Corrigendum

Subject: Procurement of a Parallel File Storage System/device for the HPC Clusters at Supercomputing Facility for Bioinformatics & Computational Biology, IIT Delhi.

Following Changes/amendments made for the Tender Enquiry No IITD/SCFBio/Storage/02 Others conditions remains same and are attached below.

- With the addition of disks/disks enclosure only the proposed setup should deliver performance upto 4 Gbps.

- Point 1: There should be a provision to add more controllers on requirement without impacting current data space. (In case of expansion I future) **should be read as**

  There should be provision to add more Frontend ports/ controllers & Disks on requirement (in case of further expansion/scaling beyond 4 Gbps) without impacting current data space. Also the performance has to be verified on IOR benchmark.

- Point 2 : Storage system should support hardware RAID 0,1,3,5,6, 10 **should be read as** RAID must be hardware based only and must support 0,1 5,6,10.

- Single global Name space should not be shared between both the cluster nodes.

- Each cluster should connect to the dedicated Metadata/Storage/PFS nodes in 'No Single Point of Failure Method.

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Due Date: 05 Dec, 2011

Subject: Procurement of a Parallel File Storage System/device for the HPC Clusters at Supercomputing Facility for Bioinformatics & Computational Biology, IIT Delhi

1. Background:

Supercomputing Facility for Bioinformatics & Computational Biology (SCFBio) IIT Delhi is intending to buy a Parallel file storage system for the existing HPC setups. SCFBio is having 2 HPC Clusters on infiniband network (One on DDR IB and another on QDR IB) and wants to have Lustre or GPFS or PanFS or equivalent PFS Storage. (Technical Specification is mentioned below). The storage device has to be integrated with both the cluster and has to act as a High Performance   Parallel File storage device for both the clusters.

Sealed tenders (technical & commercial are to be provided separately) are, therefore invited from reputed vendors for the aforesaid purpose as per the details given in the technical specifications. These details are available on the IIT Delhi website www.iitd.ac.in and SCFBio's web site: www.scfbio-iitd.res.in

2. Eligibility Criteria of Bidders:

i)   Bidder should preferably be either an **Original Equipment Manufacturer (OEM)** or should be **Authorized System Integrator Partner** having Direct Purchase and Support Agreement with the OEM. In case the tenderer is a System Integration Partner of the Principal Manufacturer, a Certificate from the Principal Manufacturer clearly stating the relationship with the Partner and authorization to the Partner to quote for this Specific tender Enquiry is to be furnished.

ii)   All **Components** offered in the Bill of Material should be covered under OEM support enabling program so that to get back end support / benefits from Principles / OEM in terms of Free Software Update Support / Maintenance releases, if any, to particular Software Version, Access to 24 x 7 x 365 online support from Technical Assistance Center of OEM for resolution of problems with the help of Online tools and technical database for on-line resolution, advance defective part replacement during warranty period (3 years) within a period of two working days and OEM Login Access. The undertaking from the OEM for the same should be enclosed with the technical bid.

iii)   a). Bidder should have supplied and installed similar type of equipment mentioned in the Technical specification in the last 24 months
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b) At least one similar completed work costing not less than the amount equal to 80% of the estimated cost.

c). At least two similar completed works costing not less than the amount equal to 50% of the estimated cost, **or**

d) At least three similar completed works costing not less than the amount equal to 40% of the estimated cost,

e) Copies of work orders for implementation of Parallel file Storage System for MPI applications successfully executed during last three years, out of which at least one order should be of value not less than 80% of estimated cost

f) Financial standing through latest ITCC, Annual Report (balance sheet and Profit and Loss Account) of last 3 years
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3. Obtaining Bid Documents:

i) The bid documents can be downloaded from IIT Delhi website www.iitd.ac.in or SCFBio website www.scfbio-iitd.res.in.

ii) The bidder for this solution must deposit a non-refundable fee of Rs.1000/- in the form of Demand Draft of any scheduled bank payable at New Delhi in favor of "Registrar IIT Delhi".

4. Submission of Proposals:

i) The bidder shall go through the entire document and must comply with all the terms and conditions. A Compliance statement in the form of 'Complied' or 'Not Complied' shall be given against each item and specification of the tender documents. The compliance statements should be supported by authentic documentation. **Please note that any deviation from the laid down requirements/specifications shall be duly signed and stamped by the bidder.**
Failing to comply with this requirement may result in the bid being rejected.

ii) The proposals shall be submitted in two parts and should be super-scribed as **"PART-I: COVER FOR TECHNICAL BIDS"** and **"PART-II: COVER FOR COMMERCIAL BIDS".**

iii) **Part-I** shall be a Technical Offer with full details including description of Hardware / equipments so as to enable technical assessment of the proposal. This shall also include Earnest Deposit Money as per **Para 5.**

iv) **The Technical bid** must be submitted in an organized and structured manner. No brochures/leaflets etc. should be submitted in loose form. The Technical Offer should consist of the following:

  a. A letter of authority duly signed by an authorized signatory.
  b. Complete Technical Specification along with Make, Model, Manufacturer and Part Number.
  c. Technical Documentation [Product brochures, leaflets, manuals etc.]
  d. Delivery and implementation schedule.
  e. Compliance of terms with any deviation clearly indicated in remarks.
  f. Warranty and AMC (Comprehensive Annual Maintenance) details.
  g. **Do not fill any column related to commercials.**

v) **Part – II** should contain **The Commercial Bids** for the entire proposal. The rates should be quoted in Indian Rupees / USD. All prices shall be fixed and shall not be subject to escalation of any description. Also following details should be provided:

    a. A letter of authority duly signed by an authorized signatory.
    b. All costs should be given in Figures and Words.
    c. Govt. Levies like Sales Tax, Octroi, Excise Duty, Work Contact Tax (WCT) and Education cess etc., if any, shall be paid at actual rates applicable on the date of delivery. Rates should be quoted accordingly giving the basic price, duties and taxes etc., if any.
    d. Include information as to Technical offer.
    e. Itemizes prices for each equipment, cabling, and installation, and total cost.(Prices should be quoted as CIF New Delhi, for items to be imported, inclusive of sales tax / Vat if suppliers are local.
    f. Terms of Payment.
    g. Period of validity of Bid.

vi) **Both the covers should be first sealed separately** and then both the cover should be kept **in a single sealed bigger cover.** This envelope should be duly signed by an authorized signatory and should bear the inscription as given in tender notice.

vii) **Bids Acceptance:** The bid must reach

Supercomputing Facility for Bioinformatics & Computational Biology, 3rd Floor (above Sip n Bite), Synergy Building, IIT Delhi, Hauz Khas, New Delhi -110016, Phone +91-11-26596786

on or before 05 **Dec 2011 at 5:00 pm.** Bids received after the due date and time are shall be rejected. In the event of due date being a closed holiday or declared holiday for Central Government offices, the due date for submission of the bid will be the following working day at the appointed time and venue.

viii) **Validity of bids:** Bids should be valid for a minimum period of 90 days after the due date.

5. **Earnest Money Deposit:**

i) Each bid for this augmentation must be accompanied by Earnest Money Deposit of 2.5 % (Two and a half percent) in a (sealed envelope)of the quoted price in the form the form of Demand Draft/Pay Order/Bank Guarantee of any Indian Nationalized Bank taken in the name of 'Registrar, IIT Delhi'. Bank Guarantee should be valid for a minimum period of 90 days from due date of the quotation. **Quotations received without Earnest Money Deposit shall be rejected. It should be a part of Technical Bid.**

ii) Earnest Money shall be forfeited and bid is liable to be rejected, if the bidder withdraws or amends or impairs or derogates from the tender in any respect within the period of validity of the tender.

iii) The Earnest Money of unsuccessful bidder shall be returned within one week of finalization of purchases.

iv) The earnest money shall be liable to be forfeited upon non supply of order.

v) No interest will be payable by IIT Delhi on the Earnest Money Deposit returned to the unsuccessful bidder.

6. Rejection of Bids:

i) IIT Delhi reserves the right to accept or reject any bid or cancel the tender proceedings without assigning any reason whatsoever.

ii) If a bidder gives wrong information in their bid, IIT Delhi reserves the right to reject such bid at any stage and forfeit the Earnest Money Deposit / Performance Guarantee / Security Deposit and cancel the contract, if awarded.

iii) Incomplete quotations are liable to be rejected.

iv) **If the technical offer contains any price information the offer will be summarily rejected.**

v) Canvassing in any form in connection with the tenders is strictly prohibited and the bids submitted by the bidders who resort to canvassing are liable for rejection.

vi) IIT Delhi may not pay any costs incurred towards preparation and submission of the bid of any other expenditure in this regard.

vii) Unsigned tenders, unattested corrections and over writing by bidders are also liable for rejection.

7. Evaluation Process:
For the bidders satisfying the Qualifying Criteria and Technical Specifications, the price comparison shall be made over the total cost of the project with three years of comprehensive warrantee. The lowest price in terms of cost to performance ratio will be selected.

8. Payment Terms:
Payment for this augmentation shall be made in INR/USD with all taxes and levies except custom duty and excise duty since the Institute is exempt from CD & ED. Vendor must indicate their preferred mode of payments in the price bid.

9. Clarifications:
In case the bidder requires any clarification regarding the tender documents, they are advised to submit their question in writing to SCFBio, 3rd Floor, Synergy Building, IIT Delhi.

10. Quantity Variations:
The proposed solution is subject to change depending on requirement.

11. Inspection:
IIT Delhi shall have the right to inspect or to test the items after delivery to confirm their conformity to the required specifications. The supplier shall provide all reasonable facilities and assistance to the inspector at no charge to IIT Delhi. In case any inspection of tested service fail to conform the specifications, IIT Delhi may reject them and supplier shall make all alterations necessary to meet specification required free of cost to IIT Delhi.

12. Performance Bank Guaranty:
A Bank guaranty of 5% of the total amount should be given by the vendor on whom the order is placed. It should be for a period of two months beyond the date of completion of performance obligations under the contract. The amount and the validity period are to be specified in the bidding documents itself.

13. Warranty:

i) **Three Years comprehensive warranty** should be given by the vendor. Warranty shall include free maintenance of the whole equipment supplied including free replacement of part. The defects, if any shall be attended to on immediate basis but in no case any defect should prolong for more than 24 hours. Free Software Update Support. No separate payment shall be made for the maintenance of equipment / hardware and software during the warranty period.

14. Supply and Installation:

i) This is a time bound and high priority project. It must be understood that the bidder has made the proposal after fully considering all such factors, which may have any bearing on the time schedule. The bidder will be required to supply, install and enable services at all the locations **within 6 weeks** from the date of placement of work order in the order of priority as will be decided by IIT Delhi.

ii) The bidder will have to arrange for all the testing equipment & tools required for installation, testing & maintenance etc. at his own cost.

iii) IIT Delhi will have the right to reject the component /equipments supplied, if it does not comply with the specifications at any point of installation/inspections.

15. Liquidated Damages:

If the supplier fails to deliver any or all of the goods or complete the installation within the period specified in the purchase order, IIT Delhi shall without prejudice to its other remedies, deduct as liquidated damage **0.5 percent** of the price of the delayed goods for every week or part thereof while making the initial payment itself.

16. Force Majeure:

If there is a delay in performance of schedules of contract due to event of Force Majeure, IIT Delhi may deal with the case differently.

17. Arbitration and Laws:

Except where otherwise provided for in the contract, all questions and disputes relating to interpretation and application of the provisions of the contract shall be settled mutually within thirty (30 only) days (or such longer period as may be mutually agreed upon) for the date that either party notifies in writing that such dispute or disagreement exists, under the Rules of India Arbitration and Conciliation Act, 1996. The venue of Arbitration shall be New Delhi, India. The arbitration resolution shall be final and binding upon the parties and judgment may be entered thereon, upon the application of either party, by any court having jurisdiction. The Indian laws shall govern this contract.

Technical Specification for the Procurement of Parallel File Storage System for SCFBio, IITD

Technical Specification for the Proposed Augmentation

I) Existing Setup at SCFBio

    1 Sun Fire X4240 Server (Master node) + 40 node Sun Fire X2200 Server (AMD Opteron Processors) (Compute nodes) cluster connected over a DDR IB (MTS-3600R) and also a 1 Sun Fire X4240 Server (Master node) + 35 node Sun Fire X2200 Server (AMD Opteron Processors) (Compute nodes) cluster connected over a QDR IB (MIS-5025Q).

Procurement of Parallel File Storage System at SCFBio

The Storage solution proposed should be using either SSD disks, 600GB/900GB SAS Disks with 10K/15K RPM or better only and Hardware RAID 5.

Total usable capacity per cluster should be 10 TB each and additional 5TB usable capacity should be available to be used by cluster 1 or Cluster 2 on demand.

The PFS storage system should be highly available at OSS and MDS level (In case of any OSS Server/MDS Server failing the storage should be available to compute nodes) and use existing or new infrastructure to provide complete non blocking architecture over infiniband network. Only 2 IB ports or 2 servers can be spared per cluster. Vendors can accordingly use existing IB network or provide a new IB infrastructure fully non-blocking.

PFS Storage should be providing aggregate read and write performance throughput of 1.5 GB/sec. The solution must be scalable upto 4 GB/sec by adding controllers/ disks / disk shelves/SAN Switches. The PFS should be tested on IOR Performance benchmark.
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Specifications for Storage System:

Usable **25** TB storage for the HPC cluster (10 TB per cluster and 5TB free for to be used by PFS on demand) with atleast 6Gbps SAS-II, 10K RPM Disks or SSD Disks or better and Hardware RAID 5 and maximum 7+1 Raid Group size.

- Dual Active Hot - swappable Controller with atleast 2GB battery backed cache per controller. There should be a provision to add more controllers on requirement without impacting current data space. (In case of expansion I future).

- Storage system should support hardware RAID 0,1,3,5,6, 10.

- Storage system should be scalable to minimum of 190 disks as and when required.

- Storage system proposed should have 8x8Gbps FC host ports and 4x6Gbps SAS ports. MDS and OSS to be connected to storage system with Dual port FC HBA and both ports to be connected to storage via either internal switch or external FC Switch.

- Storage system must be configured with no single point of failure such as Dual Redundant plus hot - swappable Power Supply etc.

- Storage system proposed should Support for mixed drive types like SAS/SATA etc. Within a single storage system.

- The storage equipment should be rack mountable and Linux compatible. Separate 10/100Mbps Ethernet port for management required.

- Required Storage management software and any additional software (such as, host connectivity, etc) should be part of the proposal.

- 1 Hot spare disk in each expansion. 1 Spare Disk also for Metadata is to be configured.

- Storage should support Volume Copy and flash copy features for future need.

- Storage System should have NEBS and ETSI compliance and support for 48V dc power supplies.

  *(The capacity of the storage could be increased or decreased slightly depending on the availability of funds).

Scope of Work:

▪ Vendor has to configure the PFS by using existing servers.
▪ Vendor must prove the performance of atleast 1.5 GB/S read and write.
▪ Vendor must configure the storage/servers in such a way so that more throughputs can be achieved by adding disks/controllers/servers in existing setup without replacing existing setup.
• Vendor has to assure that the storage system should be fully compatible with the existing set up and can be easily integrated with servers/cluster in case of expansion of Infrastructure. In case of any issue the responsibility has to be taken up by the vendor and has to be rectified by the vendor.

The entire installation must be done by the vendor with following responsibilities

a) The entire set-up should be ready with middleware for parallel job submission, queuing system, job monitoring.
b) System should be compliant with latest technology in low heat dissipation.
c) All peripherals (connecting wires, ties, network cables, etc) required for the setup should be provided by the vendor.
d) All the components under the procurement should come with comprehensive on-site warranty for a minimum of 3 years.
e) All the compilers and libraries (like C, C++, Fortran, etc if required) along with the licenses required to run the job in the parallel environment on the proposed machine/architecture should be provided by the vendor.
f) The performance should be certified on IOR Performance Benchmark.

Training:

Training should be given during installation to at least two persons from the Supercomputing Facility for doing System management/administration jobs.

Check List

Please verify the following documents before submission of the tender, to avoid rejection or disqualification of your tender.

1) non-refundable fee of Rs.1000/- in the form of Demand Draft of any scheduled bank payable at New Delhi

2) Separate Sealed Envelopes containing the Technical and Commercial Bid. Technical bid should not contain any price information.

3) Earnest Money Deposit of 2.5 % (two and a half percent) of the quoted price in the form of Demand Draft/Pay Order/Bank Guarantee of any Indian Nationalized Bank

4) Price Schedule with terms and conditions

5) Statement on Compliance of the Technical Specifications with deviations, if any

6) Three Years Comprehensive Warranty on the Products along with AMC.

7) Copies of work orders for Parallel File Storage System implementation executed during last three years

8) Income tax clearance certificate issued by the concerned IT circle for the past three years with the seal of the tenderer.

9) For the Commercial bid a letter of authority duly signed by an authorized signatory should be attached.

10) Delivery and implementation schedule

11) The tender document should be submitted on or before the due date.

12) The Vendor should make sure that all the component he is providing for the implementation should be sufficient and compatible with the existing setup.

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