



**THE CITY OF WINNIPEG**

# **REQUEST FOR PROPOSAL**

**RFP NO. 290**

**PROVISION OF DATA CENTRE STORAGE SUBSYSTEM(S)**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 PROVISION OF DATA CENTRE STORAGE SUBSYSTEM(S)

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, September 2, 2010.

B2.2 Proposals determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

### **B3. BIDDERS' CONFERENCE**

B3.1 The Contract Administrator will hold a Bidders' conference at 185 King Street from 9:00 a.m. to 11:30 a.m. on August 4, 2010.

(a) Bidders unable to physically attend the conference location can contact the Contract Administrator for teleconference contact options.

B3.2 The Bidder is advised that, at the Bidders' conference, the City will listen to any questions the bidders have and address each one.

B3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Bidders' conference unless that information or interpretation is provided by the Contract Administrator in writing.

### **B4. SITE INVESTIGATION**

B4.1 Further to C3, the Bidder may make an appointment to view the Site by contacting the Contract Administrator.

B4.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

### **B5. ENQUIRIES**

B5.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B5.2 If the Bidder finds errors, discrepancies or omissions in the Request for Proposal, or is unsure of the meaning or intent of any provision therein, the Bidder shall promptly notify the Contract Administrator of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B5.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B5.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B5.5 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B5.6 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B5 unless that response or interpretation is provided by the Contract Administrator in writing.

## **B6. CONFIDENTIALITY**

B6.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator.

B6.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Request for Proposals to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **B7. ADDENDA**

B7.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B7.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B7.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgmt/bidopp.asp>

B7.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B7.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

## **B8. SUBSTITUTES**

B8.1 The Work is based on the materials, equipment, methods and products specified in the Request for Proposal.

B8.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B8.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.

B8.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the material, equipment, method or product as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract;

- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract.
- B8.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B8.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B8.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B8.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B8.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B23.
- B8.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B8.10 Notwithstanding B8.2 to B8.9 and in accordance with B10.6, deviations inconsistent with the Request for Proposal document shall be evaluated in accordance with B23.1(a).

## **B9. STORAGE BACKGROUND**

- B9.1 The City makes extensive use of enterprise storage within our computing environment. All new server implementations make use of enterprise storage with SAN boot whenever technically feasible and local disk is only used when required for vendor certification/support. We currently support ~250 servers and expect that number to increase to ~400 by the end of 2011 through the current server consolidation initiative (which will bring departmentally supported servers under centralized management). The current server workload is currently ~75% virtualized and we expect that ratio to increase as server consolidation continues. The total workload is primarily Wintel with less than 10% comprised of Unix, Linux and AS400.
- B9.2 The City has two data centres connected by a 1Gb redundant IP network and an additional two strands of fibre reserved for future storage usage. One path of the fibre network is ~20km and the other path is ~25km. There is currently no storage connectivity between the two data centres. Storage within each data centre is currently backed up to the alternate data centre (via IBM Tivoli Storage Manager) to provide off-site backup.
- B9.3 Currently 95% of our computing workload resides at our primary data centre and 5% resides at our secondary data centre. At the end of the server consolidation initiative these ratios will change to 70% at the primary data centre and 30% at the secondary data centre. The intent is for the infrastructure running the active workload at either data centre to be used to service critical computing workload from the alternate data centre in the event of a major data centre failure.
- B9.4 The majority of our production workloads have 5x9 availability requirements and support windows. We have a small number of workloads that are 7x24 with a limited tolerance for downtime. We do not currently have third party tools to monitor or manage our enterprise storage environment

- B9.5 We have not pursued storage functionality (replication, snapshot/snap-clone, thin provisioning, virtualization, etc) within our enterprise storage due to the cost of that capability with our existing storage infrastructure. The need for this functionality is increasing as our workload grows and the recovery time capabilities of our existing backup infrastructure may not keep pace with an expanding environment. The ability to protect our more critical workloads from failure of a single storage subsystem or data centre is also becoming more important. We would also like to leverage the recovery capabilities of our virtualization infrastructure (VMware 4.0) for the higher criticality workloads that have been virtualized.
- B9.6 All of our current enterprise storage is fibre channel based. We have a strong understanding of fibre channel enterprise storage technology and a limited understanding of other technologies such as iSCSI and NAS.
- B9.7 We currently utilize RAID5 on our HDS storage subsystems for most of our database environment. Typical IOPS from our USP/VM storage subsystem are under 5,000 on average and peaking under 50,000. We backup over 2 TB of data to our low tier storage in less than 10 hours. Typical 8 Gbps Fibre Channel Port utilization on our VMware environment is less than 10 percent.
- B9.8 Our current storage equipment includes:
- (a) HDS 9570 – primary data centre
    - (i) Raw 48 TB; Usable 37 TB
    - (ii) Usage: D2D Backup (12TB), VMware (5TB), mixed workload (20TB)
    - (iii) Drive Configurations - 146GB 10K FC (164 drives), 400GB 7.5K SATA (60 drives)
    - (iv) Predicted retirement – 4Q 2010
  - (b) HDS NSC 55 – primary data centre
    - (i) Raw 44 TB; Usable 28 TB
    - (ii) Usage: VMware (1TB), mixed workload (27TB)
    - (iii) Drive Configurations- 146GB 10K FC (137 drives), 146GB 15K FC (41 drives), 300GB 10K FC (60 drives)
    - (iv) Predicted retirement – 2011
  - (c) HDS USP/VM – primary data centre
    - (i) Raw 40 TB; Usable 26 TB
    - (ii) Usage: VMware (16TB), mixed workload (10TB)
    - (iii) Drive Configurations- 300GB 15K FC (129 drives)
    - (iv) Predicted retirement – 2012
  - (d) HDS AMS 1000 – secondary data centre
    - (i) Raw 165 TB; Usable 125 TB
    - (ii) Usage: D2D Backup (110TB), VMware (3TB), mixed workload (12TB)
    - (iii) Drive Configurations- 300GB 10K FC (15 drives), 500GB 7.5K SATA (75 drives), 750GB 7.5K SATA (69 drives), 1TB 7.5K SATA (76 drives)
    - (iv) Predicted retirement – 2011
- B9.9 Our storage systems are all separate environments with server connectivity provided through direct ports or Brocade 4700 fibre channel switches. We also utilize Brocade 8Gb SAN Switches for our HP BladeSystem c-Class blade environment.

## **B10. PROPOSAL SUBMISSION**

- B10.1 The Proposal shall consist of the following components:
- (a) Form A: Proposal;
  - (b) Form B: Prices;

- (c) Solution;
- (d) Experience;
- (e) Specifications.

- B10.2 Further to B10.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B8.
- B10.3 All components of the Proposal shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.
- B10.3.1 Bidders should submit one (1) unbound original (marked "original") and three (3) copies.
- B10.4 The Proposal Submission shall be submitted enclosed and sealed in an envelope clearly marked with the RFP number and the Bidder's name and address.
- B10.4.1 Samples or other components of the Proposal Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the RFP number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Proposal Submission.
- B10.5 Bidders are advised not to include any information/literature except as requested in accordance with B10.1.
- B10.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Request for Proposal document, including the General Conditions, will be evaluated in accordance with B23.1(a).
- B10.7 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B10.8 Proposals shall be submitted to:  
The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

## **B11. PROPOSAL**

- B11.1 The Bidder shall complete Form A: Proposal, making all required entries.
- B11.2 Paragraph 2 of Form A: Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B11.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B11.2.
- B11.3 In Paragraph 3 of Form A: Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Proposal.



- B11.4 Paragraph 11 of Form A: Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
  - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
  - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
  - (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B11.4.1 The name and official capacity of all individuals signing Form A: Proposal should be printed below such signatures.

B11.5 If a Proposal is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Proposal and the Contract, when awarded, shall be both joint and several.

## **B12. PRICES**

- B12.1 The Bidder shall state prices in Canadian funds for each of the following items of Work on Form B: Prices:
- (a) Table No. 1 – B1: LUMP SUM PRICE shall be the amount for providing the Initial Configuration Requirements in accordance with B14.5 of the Specifications (B14 – Solution);
  - (b) Table No. 2– B2: shall be the unit price and discount information for all identified items/components (hardware and software) for the Initial Configuration Requirements in accordance with B14.7 of the Specifications (B14 – Solution);
  - (c) Table No. 3 – B3: shall be the unit price and discount information for the additional existing components and discount information for future new subsystem components (hardware or software) that may be available during the term of the contract in accordance with B14.8 of the Specifications (B14 – Solution);
  - (d) Table No. 4 – B4: LUMP SUM PRICE shall be the incremental cost for expanding the solution from the Initial Configuration to meet the Additional Configuration Requirements in accordance with B14.6 of the Specifications (B14 – Solution);
- B12.2 Prices on Form B: Prices shall include:
- (a) duty;
  - (b) freight and cartage;
  - (c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid;
  - (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.
- B12.2.2 Prices on Form B: Prices shall not include the Manitoba Association for Resource Recovery Corporation (MARRC) Environmental Handling Charge (EHC) which shall be extra where applicable.
- B12.3 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Proposals.

B12.4 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

### **B13. QUALIFICATION**

B13.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>

B13.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);

B13.4 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B13.5 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B14. SOLUTION**

B14.1 Enterprise Storage is a key element of our computing infrastructure as we seek to improve the flexibility and functionality of our environment. Our storage solutions must not simply provide storage capacity but also the functionality needed to allow the efficient and effective utilization of storage to meet our business needs. Implementation of server virtualization has dramatically increased the flexibility and capabilities for addressing workload computing requirements and we need storage solutions which are equally adept at meeting our business needs.

B14.2 Through the award of this Contract, the City of Winnipeg plans to acquire and implement enterprise storage to address our storage capacity and functionality needs at our primary data centre and our secondary data centre. This implementation will address our immediate needs and set the technology direction for future acquisitions to address organic growth and existing storage infrastructure replacements in the future.

B14.3 If the Bidder has multiple solutions that can meet our needs they are recommended to submit a separate proposal for each solution.

- B14.4 The following attributes apply to the initial and additional configurations:
- (a) Storage Capacity listed is useable capacity for the host (Bidder must provide adequate storage to handle hot sparing, RAID, and any other space (eg. free space) recommended for optimum operation of the storage subsystem)
  - (b) Low Tier Storage will be used for File Services, Disk-to-Disk Backups and low use servers.
  - (c) High Tier Storage will be used for Oracle and SQL Databases and higher use servers.
  - (d) Include 5 years maintenance and support (7x24 support with 4 hour response)
- B14.5 Initial configuration
- (a) This is the capacity and associated functionality required to address our immediate business needs.
    - (i) 40 TB of low tier Storage at Primary Data Centre.
    - (ii) 30 TB of high tier storage at Primary Data Centre.
    - (iii) 30 TB of high tier storage at Secondary Data Centre
    - (iv) 10 TB of low tier storage at Secondary Data Centre
    - (v) Thin Provisioning for all high tier and all low tier storage
    - (vi) Snapshots (Point in time Copies) for all high tier and 50% of low tier storage
    - (vii) Inter-site (between data centres) Replication for 5 TB of high tier storage
    - (viii) Storage virtualization and other functionality for all tiers
- B14.6 Additional configuration
- (a) This is additional capacity and associated functionality beyond the initial configuration (all amounts stated are in addition to the initial configuration amounts). The proposed solution is expected to utilize as many elements of the initial configuration as possible to minimize the incremental costs associated with expanding the capacity. The proposed solution should include all the additional elements and components beyond the initial configuration required to meet the combined initial and additional configuration stated capacity and functionality needs.
    - (i) 130 TB of high tier Storage at Primary Data Centre.
    - (ii) 170 TB of low tier storage at Secondary Data Centre
    - (iii) Thin Provisioning for all high tier and all low tier storage
    - (iv) Snapshots (Point in time Copies) for all high tier and 50% of low tier storage
    - (v) Inter-site (between data centres) Replication for 5 TB of high tier storage
    - (vi) Storage virtualization and other functionality for all tiers
- B14.7 The various elements that make up the initial configuration must be identified separately along with the associated pricing. This information is required so that if additional amounts are required in the future the pricing will be understood. The Bidder shall provide the discounting level for all such elements relative to a publicly available index (eg published government price list). The pricing provided (the lower of the stated price or the current index based discounted price) must be valid for one year from award of Contract. Please provide a copy of the published price list and information how to access the updated price list.
- B14.8 It is expected that there may currently be additional elements that could work with the initial and additional configuration but those elements may not have been proposed or may not yet be available at the time of proposal. These elements may play an important role in the use of the proposed solution to meet future business needs. Any existing elements that could work with the initial configuration but which were not bid must be identified separately along with the associated pricing. The Bidder shall provide the discounting level for all such elements plus any future elements relative to a publicly available index (eg published government price list). The pricing provided (the lower of the stated price or the current index based discounted price) must be valid for one year from award of Contract.
- B14.9 The enterprise storage solution deployed should

- (a) Provide multiple tiers of storage to address the unique performance, availability and affordability requirements of each storage tier
- (b) Provide techniques such as snapshot and snapclone to allow for efficient copies of data to be taken
- (c) Allow for efficient storage utilization through effective thin provisioning capabilities
- (d) Simplify storage management through the virtualization of the storage infrastructure
- (e) Perform replication of data across storage systems (including across data centres)
- (f) Provide advanced tier management to allow data to be placed on the most appropriate tier of storage in an efficient manner
- (g) Provide compression and de-duplication of data
- (h) Provide monitoring and management of the storage elements to minimize support requirements
- (i) Extend storage functionality to existing legacy storage capacity in a cost effective manner

**B14.10** We are seeking proposals from industry leaders who have experience in delivering storage infrastructure solutions and whose proposed solution is best of breed and proven in meeting business requirements of the same nature and complexity as our own. The successful Bidder will apply their experience to develop a plan for implementation, integration with existing infrastructure and maximizing the capabilities of the solution within our environment.

**B14.11** The Bidder shall provide the details of how they would work with the City's Corporate Support Services team to achieve the aforementioned goal including, but not limited to:

- (a) The solution description;
- (b) The specific technology including the hardware/software that will be required (identified by proposed storage subsystem if applicable);
- (c) Provide consultation services and develop a plan for implementation, integration with existing infrastructure and maximizing the capabilities of the solution within our environment;
- (d) The training to be provided to City staff to allow for ongoing support of the Solution;
- (e) A project schedule, including activities, task and responsibilities with a timeline which demonstrates the sequence of events, considering the completion timeframe of eight (8) weeks after award;
- (f) Commissioning Scripts to test the solution as per the manufacturers recommendations and/or best practices to ensure stated business needs can be achieved with proposed solution as implemented
- (g) Identification of any additional costs that may be involved in the full implementation of the Solution
  - (i) All costs associated with the solution that would be payable to the Bidder are to be included in the bid price for the proposed solution
  - (ii) Any additional costs are intended to reflect related solution costs such as network enhancements or switch infrastructure improvements;
- (h) Describe any added value services or offerings included in the proposal
- (i) Highlight key differentiators and unique aspects of their Solution; and
- (j) Why the Bidder's solution is most appropriate for the City

## **B15. EXPERIENCE**

**B15.1** The Bidder should submit information in sufficient detail for the City to evaluate their experience by providing:

- (a) Evaluation of the proposed solution from Industry Analysis groups such as Gartner or Forrester. The analysis should be from within the last eighteen (18) months and should reference the elements of the proposed solution.
- (b) The details of the scope and implementation of at least three (3) implementations of the proposed solution to meet similar business needs. These implementations should be based on the same elements being proposed and be addressing business requirements of at least the same demands (performance, reliability, capacity, functionality).
  - (i) The bidder should describe any significant differences between the proposed solution and the referenced implementations.
  - (ii) The bidder should describe any significant differences between our stated business needs and those addressed in the referenced implementations.
- (c) A client reference for each of the projects identified in B15.1(b). Each reference shall consist of a company name, contact name, email address and phone number.

## **B16. SPECIFICATIONS**

B16.1 Specifications, to be submitted, are in response to the information stated in E1.1.

## **B17. OPENING OF PROPOSALS AND RELEASE OF INFORMATION**

B17.1 Proposals will not be opened publicly.

B17.2 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B17.3 To the extent permitted, the City shall treat all Proposal Submissions as confidential, however the Bidder is advised that any information contained in any Proposal may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

## **B18. IRREVOCABLE OFFER**

B18.1 The Proposal(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.

B18.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Bidders and these Bidders shall be bound by their offers on such Work for the time period specified in Paragraph 10 of Form A: Proposal.

## **B19. WITHDRAWAL OF OFFERS**

B19.1 A Bidder may withdraw his Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B19.1.1 Notwithstanding C21, the time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.

B19.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.

B19.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Proposal until after the Submission Deadline has elapsed;

- (b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal; and
- (c) if the notice has been given by any one of the persons specified in B19.1.3(b), declare the Proposal withdrawn.

B19.2 A Bidder who withdraws his Proposal after the Submission Deadline but before his offer has been released or has lapsed as provided for in B18.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

## **B20. INTERVIEWS**

B20.1 The Contract Administrator may, in his sole discretion, interview Bidders during the evaluation process.

## **B21. NEGOTIATIONS**

B21.1 The City reserves the right to negotiate details of the Contract with any Bidder. Bidders are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.

B21.2 The City may negotiate with the Bidders submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Bidders without being obligated to offer the same opportunity to any other Bidders. Negotiations may be concurrent and will involve each Bidder individually. The City shall incur no liability to any Bidder as a result of such negotiations.

B21.3 If, in the course of negotiations pursuant to B21.2 or otherwise, the Bidder amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Bidder from the Proposal as originally submitted.

## **B22. NON-CONFORMING SUBMISSIONS**

B22.1 Notwithstanding B10.1, with the exception of B2.1, if a Proponent's Submission is not strictly in accordance with any provision of this RFP, the City may, at its option:

- (a) waive the non-conformance if, in the City's opinion, the non-conformance is immaterial; or
- (b) reject the Submission as non-responsive if, in the City's opinion, the non-conformance is material.

B22.1.1 If the non-conformance is an omission, the City may, at its discretion, give the Proponent up to five (5) Business Days to supply the omitted material.

B22.2 If the requested information is not submitted by the time specified in B22.1.1, the Submission will be determined to be non-responsive

## **B23. EVALUATION OF PROPOSALS**

B23.1 Award of the Contract shall be based on the following evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Request for Proposal, or acceptable deviation there from: (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
- (c) Price 30%
- (d) Solution 20%

- (e) Experience 25%
- (f) Specifications 25%

- B23.2 Further to B23.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.
- B23.3 Further to B23.1(b), the Award Authority shall reject any Proposal submitted by a Bidder who does not demonstrate, in his Proposal, in other information required to be submitted, during interviews or in the course of reference checks, that he is responsible and qualified.
- B23.4 Further to B23.1(c), the Price shall be the combination of lump sum and unit prices shown on Form B: Prices.
- B23.5 Further to B23.1(d), the Solution will be evaluated considering the information submitted in response to B14.
- B23.6 Further to B23.1(e), the Experience will be evaluated considering the information submitted in response to B15.
- B23.7 Further to B23.1(f), the Specifications will be evaluated considering the information submitted in response to B16.
- B23.8 Notwithstanding B23.1(e), where Bidders fail to provide responses, the score of zero or fail will be assigned to that Section.
- B23.9 This Contract will be awarded as a whole or by item
- B23.9.1 Notwithstanding B12.1, the City shall not be obligated to award any item to the responsible Bidder submitting the lowest evaluated responsive Bid for the item and shall have the right to choose the alternative which is in its best interests. If the Bidder has not bid on all items, he shall have no claim against the City if his partial Bid is rejected in favour of an award of the Contract as a whole.
- B23.10 The City will award a Contract for the Solution, or components of that Solution that are determined to be in its best interests in accordance with the Evaluation Criteria set out in B23.1..
- B23.11 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B23.1(a) and B23.1(b), the Proposal will be determined to be non-responsive and will not be further evaluated.

## **B24. AWARD OF CONTRACT**

- B24.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B24.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Proposals are determined to be responsive.
- B24.2.1 Without limiting the generality of B24.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
  - (b) the prices are materially in excess of the prices received for similar work in the past;
  - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (d) only one Proposal is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B24.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the most advantageous offer, in accordance with B23.

B24.3.1 Following the award of Contract, a Bidder will be provided with information related to the evaluation of his Proposal upon written request to the Contract Administrator.



## **PART C - GENERAL CONDITIONS**

### **C0. GENERAL CONDITIONS**

C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.

C0.1.1 The *General Conditions for the Supply of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)

C0.2 A reference in the proposal to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Supply of Goods*.

## PART D - SUPPLEMENTAL CONDITIONS

### GENERAL

#### D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for the Supply of Goods*, these Supplemental Conditions are applicable to the Work of the Contract.

#### D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of provision of data centre storage subsystems.

D2.2 The major components of the Initial Configuration Scope of Work are as follows:

- (a) implementation and provision of the solution
- (b) training of City staff

D2.3 Acquisitions Beyond Initial Configuration Scope of Work shall be in effect for the period of one year after award of the Contract, with the option of four (4) mutually agreed upon one (1) year extensions.

D2.3.1 The City may negotiate the extension option with the Contractor within sixty (60) Calendar Days prior to the expiry date of the Contract. The City shall incur no liability to the Contractor as a result of such negotiations.

D2.3.2 Changes resulting from such negotiations shall become effective on the expiry date of the Contract. Changes to the Contract shall not be implemented by the Contractor without written approval by the Contract Administrator.

D2.4 The Work shall be done on an "as required" basis during the term of the Contract.

D2.4.1 The type and quantity of Work to be performed under this Contract shall be as authorized from time to time by the Contract Administrator and/or Users.

D2.4.2 Subject to C7, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual operational requirements.

#### D3. DEFINITIONS

D3.1 When used in this Request for Proposal:

- (a) " **prefer**" means a desirable action or feature which will be evaluated on a relative scale;" ;

#### D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Mr. Tim Rushforth

The City of Winnipeg - Corporate Support Services  
6th Floor – 510 Main Street  
Winnipeg, MB, Canada, R3B1B9

Telephone No.: (204) 986-2019

Facsimile No.: (204) 986-5966

## **D5. CONFIDENTIALITY AND OWNERSHIP OF INFORMATION**

- D5.1 Information provided to the Contractor by the City or acquired by the Contractor during the course of the Work is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator.
- D5.2 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City. The Contractor shall not disclose or appropriate to its own use, or to the use of any third party, all or any part thereof without the prior written consent of the Contract Administrator.
- D5.3 The Contractor shall not make any statement of fact or opinion regarding any aspect of the Contract to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **D6. NOTICES**

- D6.1 Notwithstanding C21.3, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg  
Chief Financial Officer  
Facsimile No.: (204) 949-1174

## **SUBMISSIONS**

### **D7. AUTHORITY TO CARRY ON BUSINESS**

- D7.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

### **D8. INSURANCE**

- D8.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured; such liability policy to also contain a cross-liability clause, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;
  - (b) if required, automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00), to remain in place at all times during the performance of the Work;
- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4 for the return of the executed Contract.
- D8.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.
- D8.5 The City shall have the right to alter the limits and/or coverages as reasonably required from time to time during the continuance of this agreement.

## **D9. SECURITY CLEARANCE**

- D9.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work within the City data centre(s);
- shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.
- D9.2 The Criminal Record Search shall include a Vulnerable Sector Search. This can be obtained by completing and providing the following in person to the Winnipeg Police Service Bureau of Police Records, 4<sup>th</sup> Floor, 151 Princess Street:
- (a) Form P-612 Check the following boxes: Vulnerable Sector; and Other by inputting the Request for Proposal Number in the space provided. This form can be found on the website at:  
[www.winnipeg.ca/police/BPR/forms/Criminal\\_Record\\_Check\\_P612.doc](http://www.winnipeg.ca/police/BPR/forms/Criminal_Record_Check_P612.doc)
    - (i) Individuals will need to state in Section 2 of the form, that they may be working in City of Winnipeg pools, libraries and community centres;
    - (ii) Individuals will need to sign and date Section 3 of the form.
  - (b) Two (2) pieces of identification as stated in Bureau of Police Records on the website at:  
[www.winnipeg.ca/police/BPR/id.stm](http://www.winnipeg.ca/police/BPR/id.stm)
  - (c) Fee for each individual applying for a Criminal Record Search. Fee schedule can be found on the website at:  
[www.winnipeg.ca/police/BPR/fees.stm](http://www.winnipeg.ca/police/BPR/fees.stm)
- D9.2.1 The original Criminal Record Search Certificate (Form P-253) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Criminal Record Search Certificate (Form P-253) to the Contract Administrator.
- D9.3 Prior to the commencement of any Work specified in D9.1, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- D9.4 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person, will not be permitted to perform any Work specified in D9.1
- D9.5 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- D9.6 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work specified in D9.1

## **SCHEDULE OF WORK**

### **D10. COMMENCEMENT**

- D10.1 The Contractor shall not commence any Work until he is in receipt of a notice of award from the City authorizing the commencement of the Work.
- D10.2 The Contractor shall not commence any Work until:

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D7;
  - (ii) evidence of the workers compensation coverage specified in C6.16;
  - (iii) evidence of the insurance specified in D8; and
  - (iv) the security clearances specified in D9.
- (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

D10.2.1 Further to D10.2(a)(iv), subject to all other requirements being met, the Contractor may commence Work prior to submitting the security clearances.

## **D11. TOTAL PERFORMANCE**

D11.1 The Contractor shall achieve Total Performance of the Initial Configuration Scope of Work within eight (8) weeks of award of the Contract.

D11.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. This shall include the completion of all commissioning scripts to the satisfaction of the Contract Administrator. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D11.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

## **D12. DELIVERY OF GOODS DURING CONTRACT PERIOD – NOT INCLUDING INITIAL CONFIGURATION**

D12.1 Goods shall be delivered for the Acquisitions Beyond Initial Configuration Scope of Work within 30 (thirty) Calendar Day(s) of the placing of an order, f.o.b. destination, freight prepaid to:

Tim Rushforth  
Systems Coordinator

D12.2 The Contractor shall confirm each delivery with the Contract Administrator or his/her designate, at least two (2) Business Days before delivery.

D12.3 Goods shall be delivered between 8:30 a.m. and 4:30 p.m. on Business Days.

D12.4 The Contractor shall off-load goods as directed at a delivery location to be specified at the time of order.

## **D13. LIQUIDATED DAMAGES**

D13.1 If the Contractor fails to achieve Total Performance within the time specified in D11.1 the Contractor shall pay the City Six Hundred and Sixty-Seven dollars (\$667) per Calendar Day for each and every Calendar Day until Total Performance has been achieved.

D13.2 The amount specified for liquidated damages in D13.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.

D13.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## MEASUREMENT AND PAYMENT

### D14. INVOICES

D14.1 Further to C10, the Contractor shall submit an invoice for each order delivered to:

The City of Winnipeg  
Corporate Finance - Accounts Payable  
4th Floor, Administration Building, 510 Main Street  
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-0864  
Email: [CityWpgAP@winnipeg.ca](mailto:CityWpgAP@winnipeg.ca)

D14.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of goods delivered;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D14.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

### D15. PAYMENT

D15.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

D15.2 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## WARRANTY

### D16. WARRANTY

D16.1 Notwithstanding C11, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter unless extended pursuant to C11.3, in which case it shall expire when provided for thereunder.

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS

E1.1 Specifications are as follows:

- (a) Describe all the storage functionality (focusing on key differentiating features) that is included in your solution such as but not limited to:
  - (i) Point in Time Copies (snapshot, snapclone)
  - (ii) Thin provisioning
  - (iii) Virtualization
  - (iv) Data Replication
  - (v) Storage Tiering management (manual or automatic)
  - (vi) Data Compression
  - (vii) Data Deduplication
- (b) Describe the unique capabilities and features. The proposed solution shall provide the best performance and reliability at the lowest cost.
- (c) Describe how the storage functionality of the proposed solution can be utilized with our existing storage infrastructure (including any additional costs that might apply)
- (d) Explain any storage virtualization features that the solution provides such as pooling of data from different storage devices. Describe and quantify the possible manpower savings in our environment based on the virtualization capabilities.
- (e) Please specify the point in time copy types that are supported (snapshot, snapclone, copy/allocate on write/, space efficient, etc). How many copies of a volume are supported? Detail any relevant information such as application awareness, is host software required, management interface, how many concurrent processes, etc.
- (f) Please describe how point in time copy capabilities can be used to augment our existing backup/recovery capabilities to reduce RTO/RPO on a regular operational basis and in the event of a widespread infrastructure failure.
- (g) Please describe the thin provisioning capabilities including granularity of application of functionality, ability to reclaim space when no longer used, ability to apply functionality to already allocated space, risk mitigation for space over allocation and management/reporting interface.
- (h) Please describe how the replication functionality would be used to provide the shortest possible RTO and RPO for Oracle Standard Edition database, SQL Server Standard Edition databases and Windows application servers in the event of a data centre failure. Describe any additional products and techniques that would be required beyond the proposed solution to have a fully functional fail over and fail back capability.
- (i) The solution should include Performance Monitoring software. Explain all requirements for running this software (hardware etc) and what abilities the software has (historical monitoring, metrics available on different components of system, etc). Describe how this functionality would be used to track down a performance issue on a VMware datastore.
- (j) Describe any automatic tuning that the storage subsystem performs. Describe the configuration steps required to have the solution address a performance issue with concentrated heavy disk access and an issue with high performance disk holding low access data.
- (k) Storage Subsystems should support multipathing for load balancing and hardware failover
  - (i) Must support native ESX 4 multipathing
  - (ii) Should support native Windows multipathing
  - (iii) Detail any required software and what Operating Systems are supported.

- (l) Proposed solution must support SAN booting for Windows 2003, Windows 2008 and ESX 4.x. Explain any limitations on SAN booting such as the # of Hosts per Storage Subsystem etc.
- (m) Proposed solution should support connecting Sun Solaris, Redhat Linux and AS400 Operating Systems. Provide any requirements and limitations for this support (Eg. Is SAN Booting supported?). List the other Operating Systems that are supported.
- (n) Explain how storage LUNs are expanded and if any outages are required for guest OS's.
- (o) Explain how additional storage is added to the solution. What impacts are there on hosts during this process (impacts to performance, redundancy, risk from user error)?
- (p) Please specify any limitations the proposed solution has on:
  - (i) # of Hosts
  - (ii) # of LUNs per host, per system
  - (iii) SAN booting
  - (iv) LUN size
  - (v) Any other relevant limitations
- (q) Bidder must be able to provide 7x24 support with 4 hour response for a 5 year term. Any other support options (5x9, 8 hour response, reduced terms etc) should be listed with associated costs. Different support levels should be able to be selected for the different storage tiers.
- (r) Describe the repair time expectations and guarantees that come with the various response time offerings.
- (s) Describe the local Winnipeg support structure.
  - (i) Are spare components stored in Winnipeg?
  - (ii) Who handles support?
- (t) Explain any break/fix options that could be handled by the City of Winnipeg (eg. replacing failed hard drives).
- (u) The proposed solution should have a remote monitoring capability so that the Bidder, VAR or contracted maintenance organization knows when a component fails or is about to fail. Describe any remote dial-in or equivalent option where the Bidder can remotely diagnose the system. Please explain what infrastructure (servers, software, networking etc) is required for this functionality
- (v) Describe any single points of failures on the proposed solution. Describe three of the most serious failures that can occur within the proposed solution, the steps required to resolve them and the functionality, performance and redundancy impact during the failure until they are resolved.
- (w) Describe how the replacement of major components and upgrades are handled (with a focus on outages or performance/redundancy impacts).
- (x) The proposed solution must support online firmware upgrades. Describe how this is accomplished and the necessary prerequisites to support this. Is host multipathing software required?
- (y) Explain any integration with Windows, Oracle or SQL for Snapshots.
- (z) Describe the steps necessary to create a crash consistent or application aware snapshot for Windows, VMware ESX, Oracle and SQL.
- (aa) Explain any Integration with VMware including VMware Site Recovery Manager, VStorage API for Array Integration (VAAI), Snapshots, Vcenter Plugins etc.
- (bb) Please describe the steps to determine what RAID group a VMware Datastore resides on.
- (cc) We currently only have the infrastructure and experience working in a Fibre Channel environment. What protocols are supported and explain any components and costs to enable them (FC, ISCSI, NFS, NAS, CIFS). If the solution does not provide FC support,



explain the similarities or differences of the solution compared to a FC solution in infrastructure requirements, setup etc.

- (dd) Describe the raid levels supported in the proposed solution and options to mix and match different raid levels in an array?
- (ee) Describe the raid levels and disk groups configured in the proposed solution. Describe the thought process that was used to arrive at that configuration to balance performance, reliability (rebuild times and available spares) and cost. Provide descriptions of alternate configurations that you would also consider appropriate along with associated costs.
- (ff) Compare the performance data for your proposed solution to other disk storage vendor's products. Provide the rebuild times and "mean time between failure" for drives and other key components. Provide the IOPS for the low and high tier solutions.
- (gg) Describe the array configuration management software provided with the proposed solution. Does it have a CLI? Does it have an API to third party software/hardware?
- (hh) Please describe the data centre requirements for the proposed solution such as floor space (including clearance), power feeds (including required redundancy), cooling and operating temperatures.