minimum 50TB of the 100TB must be flash storage.

ADDENDUM ACKNOWLEDGEMENT FORM SOLICITATION NO.: CRFQ TAX1800000004

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

[]	Addendum No. 1	[]	Addendum No. 6
[]	Addendum No. 2	[]	Addendum No. 7
[x]	Addendum No. 3	[]	Addendum No. 8
[]	Addendum No. 4	[]	Addendum No. 9
[]	Addendum No. 5	[]	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.

ABS Technology	
Company	
AT	
Authorized Signature	
9/15/2017	
Date	

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing. Revised 6/8/2012 West Virginia Ethics Commission



Disclosure of Interested Parties to Contracts

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

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

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

"Interested party" or "Interested parties" means:

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

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

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

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

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Contracting business entity: Innovative Systems & Solutions, Inc.				
Address:2809 S. Lynnhaven Rd., Ste. 250, Virginia Beach, VA 23452				
Contracting business entity's authorized agent:J. Hunter Dorroh				
Address:2809 S. Lynnhaven Rd., Ste. 250, Virginia Beach, VA 23452				
Number or title of contract: CRFQ: TAX180000004				
Type or description of contract:Storage Area Networks (SANs) and Fiber Switches				
Governmental agency awarding contract: West Virginia Tax Division				
Names of each Interested Party to the contract known or reasonably anticipated by the contracting business entity (attach additional pages if necessary):				
Signature: Date Signed: 09105/2017 □ Check here if this is a Supplemental Disclosure.				
Verification				
State of Virginia , County of Virginia Black				
I, <u>Hunto</u> , the authorized agent of the contracting business entity listed above, being duly sworn, acknowledges that the Disclosure herein is being made under oath and under the penalty of perjury.				
Taken, sworn to and subscribed before me this day of day of				
Stephanie Cormier Commonwealth of Virginia Notary Public Commission No. 354545 My Commission Expires 7/31/2020				
To be completed by State Agency:				
Date Received by State Agency:				
Date submitted to Ethics Commission:				
Governmental agency submitting Disclosure:				

WV-10 Approved / Revised 12/16/15

State of West Virginia VENDOR PREFERENCE CERTIFICATE

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

	Application is made for 2.5% vendor preference for the reason checked: Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preced- ing the date of this certification; or, Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification:
	Bidder is a resident vendor partnership, association, or corporation with at least eighty percent of ownership interest of bidder held by another entity that meets the applicable four year residency requirement; or,
	Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or ,
2.	Application is made for 2.5% vendor preference for the reason checked: Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
3.	Application is made for 2.5% vendor preference for the reason checked: Bidder is a nonresident vendor that employs a minimum of one hundred state residents, or a nonresident vendor which has an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia and employs a minimum of one hundred state residents, and for purposes of producing or distributing the commodities or completing the project which is the subject of the bidder's bid and continuously over the entire term of the project, on average at least seventy-five percent of the bidder's employees or the bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years and the vendor's bid; or,
4.	Application is made for 5% vendor preference for the reason checked: Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
5.	Application is made for 3.5% vendor preference who is a veteran for the reason checked: Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
6.	Application is made for 3.5% vendor preference who is a veteran for the reason checked: Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.
7.	Application is made for preference as a non-resident small, women- and minority-owned business, in accor-
	Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.
Bidder u requirem or (b) as the contr	nderstands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the ients for such preference, the Secretary may order the Director of Purchasing to: (a) rescind the contract or purchase order; sess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to racting agency or deducted from any unpaid balance on the contract or purchase order.
By subm authorize the requi deemed	ission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and as the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid red business taxes, provided that such information does not contain the amounts of taxes paid nor any other information by the Tax Commissioner to be confidential.
Bidder I and if ar ing Divis Bidder	hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder hything contained within this certificate changes during the term of the contract, Bidder will notify the Purchas- sion in writing immediately.

Date: 09/05/2017

Signed:		
Title:	CEO	

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

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.

Mane Davis, Contracts Administrato
(Name, Title)
Iviane Davis, Contracts Administrator
(Printed Name and Title) 2809 S. Lynnhaven Rd., Ste. 250, Virginia Beach, VA 23452
(Address) 757-419-2204 / 757-466-0600 (fax)
(Phone Number) / (Fax Number)
mdavis@abstechnology.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.

Innovative Systems & Solutions, Inc.

(Company) CEO

(Authorized Signature) (Representative Name, Title)

Hunter Dorroh, CEO

(Printed Name and Title of Authorized Representative)

09/05/2017

(Date)

757-466-0004 / 757-466-0600 (fax)

(Phone Number) (Fax Number)

STATE OF WEST VIRGINIA Purchasing Division PURCHASING AFFIDAVIT

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Innovative Systems & Solution	is, Inc.
Authorized Signature:	Date: 09/05/2017
State of Virginia	
County of Virginia Beach, to-wit:	
Taken, subscribed, and sworn to before me this da	is of September, 2017.
My Commission expires July 31	, 20 <u>20</u> .
AFFIX SEAL HERE	NOTARY PUBLIC
Charlenia Cormion	Purchasing Affidavit (Revised 08/01/2015)
Commonwealth of Virginla Notary Public Commission No. 354545 My Commission Expires 7/31/2020	