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January 31, 2023

ADDENDUM #1 to the University of Florida ITN23NH-120 Database Storage Refresh scheduled to be opened on **February 14th, 2023 3:00 PM** at the University of Florida, Elmore Hall Conference Room, Radio Road, Gainesville, Florida.

This addendum shall be considered part of the Contract Documents for the above mentioned **ITN23NH-120** as though it had been issued at the same time and incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original document, this addendum shall govern and take precedence. All other terms, conditions, and regulations will apply.

This addendum consists of:

1. Answers to supplier questions received.

Sincerely,

Nicola Heredia, Director
Procurement Services

Please acknowledge receipt of Addendum #1 by signing below and returning this addendum with your proposal. Failure to include addendum with your proposal may result in rejection.

_____ _____
Signature Company Name

_____
Email Address

_____ _____
Company Address City/State/Zip

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I. Contracting

Q1. Is University of Florida looking for a CapEx and/or an OpEx offering due to their 20% YoY growth along with 1- and 2-year options?

A1. The University generally requires CapEx. Maintenance proposals must include costs for years 6 & 7, but the upfront cost is to be for 5 years.

Q2. If University of Florida is expecting CapEx, does it require Managed Services and Patch Management for their storage solution? These offerings are included with an OpEx model.

A2. Managed services are not required; however, support is expected to continue beyond the 5-year life cycle.

Q3. Are there currently any addenda we should have?

A3. None as of the time of receiving this question. Addenda will be posted publicly as they are available.

Q4. Can a vendor submit more than one response: one response which covers the primary one objectives and one that covers the “Highly Desired” objectives?

A4. Yes, more than one proposal can be submitted. See section 4.1.3 of the ITN document for instructions on how to mark each proposal.

Q5. Can UF clarify if you are looking for additional capacity to be provided in the option years only or if its your intention for Vendors to provide for 20% year over year growth for each year in 5-year base term and two additional option years?

A5. The University has based the requirements for both capacity and performance on 3 years of growth from now, with the expectation that additional purchases may be required to accommodate further capacity growth during the term or option years.

Q6. When are you planning to announce and/or facilitate a pre-proposal conference?

A6. There will not be a pre-proposal conference for this solicitation.

II. Legacy System Details

Q1. How much data is currently hosted on XtremIO?

A1. XIO hosts most of the Oracle storage, but not the MSSQL storage. The new solution is sized to handle all of both.

XIO SSRB: logical 62TiB, physical 18TiB;

XIO UFDC: logical 83TiB, physical 28TiB; logical is after substantial thin-provisioning savings, particularly on array 2. There is another 30.5TiB Oracle DB (logical) sitting on a NetApp array. and ~50TB of MSSQL sits on the Netapp array.

Q2. What version of XIOS is currently running?

A2. XMS Version: 6.3.3 build 8; XIOS: 4.0.31-11

Q3. Are these currently under maintenance? If so for how long?

A3. Current maintenance support lasts until 6/30/2023.

Q4. How is UF team currently backing up the XIO?

A4. Backup is done to a DD 9400 using RMan/DDBoost.

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Q5. Do any Snapshots exist?

A5. Yes.

Q6. How many RP appliances exists for each site?

A6. 3 on each site, for a total of 6.

Q7. Capability (d): Please provide current compression and deduplication ratios, if any. Is data currently thin-provisioned at the storage level? What percentage of the dataset is non-reducible (i.e. encrypted or compressed at the host level), if any? Are you willing to run host-based data reduction estimation tools on your dataset or a representative sample of it to determine the data reduction ratio with high accuracy?

A7. 2 arrays numbers: data reduction ratio: 3.4:1 and 2.9:1; Dedupe ratio: 1.5:1 and 1.3:1; Compression ratio: 2.3:1 for both. Data is thin-provisioned at the storage level. No data is encrypted or compressed at the host level. Any proposed data reduction estimation tool would need to be evaluated to determine if it is appropriate/suitable.

Q8. Can you please provide us with all Serial Numbers / Dell Asset Tags for DellEMC equipment mentioned in the RFP? This is specifically for "Dell XIO and RecoverPoint hardware appliances, located in two Gainesville datacenters", as the RFP states.

A8. XIO: FNM00153801566, FNM00153801565

RPA: FC6RP152900041, FC6RP152900036, FC6RP152900030, FC6RP131800199, FC6RP131700083, FC6RP153100025

Q9. When does the existing support contract expire for the current block storage environment?

A9. Existing support expires 06/30/2023.

Q10. Are the 9 RHEL hosts virtualized? If not, what are the make and models of the physical servers?

A10. No. 9 physical hosts in one data center, 6 in the other. All are HPE Synergy Gen 10 blades.

Q11. What are the RHEL versions for the 9 Oracle/RHEL hosts?

A11. There are 15 hosts, and the versions are RHEL7.

Q12. What is the current Oracle RAC version?

A12. Grid is 19.

Q13. How many relational databases are there for Oracle RAC?

A13. TST-RAC = 39, QAT-RAC/DG =29, PRD-RAC=27/DG so roughly 141 total instances.

Q14. How many LUNs are there for Oracle RAC?

A14. There are 540 XIO volumes across both arrays.

Q15. Is ASM being used?

A15. Yes.

Q16. Are the Oracle RDBMS instances OLTP, DSS or a combination of both?

A16. A combination of both.

Q17. Are the 4 SQL hosts virtualized? If not, what are the make and models of the physical servers?

A17. Yes, the SQL servers are virtualized sitting across 8 HPE Synergy 480 Gen10 EXxi host.

Q18. What are the operating systems and versions for the 4 SQL hosts?

A18. Windows Server 2016, 2019 and 2022.

Q19. What is the version of SQL?

A19. The bulk of UF SQL Server instances are 2019 with some 2017, 2016, 2014.

Q20. How many relational databases are there for SQL?

A20. There are over 150 SQL server instances with several databases per instance.

Q21. How many LUNs are there for SQL?

A21. There are ~50 RDMs connect to SQL cluster VMs.

Q22. How many TB of SQL data to migrate?

A22. 40.43TB of used space.

Q23. Are the MSSQQL instances OLTP, DSS or a combination of both?

A23. The bulk of databases are OLTP. There are a few reporting and DSS.

Q24. How many VMware ESXi hosts are there?

A24. There are 8 ESXi hosts used for MSSQL VMs, 4 at each datacenter.

Q25. How many VMware datastores are there for VMware?

A25. There are 9 VMware Datastores (LUNs) used by MSSQL VMs.

Q26. How many VMware VMs are there?

A26. There are 204 MSSQL VMs on the MSSQL ESXi clusters.

Q27. How many LUNs are there for VMware?

A27. Separate from the ~50 RDM LUNs, there are 9 VMware Datastore LUNs used for MSSQL VMs.

Q28. How many TB of VMware data to migrate?

A28. Roughly 50TB.

Q29. What are the VMware ESXi versions?

A30. Main hosts are 7.0.3 20328353.

Q31. Could you provide the 8G and 16G FCA HBA make and models for the Oracle and SQL servers?

A31. Current hosts are HPE Synergy 480 Gen10 Blades limited to 8G due to IC module. CNAs are HPE 4820C.

Q32. What is the make and model of the switches that are in the dual fabric?

A32. Cisco MDS 9706.

Q33. Would UFIT be able to furnish a sanitized output from a Brocades SAN Health analysis on or before 1/30/2023?

A33. No.

Q34. If the 13 hosts are virtualized, could an RVTools output be furnished on or before 1/30/2023?

A34. No.

Q35. Will UFIT be able to provide Oracle AWR output(s) on or before 1/30/2023?

A35. No.

Q36. What is the total port count needed for each array at each site? In the ITN it is mentioned 13 hosts across 4 paths on two SAN fabrics.

A36. Vendors should recommend optimal sizing based on their proposed solution.

- MSSQL: ESXi hosts: 8; 4 at each datacenter
- RAC: 15 RHEL hosts; 9 at one datacenter, 6 at the other.

Q37. In regards to Oracle RAC - is the data encrypted or are there any encrypted rows/tables? How would that be verified?

A37. The requirement is to have data at rest encryption at the array level. No encryption will be used within Oracle.

Q38. Can UF identify the read/write ratios that were used to calculate the bandwidth and IOPS?

A38. The University cannot provide R/W ratios at this time. Performance metrics required were captured over a 30-day period from production arrays, and scaled up for 3 years of expected capacity growth.

III. Professional Services

Q1. Outside of the hardware being physically installed, is it University of Florida's expectation to have the deployment and configuration done on-site or remotely?

A1. Deployment and configuration are expected to be done on site.

Q2. Does University of Florida require migration of existing storage platform on to the awarded storage platform?

A2. Migration is not required; however, proposals can include cost options both with and without vendor-provided migration.

Q3. Does University of Florida require any remote or in-person training regarding our management and storage software? If so, how long does the training need to be and how many people will attend?

A3. Training is required, with an expected attendance of around 10 people, but any vendor recommendations for attendance size will be considered. Instructor-led remote online format would be preferred.

Q4. Also, what level of knowledge transfer/ training are you looking for as part of the complete offer? Do you want it quoted?

A4. Offers should quote any training that the vendor believes is necessary, but at minimum should include a run book.

Q5. Who is responsible for data migration from current system to new system?

A5. The University will be responsible for data migration; however, vendors can include a cost proposal to provide data migration themselves.

Q6. How many administrators would need to be trained?

A6. At least 10 administrators.

IV. Requirements Clarification

Q1. What are the requirements for the Primary Site lab/test? Total usable TB, connectivity, etc.

A1. Vendors are expected to provide the minimum viable solution, which must be functionally equivalent to production.

Q2. Does the Primary Site lab/test require all the same security and performance features as the Primary site/ Secondary Site?

A2. Yes, but scaled down.

Q3. 1.2.1 Technical Specifications (5) Capacity/ Scalability: Does UF intend to purchase the future capacity upfront or will they purchase as needed each year?

A3. No; the University will purchase additional capacity as needed.

Q4. 1.2.1 Technical Specifications (6) Security (i) - Will UF require FIPS-140-2 drives or, if the vendor can meet this standard through software, will that qualify?

A4. Both options should be provided with their respective costs if available.

Q5. 1.2.1 Technical Specifications (6) Security (n) Please explain Configurable removable media encryption and use restrictions.

A5. Solutions offered should include the ability to enable/disable USB ports or similar storage/diagnostic interface on the array, if such an interface exists.

Q6. What type of data will be stored on the appliance and if multiple what is the % of each: Block, File or Object?

A6. Block only.

Q7. Availability/Reliability (a): Please clarify your intent to remove capacity and hardware with zero downtime.

A7. Drive failure or component failure should be replaceable without bringing the entire array down and should not disrupt service.

Q8. System Metrics: Are these day-1 performance requirements? If not, would you consider an as-a-service model where the performance scales over time with demand, and you are charged for actual consumption?

A8. The requirements given are day-1 performance requirements.

Q9. Each Site Must (a): Would you consider disabling data reduction to increase performance for your highest priority workloads? If so, what percentage of the dataset would not be compressed or deduplicated?

A9. All methods will be considered as long as they are verifiable and meet all performance and capacity requirements.

Q10. Each Site Must (a) (i): Would you like the systems sized for peak or 95th percentile bandwidth? Please break down bandwidth requirements by read/write percentage and block size.

A10. Please provide both options for review (peak and 95th percentile). The University is unable to break down requirements by R/W percentage at this time. MSSQL data sits on NetApp and uses block size of 4096. RAC on XIO uses block size of 4k for online redo logs, and db blocksize is typically 8k.

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Q11. Capacity/ Scalability: Are these day-1 capacity requirements? If not, would you consider an as-a-service model where the capacity scales over time with demand, and you are charged for actual consumption?

A11. Proposals may include either or both options with their respective costs, and the University will evaluate which best meets the requirements.

Q12. Capacity/ Scalability (b): Please clarify capacity scaling. Is the initial sizing for the 5 year term, with 20% increases only in option years 6 and 7 (roughly 1.5x initial capacity)?

A12. The capacity and performance are sized for 3 years of growth up front. Additional 20% increases will be implemented as needed to scale with any further growth.

Q13. How many TB of Oracle RAC data to migrate?

A13. Roughly 170TB.

Q14. Is it preferred to use the Oracle Dataguard and MSSQL AlwaysOn for replication in place of array based replication?

A14. Both are required, as there are some workloads that will require one or the other.

Q15. Is an all flash array required or could we propose a spinning disk solution licensed with like functionality?

A15. Either option will be considered if the proposal meets the performance requirements.

Q16. Is the preferred ethernet connectivity for east west replication to be copper or glass?

A16. Fiber is required.

Q17. For verifiable data compression and deduplication claims, is it the intent for UF to be able to view in real-time the efficiency using vendors monitoring tools?

A17. Yes.

Q18. What is UF's definition of storage efficiency – do they county snapshots, thin provisioning, etc.

A18. Proposals should include the vendor's definition of storage efficiency, and they will be evaluated with that definition in mind, but such definitions should never include thin provisioning.

Q19. Can UF define "logical usable capacity"? Is this usable with RAID not calculating storage efficiencies such as deduplication, compression, snapshots?

A19. Logical usable capacity is defined as follows: after calculations for RAID, parity, over-provisioning, and system use/overhead are taken out. It shall not include thin provisioning, data reduction, deduplication, compression, or snapshot calculations. Any vendor dependence on data reduction, deduplication, compression, etc. numbers to meet capacity must be written out, must be verifiable and testable, and must be guaranteed.

Q20. Is UF requesting for the vendor to provide all required connectivity components including software, switches, SFPs and cabling?

A20. Solution component in-rack interconnectivity must be provided by vendor. Any software license, required switches, SFPs to connect solution components together, or provide required functionality must be included. The only components that the University will source are fiber/copper jumpers to connect the solution to UF SAN and Ethernet fabrics as applicable for cross-site replication and host connectivity. Vendor must provide necessary SFPs for all of these ports.

Q21. If the scaled down eval environment can be remote, what does the vendor need to provide when it comes to the minimum hardware and required software outside of the flash storage array(s)?

A21. It can be remote. The University be able to deploy appropriate (RAC/MSSQL) hosts to test as close to the current environment as possible (minimum viable environment).

Q22. In section 1.2 the ITN states the proposal will include a scaled lab environment for testing of software upgrades, changes, replication, and failover. Is there a minimum usable capacity that all bidders should propose for this environment?

A22. There is no minimum required usable capacity. The focus is not on performance testing, but functional testing, software update and upgrade testing, workflow and automation testing. The environment must be functionally equivalent but scaled down. 20TB would suffice, but is negotiable.

Q23. Does the scaled lab environment need to meet certain technical specifications? If so, what would those minimums be?

A23. It must be functionally equivalent to production. For example: if prod has two arrays, and cluster switches, the scaled lab should include that as well. The University must be able to test new firmware and software upgrades, and configuration best practices changes appropriately prior to rolling them out to prod.

Q24. Will the lab environment require any infrastructure to be provided by the vendor outside of the flash storage array(s)?

A24. The University will provide lab SAN fabric connectivity to lab hosts, and ethernet connectivity to network. Vendor must provide SFPs and any in rack cabling/sfps between components in the same way as answered in A20 above.

Q25. If the scaled down test environment needs to be on-premises, will UFIT be providing all of the hardware and software resources outside of the flash storage arrays(s)?

A25. If test/eval environment is on-premises: Vendor will provide all components that are part of the solution and interconnectivity. The University would provide test hosts, etc. and connectivity to fabrics. Answers A20 and A24 also apply.

Q26. Will the scaled down test environment require any 3rd party tools such as Silly Little Oracle Benchmark (SLOB)?

A26. The University will provide industry standard tools to do the testing for the test/eval environment. If vendor suggests additional or specific tools, or tools that are not open source and readily available, those shall be provided by vendor.

Q27. Testing: Is UF looking for lab equipment for both primary and secondary sites or a single HA pair storage array to test in a single site?

A27. The lab will be installed at our UFDC datacenter and will simulate two sites (so for example, 2 arrays in a single rack, connected over UF network).

Q28. Given the speed, efficiency and advantages of modern, high-bandwidth ethernet, would the University willing to consider a proposal that leverages ethernet rather than FC?

A28. No.

Q29. Would you consider a solution that does not include Fiber Channel?

A29. No.

Q30. Would the University consider running the workloads on new environment that is proposed?

A30. New environments can be included in proposals, and will be evaluated on a case-by-case basis.

V. Support

Q1. Should the initial arrays have 3-year or 5-year offers? What is University of Florida's expectation on maintenance offerings – 3-year, 4-year or 5-year? This information we want to verify.

A1. Vendors should provide both 3-year maintenance and 5-year maintenance offerings for cost comparison.

Q2. Is it University of Florida's expectation to have problem determination, tech, and parts on-site work all done within 4 hours? Or is problem determination completed, and then the tech and parts on-site work done within 4 hours?

A2. The University expects to have support contact within the period defined in the ITN document; parts are then expected to be shipped and the tech on-site within 4 hours. Any vendor whose support offerings differ from this expectation should provide details of their offerings in their proposal.