Request for Quote (RFQ)

Storage and e-Discovery Solution September 18, 2013

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Section 1: BACKGROUND

The City of Philadelphia, Office of Innovation and Technology (hereinafter “OIT”) is requesting proposed architected solutions and quotes for Storage and e-Discovery systems as defined under this RFQ. No purchase will be made under this RFQ. Any subsequent purchase of equipment and/or software will only be procured through existing city, state or other City approved cooperative contracts or purchasing agreements; terms and conditions to be provided at a later date.

The OIT currently has 350 terabytes of raw midrange direct access storage devices across four separate storage platforms and 2 terabytes of usable mainframe attached storage. (NOTE: any reference to disk capacity in this RFQ is raw disk) In addition, the OIT anticipates growth of the data center storage requirements stemming from Data Center Consolidation and future growth of City agencies. All of the existing DASD and controllers are owned by the OIT. The existing DASD is made up of (Oracle/STC – V2X), EMC Centera, EMC Clariion, & IBM DS 4000 series storage arrays of varying models and duration of service.

The OIT is considering both a consolidated and a segregated storage model to replace the existing storage devices for mainframe and open systems. The OIT is seeking 3 quotes that detail pricing for the following scenarios:

1. mainframe storage
2. open systems storage
3. combined storage for open systems and mainframe

In addition, the OIT seeks an architected solution that will allow for the addition of a secondary offsite storage solution that would mirror the production environment for automatic failover and Disaster Recovery (“DR”) purposes. This option would also allow for future maintenance of the installed base environments without impact to business delivery. Vendor should include in the proposed primary site storage solution the architecture and configuration to allow this seamless connectivity as well as price separately the secondary offsite storage solution as an option. Further the proposed storage solution must seamlessly interface with the City’s existing backup solution (currently CommVault).

All equipment will be operated by OIT staff on a daily basis with only maintenance functions provided by the vendor in accordance with an agreed upon maintenance schedule (expected 5 years of warranty included in the purchase). Proposed pricing under this RFQ shall be based upon per GB installed. The vendor shall prepare a fixed price quote expressed as a cost per GB installed. The OIT understands the vendor will require a “floor” capacity requirement, however, the OIT will not accept a baseline “floor” capacity higher than 600TB apportioned across various tiers (see section 2). Actual deployment of tier configurations will be at the discretion of the OIT.
Mainframe
For the Mainframe storage model, OIT is looking to acquire 43TBs of raw disk (25TBs useable) space to accommodate our current and future needs.

Open Systems
For the open systems storage model, the OIT anticipates a number of possible growth scenarios based on current and future consolidation efforts. For maximum flexibility, turnaround time and accommodating complete vendor input from this RFQ, the OIT is requesting three capacity levels and related purchase pricing information. The pricing must include the ability to grow to 1PB without significant future investment of time and without significant changes to the infrastructure.

We are considering an initial install of 600TB and the installed solution should be expandable to a minimum of 1PB. To allow the vendor to properly size their base infrastructure installation, the OIT is seeking multiple pricing strategies based on anticipated deployment of additional storage. Pricing is requested for the following scenarios:

a. 600TB (Base Install)
b. 600TB - 750TB
c. 750TB - 1PB

The vendor must describe the timeframe needed for adding capacity as described above (including any disk drives, enclosures, and arrays) as well as the impact such expansion will have on existing storage. (See Section 2)

The vendor must also specify performance metrics for each of the three solutions proposed above. That is to say, as storage is increased, the overall performance of the solution is not significantly diminished. (See Section 2)

The OIT will not guarantee usage above the 600TB floor capacity level. The OIT expects growth during the term of the warranty period of this purchase resulting from this RFQ. The vendor is expected to provide the necessary equipment to meet OIT growth during the warranty period on a fixed rate per GB installed. The cost of any additional hardware to support this growth shall be included in the vendor quoted fixed rate.

The OIT prefers the greatest flexibility in equipment expansion with the least amount of interruption in operations and shortest amount of time to support the OIT’s changing demands.
Section 2: TECHNICAL SPECIFICATIONS

2A: Mainframe

Hardware – Mainframe storage Requirements

1. 72 x 600GB SAS drives plus 4 global spares.
2. x 8GB Ports -- Scalable to 192+ ports
3. 64GB of Global Data Cache---- Scalable to 1024+ GB

All other requirements listed below are the same for both open systems and the mainframe storage environments.

2B: Open Systems

Hardware – Open System Requirements

1. The OIT prefers equipment that provides a minimum of two (2) storage arrays. The minimum acceptable baseline for performance metrics is defined as:

   a. Tier 0 – Minimum access densities of 1.5 I/Os per second per GB with response time requirements less than 10 ms on average.
   b. Tier 1 – Minimum access densities of 0.30 I/Os per second per GB with response time requirements less than 10 ms on average.
   c. Tier 2 – Minimum access densities of 0.15 I/Os per second per GB with response time requirements less than 10 ms on average.
   d. Tier 3 – Minimum access densities of 0.15 I/Os per second per GB with response time requirements less than 20 ms on average.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Immediate Utilization (1-3 yrs)</th>
<th>Projected Utilization (3-5 yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>1</td>
<td>40%</td>
<td>45%</td>
</tr>
<tr>
<td>2</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>3</td>
<td>18%</td>
<td>15%</td>
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</table>
2. At a minimum the OIT expects 99.99% system availability and 24X7, 365 days per year, with 2 hour response time for onsite support. The vendor shall submit documentation of the support level it is providing with the pricing in its quote.

3. Vendor equipment must support the following operating systems supported by OIT: Windows 2000, Windows 2003, Windows 2008, Windows 2012, Red Hat Enterprise Linux 4.x/5.x/6.x, VMware ESX 4.x/5.x, Oracle Enterprise Linux 4.x/5.x, Open VMS 8.3, IBM system z10 Business Class B02 2098/Operating Systems z/OS V1.11/1.13 and Z/VM. If multi pathing software is not included in the operating system, vendor must include the additional cost of multi-pathing software in its quote.

4. Installation, initial configuration, migration and onsite knowledge transfer must be included in the quote.

5. The proposed equipment must support multiple tiers of disk. The OIT prefers equipment that matches or exceeds the following tier structure.
   a. Tier 0 - high performance, low latency, enterprise level (SSD/Flash)
   b. Tier 1 - FC or Serial Attached SCSI (SAS) based disk (15K RPM disk speed)
   c. Tier 2 - FC or SAS based disk (10K RPM disk speed)
   d. Tier 3 - SATA or equivalent. (7.5K RPM disk speed)

   Actual deployment of tier configurations will be at the discretion of the OIT.

6. The proposed equipment must provide minimal disruption during hardware and software upgrades. The OIT prefers a solution that provides the most non-disruptive upgrades. The vendor shall provide reference to or documentation of the procedure for performing non-disruptive upgrades of both hardware and software.

7. Additional Capacity: The vendor shall provide documentation as to the procedures and time required to add capacity to include any additional hardware. Describe any service interruptions and their duration that may be required to add capacity.

8. Optional full volume Snapshot software: offering which should include point-in-time copies of only changed blocks in its data pool and ability to instantaneously create and restore the specific data you need using backup versioning. The vendor must define/describe the solution’s ability to provide this snapshot or cloning feature and must include impact on performance and recommended space consumption.

9. Snapshot/Clone: The capacity specified in this RFQ already includes additional disk needed for snapshot/clone functionality. Do not propose additional disk for this feature.

10. Remote Replication – Synchronous and Asynchronous: The vendor must define its capacity to provide remote replication including documentation and toolsets needed to manage this feature. The OIT prefers a solution that provides the greatest ease of operation.
11. Automated Tiering: The process by which more frequently used data is automatically moved to a faster tier than less frequently used data. The vendor must define its solutions ability to provide automated tiering including documentation and toolsets needed to manage this feature. The OIT prefers a solution that provides the greatest ease of operation.

12. Minimal Middleware: The OIT prefers a solution that minimizes the use of middleware in the environment and/or provides as seamless an integration of middleware as possible. The proposed solution must detail any and all components that utilize middleware, the nature of the middleware and its relationship to the proposed environment.

13. Robust Reporting Capabilities: The ability to report on total available free space, total used space, total space provisioned per server and performance metrics. Ability to provide non-technical personnel overall view into SAN environment and capacity tends.

14. For mainframe storage, fully IBM compatible with z10 environment.

15. Independent component scaling.

16. Replication software that keeps data RAID-protected and fully recoverable without affecting service or performance levels.

17. Full data volumes replicated by replication software that can easily be split from the host applications.

Section 3: MIGRATION STRATEGY

3A: Existing Platform Migration

Migration of data on to and off of the proposed equipment is essential to the OIT under this RFQ. Data migration plays a significant role in the OIT RFQ best value determination.

Current statistics:
   Number of Luns: 565
   Number of Hosts: 152
   Used Storage: 320 TBs

Please provide three (3) migration plan quotes--one for each of the following three options:

1. Vendor to perform migration in its entirety for all existing platforms
2. Vendor to provide client with a Migration Plan
3. Vendor to perform and demonstrate successful completion of four (4) migrations identified by the City and provide the City with detailed instructions to enable the City to migrate the remaining devices.

3B: Future Migration

1. Proposed equipment must have the capability for OIT staff to independently migrate data from existing storage equipment as well as data from equipment transferred to the OIT under the City’s Data Center Consolidation (without vendor intervention).

2. The vendor shall provide data/LUN (logical unit number) migration tools (hardware and/or software) that allow OIT staff to migrate data/LUNs from existing storage arrays to the proposed storage arrays as well most arrays available in the marketplace.

3. These tools shall remain available to OIT staff resulting from this RFQ.

4. The OIT expects to encounter minimal service disruptions during any data migration. Data shall be accessible to OIT servers during migration except for momentary reboots of equipment. Vendor must document that its quoted equipment meets this requirement.

5. The OIT prefers equipment that provides uninterrupted access to OIT data during migration.

6. The format of data moved off of the vendor’s leased equipment must be in a usable, non-proprietary format.

7. Describe in detail the capabilities of the proposed migration tools for migration both on to and off of the equipment proposed.

Please NOTE: Vendor shall provide references of current installations where such tools were utilized successfully approximating the size and complexity of this organization.

Section 4: MANAGEMENT TOOLS and AUTOMATED FEATURES

1. The proposed equipment must provide proactive failure detection/correction. The vendor shall provide reference to or documentation of the process for proactive failure detection/correction as well as how the system processes event notifications/alerts.

2. The proposed equipment must include a tool set that includes the following required features:

   a. Is accessible in a web-based/GUI format;
   b. Efficiently operates the system;
c. Sets rules/ assigns nomenclature to space assigned;
d. Monitors, sets alerts, and reports on performance based on benchmarks set by OIT;
e. Tracks detail usage/statistics crucial for billing purposes;
f. Provides statistical reports and related data that can be configured and downloaded for further analysis;
g. Performs capacity projection/planning;
h. Provides efficient load balancing of data demands;
i. Provides efficient tracking and use of available DASD;
j. Provides the ability to set user defined rules for alerts and tolerances;
k. Provides detailed statistics;
l. Provides a management dashboard; and,
m. Provides configurable reports and downloads of detailed data for billing purposes.

n. Transparently spread individual I/O workloads across multiple physical disks to balance workloads, eliminate bottlenecks, and reduce costs of managing performance and capacity.
o. Automation (Self configuration, self healing, self accounting...)
p. Solution must provide proactive failure detection/correction. The vendor must provide documentation of the process for proactive detection/correction and the system event/alert notifications

Please NOTE: The OIT expects the best management tools and automated features will be provided in a vendor’s quote.

3. The vendor shall provide an example report containing the following minimum information:
   a. LUNs assigned by hostname and tier or type (refer to RFQ Section “Hardware and Required Features” for definition of tiers)
   b. Capacity of each LUN in GBs, reported on a daily and historical basis and on-demand.
   c. Capacity utilization within LUN to monitor efficiency of allocated space including historical trend and peak usage.

Please NOTE: The OIT prefers a robust accounting or charge-reporting tool.

4. The vendor will provide support for up to four (4) customized downloads and up to four (4) customized reports as defined by the OIT.

5. The vendor must describe in detail the functionality of each tool proposed and its relationship to other proposed tools as well as its integration or lack thereof with the other proposed tool sets. References must be provided for each tool or combination of tools so that the OIT can research the performance, reliability and ease of use of such proposed tools.

Section 5: OFFSITE REPLICATION / Disaster Recovery Architecture
Included in the proposed solution shall be the architected environment that supports offsite replication / disaster recovery capability for a location selected by OIT of at least 100 miles (this would include potential future cloud solutions). The vendor proposal shall include the architected platform that would enable such functionality at the discretion of OIT without any additional software or hardware from the primary site solution. This functionality shall be included in the cost proposal for the primary solution.

In addition, the vendor shall propose, under a separate cost line item, a solution that can be placed in the secondary site. This secondary storage solution must seamlessly attach to the primary site and act as an automatic failover and backup for our mission critical applications data. It is estimated that this storage solution should have a baseline of 250 TB with growth potential to 500 TB with minimal hardware expansion. The proposed solution shall explain in detail how this secondary storage solution would interact with the primary site along with any considerations to be addressed by OIT.

In addition, the vendor shall propose, under a separate cost line item, a cloud secondary storage solution based on a per GB per month of utilized storage charge or a model currently utilized by the proposed vendor solution for consideration.

Must also provide the ability to replicate to other vendor storage solutions; i.e.: Heterogeneous Storage Replication.

5A: e-DISCOVERY CAPABILITY

As an option, if available, the OIT seeks an e-Discovery solution for its data assets on the proposed storage solution and requests the vendor proposal include a separate cost line item for such a solution. OIT desires that this solution be as seamlessly interoperable with the storage platform as possible.

The vendor shall provide detail on the functionality of the proposed solution, its interrelationships to the storage platform, its hardware requirements and software licensing constructs.

At minimum, the following functionality shall be addressed in the proposed solution:

1. Seamless integration and compatibility with current CommVault system
2. Index all data objects
3. Search all data objects
4. Set retention periods
5. Provide automatic alerts for expiration of objects
6. Accommodate email (Exchange 2010 & Lotus Notes)
7. Accommodate NAS devices
8. Security access
9. Menu driven GUI interface
10. Deletion of objects
11. Download selected objects to media
12. Set litigation holds
13. Provide end user access for independent searches and retrieval of data
14. Provide ability to categorize objects and associate retention rules by category
15. Provide ability to associate retention rules by user

Section 6: SECURITY

Any equipment proposed under this RFQ must include the capability for OIT to destroy the data on any and all disk drives (both resident at an OIT location or cloud storage solution) in accordance with Federal, State and City Law. OIT will retain possession and ownership of 1) any and all physical disks removed from equipment due to failure; 2) all data disks.

Section 7: Configuration and Knowledge Transfer

Vendor shall provide a detailed knowledge transfer plan that addresses the following:

1. Onsite knowledge transfer for sufficient OIT staff for the day to day operation of the quoted system and to migrate data from all existing OIT storage platforms. (OIT anticipates this will include no more than eight staff members.)

2. At a minimum, knowledge transfer shall include instructions on operating the hardware and software including all management and migration tools proposed in this solution from each of the existing OIT platforms and any proposed cloud solutions.

3. e-Discovery knowledge transfer for non-technical staff

4. Ongoing maintenance and support for knowledge transfer for eight OIT staff members of at least 160 hours not to expire for 12 months after acceptance of equipment to ensure proper support and continuity of operation.

Please NOTE: All initial configuration and knowledge transfer shall be conducted at the OIT facility. Any cost related to section 7 should be included in the per TB charge for the solution and not as a separate line item.

Section 8: VALUE ADDED FEATURES

The OIT will consider additional value added features. These features are not mandatory, but may provide additional value to the vendor’s quote. If the vendor includes any of the value added features (or other vendor provided services not specified herein), the cost of these features or services must be included in the per Value Added Features purchase cost.
1. Describe in detail the ability of the equipment to provide the following technical capabilities and indicate if the capability is included in the quote or requires additional cost: (Provide optional purchase pricing per GB per day for any component not included in the vendor quote. The vendor may also propose additional features that are not included on the following list. The City reserves the right to include or exclude value added features in its evaluation of responses to this RFQ.
   a. Data Deduplication
   b. Data Compression
   c. Data/LUN Encryption
   d. Thin Provisioning
   e. Secure Multi-Tenancy
   f. Pools resources
   g. Virtualization
   h. Environmental improvements – cooling, heating, footprint, etc.

Section 9: SERVICE AND SUPPORT

1. 5 year warranty minimum
2. Cost effective maintenance Service offered during Post Warranty
   a. Call Logging
   b. Remote monitoring capability for proactive troubleshooting and resolution and maintenance.
   c. Telephone Support
   d. Hi-Track
   e. Corrective Maintenance: Repairs
   f. Replacement Parts
   g. Microcode Updates
   h. Engineering/Field Changes
   i. Preventative Maintenance
   j. Period of Maintenance: 24 Hours/Day, 7 Days/Week

Section 10: SYSTEM ACCEPTANCE CRITERIA

Acceptance is defined as: equipment is installed on the OIT data center floor, key staff have participated in the configuration of equipment and software, knowledge transfer has been completed, and OIT has completed a pilot migration from each model of existing storage to the new arrays to ensure proper system operation.
Section 11: CONDITIONS FOR THE RFQ PROCESS

Requests for on-site due diligence will not be entertained. Any attempt to gain information in a manner deemed to be unfair or disadvantageous to other vendors, or any attempt to unfairly influence the outcome of the procurement could result in disqualification from the RFQ process.

The conditions for participation in this RFQ process are given above and must be adhered to. Failure to do so could result in disqualification from the RFQ process.

By participating in the RFQ process, vendors acknowledge and accept the conditions as laid out in this RFQ document.

11.1 Submission of RFQ Responses & Vendor Questions

RFQ price quote and responses (Electronic submission on Compact Disc only) are due to the OIT Project Management Office no later than close of business specified in the timeline below. Vendor responses should include an implementation project plan addressing a timeline for: installation, configuration, integration, migration and coordination between City resources and the project team. Vendor project management practices should include distribution of weekly status reports, creating detailed MS Visio diagrams and other associated project artifacts upon request. (See RFQ Section 4, Format of the RFQ Response Documents) Responsibility for timely delivery rests with the vendor. The Vendor price quotes and proposal/response must be delivered to the Office of Innovation and Technology, Philadelphia, Pennsylvania to the attention of Michel Washington at the following address.

Office of Innovation and Technology
1234 Market Street, 15th Floor
Philadelphia, PA 19104

Please note: This RFQ process includes a vendor question and answer period. All questions must be submitted by email, in accordance with the timeline of events outlined below, to Michel Washington at the following email address: Michel.Washington@Phila.gov

Estimated Time line of events for this RFQ:

<table>
<thead>
<tr>
<th>Event</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release of RFQ</td>
<td>September 18, 2013</td>
</tr>
<tr>
<td>Vendor deadline to submit written questions</td>
<td>September 25, 2013</td>
</tr>
<tr>
<td>Responses to vendor questions returned</td>
<td>September 30, 2013</td>
</tr>
<tr>
<td>Vendor deadline to submit written quotes</td>
<td>October 3, 2013 at 5:00 pm (Local Philadelphia Time)</td>
</tr>
</tbody>
</table>
11.2 OIT Discretion

OIT may, at its discretion:
- Consider or accept any non-conforming vendor price quotes;
- Reject any or all vendor price quotes;
- Refuse to consider any non-conforming vendor price quotes;
- Ask any vendor to supply further information after the closing date;
- Cancel this RFQ or any part thereof at any time; and

11.3 Interpretation of OIT Requirements

- The vendor shall agree to accept OIT’s interpretation of any specific requirement in this RFQ document. Should there be any difference in interpretation between the vendor and OIT, OIT’s interpretation shall be regarded as the final one.

11.4 Vendor’s Additional Obligations

- Any cost incurred by the vendors in preparation, transmittal and presentation of any price quotes or material submitted in response to this RFQ shall be borne solely by the vendor. Price quotes submitted in response to this RFQ, including pricing mechanisms are subject to the terms and conditions included in this RFQ.

11.5 Disclosure of Information

- This RFP and the process it describes are proprietary to the City and are for the sole and exclusive benefit of the City. This RFP is not binding on the City. No other party, including any Respondent to this RFP or future Respondent to any RFP that may be issued by the City, is intended to be granted any rights hereunder. Proposals and other materials submitted in response to this RFP, whether written or verbal and including, without limitation, ideas of Respondents elicited in response to the RFP, shall become the sole and absolute property of the City upon submission or communication, and the City shall have title thereto and unrestricted use thereof. The City shall have the right to disclose the Proposals, materials and any ideas to any person or entity including, employees of the City, its consultants and contractors, and authorized agents, as required to carry out this RFP procurement. Any such Proposal, materials, and ideas may be publicly disclosed by the City or any authorized agent of the City, for any reason the City, in its sole discretion, deems appropriate, or pursuant to the Pennsylvania Right To Know Act or other applicable law. The Respondent acknowledges and agrees that the City and its authorized agents shall have the foregoing right of public disclosure notwithstanding any notice or statement by the Respondent (whether made in the Proposal or otherwise) asserting the confidential or proprietary nature of the Proposal or of any materials submitted or ideas elicited in response to the RFP.
11.7. Format of the RFQ Response Documents

Respondents shall provide a detailed written narrative to explain how its quote meets or exceeds each of the RFQ specifications

A. The quoted price shall be for the purchase of hardware, including system software, warranty and maintenance that meets or exceeds the minimum requirements specified in Section 2 of this RFQ. The quote for pricing format shall be per GB per day by tiered level (See specification SECTION 2 for description of tiered levels).

B. Vendor response must also include the following documentation:

- Written verification that all vendor equipment is compatible with OIT’s current storage area network infrastructure
- Written confirmation from the vendor agreeing to the delivery, installation, training and implementation schedule as specified herein. Response to this RFQ must include three (3) references, including current contact information, that demonstrate successful implementation of this technology and related management tools in similar environments to OIT with deployments above 600TBs.

Please NOTE: OIT does not pay sales taxes. No such costs shall be included in the RFQ price response.