

INSTITUTE FOR PLASMA RESEARCH
NEAR INDIRA BRIDGE, BHAT, GANDHINAGAR 382 428
GUJARAT STATE

Phone: 079 23962021, 23962023 Fax: 079 23962277

TENDER NOTICE DATED 22-2-2010

Itemwise sealed tenders are invited from reputed and eligible parties for the following.

Sr. No	Tender Notice No.	Item	Qty.	Due Date & Time for		Tender Fee	EMD (Rs.)
				Submission of tender	Opening of tender		
1.	IPR/TN/PUR/039/09-10	Data Storage system of Usable 3TB (Online with FC Drives) + 6TB (Nearline with SATA-II/FATA) after RAID-5 in slab offer of – 1) 3TB Online + 3TB Nearline 2) 3TB Online + 6TB Nearline	1 No.	1-4-2010 by 1.00 p.m.	1-4-2010 2.30 p.m.	200.00	20000.00
2.	IPR/TN/PUR/040/09-10	Design, detail engineering, manufacturing, erection, testing and commissioning (with load) of 200V, 300A DC Power Supply	1 No.	8-4-2010 by 1.00 p.m.	8-4-2010 2.30 p.m.	200.00	10000.00
3.	IPR/TN/PUR/041/09-10 (TWO PART TENDER)	Design, fabrication, testing, supply and installation of a horizontal Vacuum Chamber	1 No.	12-4-2010 by 1.00 p.m.	12-4-2010 2.30 p.m.	200.00	20000.00

Tender documents are available on IPR Website : www.ipr.res.in/purchasetenders.html. Tenderers meeting the eligibility criteria mentioned in the tender documents may, at their option, download the tender documents from the website and submit their offer along with prescribed **Tender Fee (non refundable) and EMD** in the form of Demand Draft from any nationalized/scheduled bank drawn in favour of **Institute for Plasma Research** and payable at **Ahmedabad** as per the details given in the tender documents. In case party desires to collect the tender documents by post, they may contact the Purchase Officer along with prescribed tender fee. Tender documents will be issued upto **19-3-2010**. Representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to attend the tender opening.

TENDER NOTICE No.IPR/TN/PUR/039/09-10 DATED 22-02-2010

For Supply, installation and integration of Data Storage system of Usable 3TB (Online with FC Drives) + 6TB (Nearline with SATA-II/FATA) after RAID-5 in slab offer of –

- 1) 3TB Online + 3TB Nearline**
- 2) 3 TB Online + 6TB Nearline**

NOTE:

1. Full details and specifications of the items and general instructions to be followed regarding submission of tenders are indicated in the tender documents.
2. **Proof for fulfillment of eligibility criteria mentioned hereunder should be submitted along with the tender. If the tender is submitted without valid documents, we shall not consider your offer. Tenders received without proof of eligibility criteria will be rejected.**
3. Tender documents can also be obtained by submitting a written request to the Purchase Officer together with prescribed tender fee, provided that the eligibility criteria is fulfilled. Last date for issue of Tender documents is 19-3-2010.
4. While requesting for Tender Documents, such request shall indicate **the “REQUEST FOR TENDER DOCUMENTS AGAINST TENDER NOTICE NO.IPR/TN/PUR/039/09-10 DATED 22-2-2010”.**
5. The tender fee of Rs.200/- (non refundable) should be made in the form of **DEMAND DRAFT from any nationalized/scheduled bank drawn in favour of *Institute for Plasma Research* and payable at *Ahmedabad*.** Vendor's name and tender number shall be indicated on the reverse side of the Demand Draft.
6. **DD should not be prior dated to the date of advertisement. Separate request letter and separate Demand Draft shall be sent for each tender.**
7. Those who use the downloaded tender documents from IPR Website may submit the prescribed Tender Fee keeping in a separate envelope along with the tender.
8. **Tenders received without the prescribed tender fee will be rejected.**
9. No request for the extension of due date will be considered.
10. Late/Delayed offers will not be accepted.
11. Tenders in a sealed envelope superscribing the envelope with the above tender no., date, due date and brief description of tendered item along with EMD for Rs.20,000/- by way of Demand Draft from a nationalized/scheduled bank drawn in favour of ***Institute for Plasma Research*** and payable at ***Ahmedabad*** should be submitted to the ***Purchase Officer*** at the above address

by 1.00 p.m. on 1st April, 2010. Tenders received upto 1.00 p.m. on 1-4-2010 will be opened on the same day at 2.30 p.m. in the presence of attending tenderers.

12. In the event of any date indicated above is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.
13. IPR will not be responsible for any delay/loss of documents in transit.
14. Tenders received without the details asked for including proof of eligibility for participating in the tender may not be considered.
15. Tenderers should furnish/enclose full technical details/literature, delivery period and confirm the terms and conditions attached with the tender.
- 16. Those who do not meet with the eligibility criteria need not submit Tender.**
- 17. Those who are quoting on behalf of their foreign Principals should submit a Proforma Invoice of Foreign Principals in foreign currency.**
18. The Director, IPR reserves the right to accept or reject any offer in full or part thereof without assigning any reason thereof.
- 19. Quotations received without EMD will not be considered.**
- 20. The representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to participate in the tender opening.**

ELIGIBILITY CRITERIA: Vendor willing to bid for the system shall qualify following criteria:

- Vendor should be a manufacturer or authorized dealer/distributor of the system manufacturer (in case of authorized dealer/distributor, provide valid dealership/distributorship certificate).
- Vendor should have past experiences in the field of supply, installation, commissioning and testing of similar systems
- Vendor should have supplied similar materials to government, aerospace, defense & research centers and reputed organizations (Attach copy of purchase orders received for similar systems).

Note: Proof of the above eligible criteria should be submitted along with the offer.

NOTE: Issue of tender documents does not mean that a vendor is qualified to submit tenders. IPR's decision to consider as to whether a vendor has met with the eligibility criteria is final.

INSTRUCTIONS TO BIDDERS AND TERMS AND CONDITIONS

1. The quotation and any order resulting from this tender/enquiry shall be governed by our Conditions of contract and supplier quoting this tender shall be deemed to have read and understood the same in toto.
2. Where counter terms and conditions have been offered by the supplier, the same shall not be deemed to have been accepted by us, unless our specific written acceptance thereof is obtained.
3. **Tender Fee: Tenders received without the prescribed Tender Fee will be rejected.**
4. **Clarifications:**
Any technical and commercial questions, information, clarifications, etc. that may be required pertaining to this Tender/enquiry may be obtained from the Purchaser before submitting the tender.
 - 4.1 Bids shall be complete in all respects and shall include properly filled in prices, other specifications, schedules, relevant drawings and catalogues as necessary alongwith the bid covering letter, all in duplicate.
5. **Quotation:** Your quotation superscribing our tender/enquiry No., date, due date and short description of item should be submitted to the Purchase Officer, IPR in a sealed envelope on or before the due date. Late and delayed quotations will not be considered. IPR will not be responsible for postal delays or any other delays in receipt of quotation. Envelopes received without Tender number, date, due date and short description of item may be rejected. The quoted prices should be firm for a period of 120 days from due date for placing order. IPR is not bound to accept lowest rate/s. IPR reserves the right to place order on one or more parties irrespective of whether he is lowest or not. The scope of supply includes insurance by the Contractor/Supplier.
6. **Specifications:** Material should be offered strictly conforming to our specifications/drawings. Deviation, if any, should be clearly indicated by the supplier in their quotation. The supplier should also indicate the Make/Type number of the materials offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation.
7. **Terms of prices:** Quotation should be submitted on door delivery basis without extra charge wherever possible. For quotations on Ex-Works, Ex-godown basis the approximate packing and forwarding charges should be indicated by the supplier. In the case of local suppliers, the material is to be delivered at our stores free of charge. Unit rate/s should be valid throughout the validity of purchase order/contract period for addition/deletion purposes. Break-up of price should be furnished. The quoted price should not be subject to price escalation for whatsoever reasons. The quoted price shall be firm, fixed and non-revisable during the validity/extended validity of purchase order/contract.
 - 7.1 Prices are required to be quoted according to the units indicated in the tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
 - 7.2 Wherever options are specified in the tender documents, IPR reserves the right to accept any option/s irrespective of whether all the vendors have quoted for all the options or not. The decision of IPR in this regard will be final.

8. Tender should be free from Correction and Erasures. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
9. IPR shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
10. **Sales Tax etc.:** We have no "C" or "D" form. The percentage of Sales Tax/VAT, surcharge, if applicable, and other levies legally leviable and intended to be claimed should be clearly indicated in the tender. Where this is not done, no claim on these accounts would be admissible later.
- 10.1 **VAT Registration:** You may submit a copy of VAT Registration certificate along with your quotation (if applicable).
- 10.2. **Service Tax:** Wherever Service tax is applicable, it should be mentioned clearly. You may indicate percentage of Service Tax in your quotation.
- 10.3 **Excise Duty:** As per Notification No.10/97-CE (Central Excise) dated 1-3-1997, the Purchaser is entitled for availing Excise Duty exemption at present. Excise Duty Exemption Certificate, wherever applicable, and as per rules will be issued at the appropriate time. Hence Excise Duty should not be included in the BID. However, prevailing percentage of Excise Duty may be indicated.
- 10.4 **Octroi:** Octroi is not applicable in our case.
11. **Delivery Date:** The supplier must indicate the firm delivery date by which the materials will be despatched/delivered by them from the date of our order.
12. **Inspection:** Materials on its arrival at IPR will be inspected by Stores In-charge, and his decision in the matter will be final.
13. **Earnest Money Deposit (EMD):** Tenderer should furnish EMD for Rs.20,000/- (Rupees Twenty thousand only) by way of Demand Draft from a nationalized/scheduled bank drawn in favour of **Institute for Plasma Research** and payable at **Ahmedabad** should be submitted along with quotation. Tender received without EMD will not be accepted.
- 13.1 **EMD of unsuccessful Bidder will be returned after finalizing the Contract/placing Purchase order.**
- 13.2 **The EMD shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.**
14. **Payment:** Within 30 days from the date of acceptance. Wherever, advance payment is involved, it will be paid only against Bank Guarantee from Nationalised/Scheduled Bank.
15. No correspondence will be entertained within 30 days from the date of receipt of material and bills, whichever is later.

16. Quotation should be valid at least for 120 days from the date of opening of the tender.
17. Delivery periods be clearly indicated against each item separately.
18. **Guarantee:** The Stores/material/goods/equipment offered by the bidder should be guaranteed for a minimum period of twelve months, against defective materials, design, workmanship, operation or manufacture. For defects noticed during the Guarantee period, replacement/ rectification should be arranged free of cost within a reasonable period of such notification. In cases where our specifications call for a guarantee period more than 12 months specifically, then such a period shall apply.
19. **Security Deposit:** The successful Bidder will have to furnish to the Purchaser an interest free security deposit for 10% (Ten percent) of the order value in the form of Bank Guarantee of an equivalent amount from a nationalised/scheduled Bank within 15 days from the date of LOI/Purchase order and the said Guarantee should be valid till the goods are accepted by IPR. The Security deposit shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.
20. **Liquidated Damages:** In addition to forfeiting Security Deposit, Liquidated Damages for the delay shall be 1/2% (half percent) of the total order value for the delay of each week in the scheduled time of supply or the scheduled date of final completion for the work as the case may be, subject to a maximum of 5% (five percent) of total order value. Liquidated Damages will be recovered from the payment due to the supplier.
21. **Performance Bank Guarantee:** The Contractor/Supplier will have to furnish to the Purchaser (IPR) an interest free performance bank guarantee for 10% (Ten percent) of the order value/ contract value by Demand Draft or by way of providing a Bank Guarantee from a Nationalised/Scheduled Bank valid for a period of 12 months/guarantee period mentioned in the order from the date of installation/acceptance for satisfactory performance of the work carried out by the Contractor.
22. The Contractor/Supplier shall at all times indemnify the purchaser against all claims which may be made in respect of the stores/material/goods/equipment for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage, which may cause failure of supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfillment of the contract.
23. **BAR/PERT Charts:**
To be provided as per the requirement of Purchaser.
24. **Sub-Contract:** All sub-contractors are required to be appraised and approved by the Purchaser before placement of orders by the Vendor.
25. **Jurisdiction:** The contract/Purchase order shall be governed by the Laws of India for the time being in force. The Courts of Ahmedabad only shall have jurisdiction to deal with and decide any legal or dispute arising out of this contract.
26. **Settlement of disputes:** Any disputes or difference arising out of or in connection with the Contract/Purchase order shall be to the extent possible settled amicably between the parties.

If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration.

27. **Arbitration:** In the event of any dispute or difference arising under this Contract, the matter shall be referred to the Arbitrators one each nominated by the Purchaser and Contractor from their respective organisations. In case the said Arbitrators are not able to settle the dispute by themselves, the matter shall be referred to the Arbitrator mutually nominated by the Purchaser and the Contractor and whose decision will be final and binding on both the parties. The venue of arbitration will be IPR. Subject to as aforesaid the Arbitration Act, 1940 and the rules thereunder and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this Contract.
28. **Permits and Licences:** The Contractor shall secure and pay for all permits and licence which he may require to comply with in respect of all laws, ordinances and regulations of the Government or Public Authorities in connection with the performance of his obligations under the Contract. The successful contractor shall be responsible for all damages and shall indemnify and save the Purchaser harmless from and against all claims for damages and liability which may arise due to his failure to comply with what is stated above.
29. **Training:** The successful tenderer shall, if required by the Purchaser, provide facilities for the practical training of Purchaser's engineering or technical personnel for their active association on the manufacturing process throughout the manufacturing period of the Contract/stores, number of such personnel to be mutually agreed upon.
30. **Operation/Instruction Manual:** Where operation/instruction manual is essential to enable the Purchaser to put the stores to proper use, the successful tenderer shall furnish such operation/instruction manual along with the stores.
31. **Test Certificate:** Wherever required, test certificates should be sent along with the despatch documents.
32. **Secrecy:**
 - 32.1 All information, drawings, designs and specifications imparted to the bidder/successful contractor shall, at all times, remain the absolute property of the Purchaser, the bidder/successful contractor shall not use them for purposes other than for which they are provided for and shall treat all these documents as confidential. These shall not be reproduced in whole or in part for any other purpose.
 - 32.2 The contractor shall use his best endeavours to ensure that such information are not divulged to third parties except where needed for the performance of the contract by the successful bidder with the prior consent of the Purchaser. In such cases, the successful contractor shall ensure and obtain similar obligation of confidence, from third parties in question.
33. **Indemnity:** The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by patent. Registration of design or Trade Mark and shall all risk of accidents of damage

which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment of the contract.

34. **Counter terms and conditions of Suppliers:** Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser unless specific written acceptance thereof is obtained.
35. **Installation/commissioning/site works:** Wherever these activities are part of scope of work/specifications, Vendor should carryout out the same without any extra cost to IPR.
36. **Free Issue Material (FIM) (If specified in the tender documents):** Successful tenderer will have to furnish in the form a Bank Guarantee or in any other form as called for by the Purchaser towards adequate security for the materials/property provided/issued by the Purchaser as Free Issue Material (FIM) for the due execution of the contract. Successful bidder shall submit Bank Guarantee from a nationalized bank and arrange insurance for the cost of FIM at his expenses.
37. Late/delayed tenders will not be accepted. Incomplete tenders may be rejected at the discretion of IPR.
38. **IPR is not bound to accept the lowest tender. IPR reserves the right to select any vendor at its sole discretion.**
39. **Result of the tenders:** Unsuccessful tenderers will not be informed of the result of their tenders.
40. The Director, IPR reserves the right to accept or reject any quotation/tenders fully or partly without assigning any reason.
41. IPR reserves the right to place order on a single party or to split the order at its sole discretion.

We agree to the above terms and conditions.

Place:

Signature of Bidder with seal

Date:

Note: A copy of our terms and conditions duly signed should accompany your quotation.

***Centralized & Modular Data Storage
System for SST-1
(SST-1 Operation & Control Division)***

CONTENTS

Sr no.	Description	Page Number
1.0	BRIEF SUMMARY	11
2.0	SYSTEM CONFIGURATION	12
3.0	TECHNICAL SPECIFICATIONS : 3.1 Specifications of Data Storage System 3TB (Online) + 6TB (Near line) Useable 3.2 Specifications for the Filer / Header 3.3 Specifications for FC Switches & Fiber Cables 3.4 Specifications for Floor Standing Instrument Rack 3.5 Specifications for IP based KVM with 1U Rack mount 19" TFT/LCD monitor	13
4.0	TERMS & CONDITIONS 4.1 Quotations 4.2 Delivery of System 4.3 Installation & integration 4.4 Testing of System at Installation Site 4.5 System Training 4.6 Product License 4.7 Warranty 4.8 Acceptances	18

1.0 Brief summary

This document describes the requirements of central data storage, peripherals and supporting software with technical specifications and quantity required. This document also describes the terms and conditions for the quotation, Supply and Maintenance of the systems.

Data storage system and solution are required for archiving of SST-1 Tokomak's whole life cycle operation data, information data and sharing of data for further analysis. This system will be installed at IPR, Gandhinagar. The warranty period should be minimum 3 years on site warranty & the party should provide a certificate stating 5 years of support after warranty of 3 years.

System configuration diagram is given in this document for providing better understanding of system & software requirements so that vendor can study & propose solution accordingly.

The vendor is required to provide quote for the supply, installation, Integration and maintenance for all the systems and software listed in this document along with the compliance of the terms and conditions. The quotation should also include the charges towards transportation for delivery – supply, training and installation at on sites Viz. SST-1 Central Control Room.

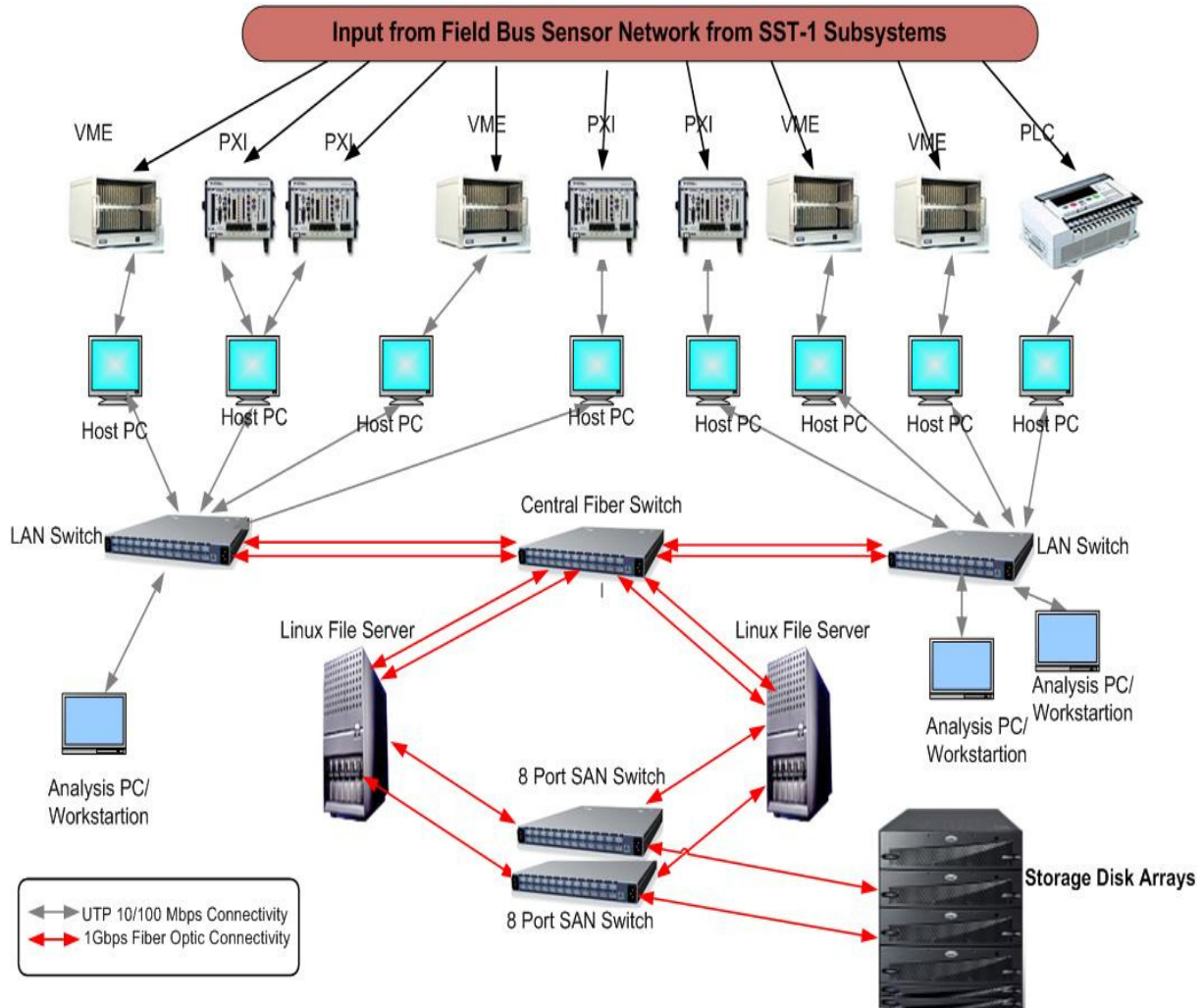
The vendor is expected to submit the specific system solution document explaining the integrated working of offered solution with the hardware & software describing various technical, interface and performance aspects. The quotations should be item wise.

The vendor is required to quote for the any of the following brands:

- STORAGE SOLUTION
 - a) SGI
 - b) HP
 - c) IBM
 - d) Dell
 - e) EMC
 - f) NetApp
 - g) SUN

2.0 System Configuration

Storage System Architecture for SST-1



3.0 TECHNICAL SPECIFICATIONS

3.1 Specifications of Data Storage System 3TB (Online) + 6TB (Near line)

Useable storage

Sr.	Specifications	Description
1	Mounting	Rack Mounting, Rack size 32U
2	Filer / Header	<ul style="list-style-type: none"> • 2 Nos. Redundant active/active file Header configuration for cluster failover capability with no single point of failure. • Detail specifications for Filer / Header are given separately. Preferred model : HP, IBM., DELL, WIPRO
3	Storage Architecture	<ul style="list-style-type: none"> • Full Fiber Channel end-to-end architecture, 4Gbps end-to-end or better • The system must support dual-ported Fiber Channel drives. • Architecture should allow modular upgrades of hardware and software. • The array should support coexistence of FC and iSCSI for enhanced external connectivity or better • Should designed for flexibility, expansion and future technologies(i.e. 8 Gbps FC and 10 Gigabit iSCSI front end ports) • 3 TB (Online) storage architecture should support 10MB/s writing throughput. • 3 TB (Online) & 6 TB (Nearline) storage architecture should be on separate Disk Array Enclosures. • Optional attachment for backup support. • It should also support LTO based Tape library & SAN Backup software for historical data storage.
4	Disk Configuration	<p>Usable capacity of 3TB (Online with FC drives 15k rpm) + 6TB (Near line with SATA-II / FATA with min. 7200 rpm) after RAID 5 in slab offer of,</p> <ol style="list-style-type: none"> 1. 3TB + 3TB (Online with FC drives+ Near line with SATA-II / FATA) 2. 3TB + 6 TB (Online with FC drives+ Near line with SATA-II / FATA) <ul style="list-style-type: none"> • The array should be scalable to a minimum of 80 spindles behind the same controller pair by adding the appropriate number of spindles and disk shelves.
5	Disk Support	<ul style="list-style-type: none"> • The array should support the following spindles: • 300G / 450GB 10k rpm 4 Gb/s disks with backend 4Gb FC connectivity or better. • 1TB 7200 rpm 3 Gb/s SATA II/ FATA disks or better • Mix and match of different type of spindles should be supported within the array.
6	Array Architecture	<ul style="list-style-type: none"> • The array should be equipped with 2 nos. of array controllers for better performance and redundancy. • Each RAID controller should have minimum 2GB cache with minimum 6 FC Host ports each at 4Gbps and 2 iSCSI ports each at 1Gbps. • The array controller should support co-existence of iSCSI and FC without requiring external iSCSI engines.

7	Cache	<ul style="list-style-type: none"> • Cache should be mirrored between the Active- Active controllers on separate Inter controller paths. The inter controller paths should be redundant (at least 2 paths) to prevent disruption if one path fails. • Must support either Cache battery backup for a minimum of 48 hours or fully automatic de-stage of cache to disks during power failure to prevent possible data loss. • Must support real-time cache tuning for performance enhancement. • Must support allocation of read and write cache separately. • Storage Array shall be configured with Minimum of 4GB total cache (total across 2 controllers). Cache shall be mirrored
8	No Single Point of Failure architecture	Storage Array should be configured in a No Single Point of failure including Array Controller cards, Cache memory, FAN, Power supply etc.
9	Network Client Types Support & Network Protocol Support	<ul style="list-style-type: none"> • Should support Windows, UNIX & Linux on Client. • SMB/CIFS, NFS, TCP/IP, HTTP and FTP
11	RAID Level Support & On-line RAID Expansion	<ul style="list-style-type: none"> • Capable to support hardware RAID levels 0, 1, 0+1, 3, 5 and 6. • Capable to support inter-mixing different RAID groups within one storage system. • Must support online expansion of RAID Group. • Must be able to add additional disks on the fly to expand the RAID group capacity.
12	Online LUN Migration for flexibility of redeployment	<ul style="list-style-type: none"> • The array should support online LUN migration (transparent movement of volumes within the array). • The functionality should allow cross RAID migration and cross spindle (e.g. FC to SATA / FATA) migration.
13	Subsystem based striping.	The array must support subsystem based striping to enhanced performance.
14	Controller software and Non-Disruptive Upgrade	All host-attached servers must remain fully operational during system level or maintenance upgrade procedures.
15	Data-in-Place Upgrade	Must support data-in-place during up gradation of existing storage controllers to a future generation controller.
16	Disaster recovery	Storage array should support hardware based long distance data replication at the array controller level in both Sync and Async mode.

17	Management Software	<ul style="list-style-type: none"> • Easy to use GUI based and web enabled administration interface for configuration and storage management. It must be able to centrally manage the complete range of arrays over the network. • Disk and Data management tools. • The Management software should be quoted for the entire capacity of the storage (if capacity based) or for minimum two hosts if host based or for two Controllers (if controller based). • Performance monitoring software for the storage. • Multi-pathing Software for path failover and load balancing. Software should be provided for managing multiple paths between hosts and storage systems. • It must support event auditing for security. The date, time, and nature of the action must also be logged.
18	Web based Management	System shall have web based management for activities like LUN Creation, LUN Expansion, Snapshot copy creation and Management, event management, Performance management
19	Performance Management	Additional needed software must be provided to allow performance monitoring of the SAN array. Measurements must be reported at physical disk levels also, and also for parameters like Controller processor utilization, read hit percentage, read hit MB/s, read miss data rate, write data rate, Disk group loading, Read MB/s from disk, Write MB/s to disk can be preferred.
20	HBA Path Failover software	Licenses must be provided for path failover for all operating systems. If additional software is needed, the same must be provided.
21	File system size	Should support File systems of minimum 1 TB; with capability to dynamically expand / shrink them on the fly without any disruption.
22	Power Supply	Redundant power supply with Redundant cooling FANS.
23	Warranty	3 years 24x7 comprehensive on site warranty.

3.2 Specifications for the Filer / Header (Quantity – 2 Nos.)

Sr.	Specifications	Description
1	Processor	2 * Quad Core 3.0GHz, 3*4M CACHE, 64-bit Intel Xeon Processor or Higher.
2	Scalability	Storage solution should be scalable to support more number of file servers.
3	Memory	<ul style="list-style-type: none"> • 4 * 4 GB RAM DDR 2 • Supports DDR2-800 /667/ 533 FBDIMMs Memory expandable to 64GB (16 Dimm Slots) Support 512 MB, 1GB, 2GB, 4GB, 8 GB)
4	Chipset	<ul style="list-style-type: none"> • 5400 Chipset
5	Hard Disk Drives	<ul style="list-style-type: none"> • 4 * 146 GB SAS 15 K RPM HDD; Hot Swappable; RAID 5 Configured or better • Supports up to 8* 3.5" HS SATA / SAS HDD
6	RAID Controller	<ul style="list-style-type: none"> • Onboard RAID or PCI Express slot support for 0, 1, 0+1, 5,6 • Add on 8 Port SATA / SAS Raid card (512Mb)
7	Network Interface	<ul style="list-style-type: none"> • 2 * Gigabit Ethernet connections (10/100/1000 Mbps)

8	Graphics	<ul style="list-style-type: none"> Graphics Controller with at least 16 GB Memory
9	Optical Drive	<ul style="list-style-type: none"> Internal DVD R / W
10	HBA	<ul style="list-style-type: none"> 2 * 4 Gbps FC dual port HBA cards (PCI-X / PCI Express based) Quotation should be provided for Linux & Windows system
11	Operating System	The storage array should support industry-leading Operating System platforms based on Linux preferred Redhat-5 or latest.
12	PCI	Minimum 6 slots (3* PCI-e slot, 1* PCI-e slot, 2 * 64-bit 133MHz PCI-X (3.3V) slots)
13	External I/O Connections	2*PS2 / 1* VGA /2* RJ45 / 4*USB / 2 *Serial
14	Power Supply	Redundant (1+1) Power Supply
15	Fans	Redundant Fan
16	Form Factor / Chassis	2 U Rack Mount
17	Warranty	3 years 24x7 comprehensive on site warranty.

3.3 Specifications for FC Switch with Fiber cables : (Quantity – 2 Nos.)

Sr.	Specifications	Description
1	FC Switches and fiber cables	<ul style="list-style-type: none"> 4 Gbps FC Switch with min. 8 ports, from Brocade or Brocade /CISCO OEM or Certified Integrated System provider. 4 numbers of 2m & 12 nos. of 15m LC-LC fiber cables.

3.4 Specifications for Floor Standing Instrument Rack

<u>Sr.</u>	<u>Specifications</u>	<u>Qty</u>
<u>1</u>	<u>Standard Instrument Rack (Dell, Emc, Prestige etc) size: 32U 19 Inch Lockable and removable doors with side panels, detachable stabilization, leveling feet, computer grade ventilations, adjustable mounting depth, fully assembled, Door open 180 degree, powder coated, cold rolled steel, side panels, equipment mounting hardware, KB tray</u>	<u>01</u>
<u>2</u>	<u>Cantilever shelves, stationary and sliding slaves</u>	<u>05</u>
<u>3</u>	<u>Castor with foot brake</u>	<u>04</u>
<u>4</u>	<u>Fan tray with electronic controller, Fan housing unit with minimum four 230 VAC fans assembly</u>	<u>01</u>
<u>5</u>	<u>AC supply mains distribution panel with spike suppressor and C Type 20A MCB (19 Inch rack mount)</u>	<u>10</u>
<u>6</u>	<u>CFL tube-light assembly 24 watt or higher</u>	<u>02</u>
<u>7</u>	<u>Cable manager channel</u>	<u>04</u>

3.5 Specifications for IP based KVM Switch with 1U Rack mount 19" TFT/LCD monitor

Specifications		Descriptions
KVM Port	No. of KVM Ports	8
	Connectivity	USB for KM & HDD15 for VGA
Local Console	Graphic Connector	HDD15 pin
	Resolution	1600 x 1200 or better
	Input device	2 x USB type A for keyboard & mouse
IP Remote Console	Connector	RJ-45 Ethernet
	User Management	8 user login, 1 x active user
	Network Protocol	DHCP/ BOOTP/ DNS
	Security	SSL v3, RSA, AES, HTTP/HTTPs, CSR
	Resolution	At least 1600 x 1200
	Browser	IE, Firefox, Netscape, opera, safari or latest
	Others	Serial Port, Virtual media via USB
Compatibility	Multiplatform	Mix PCs, SUNs, IBM, HP, DELL's server
	OS Support	Windows Vista/XP/2000/2003, Linux, Unix
Power	Input Power	100-240VAC, 50 or 60 Hz IEC type Cord
	Optional DC	12v / 24v / 48v DC input
Bandwidth		100BaseT
Regulatory Approved		FCC, CE
Warranty		Minimum 2 years
Standard Accessories		Power Adapter, 3-in-1 KVM cables (8 nos)
LCD Panel	Size	One 19" LCD / TFT foldable Monitor or better
	Resolution	1600 x 1200 or Better
	Control	OSD control brightness, contrast, Colour, Clock, H.Position, V.Position, Phase, Scaling, Auto configuration, input select, Multi Window, OSD adjust, Save, remote administration over the net
Key Board and Mouse		OEM Key Keyboard and 3 button optical scroll mouse
External Connection		Power input, Video Input
Construction		KVM Control boards, Ball bearing telescopic slides with stopper, 8 push button channel selector switches, Panel button controls

4.0 Terms and conditions

4.1 Quotations

- Vendor should submit the Storage system solution document describing various technical aspects like, integrated approach, Interface, operations & Performance with suggestion if any.
- Vendor is required to provide the slab-wise quotation with the quantity discount offered.
- The vendor is required to quote the latest system available in market meeting the specifications and supported by the parent company. Please do not quote systems/models that are declared “obsolete (end of life cycle)” or “not supported” by the parent company. In that case party should communicate to IPR & provide quote for alternate system whose specifications are close or better to the system asked.
- The vendor should quote for networking (crimped) cable in running length as an additional item. All systems are required to be connected with 100/1000 Mbps existing SST-1 LAN.
- The Vendor should provide all necessary upgrades/ modifications/ repairs / bugs/ fixes / patches for software modules and Operating System free of cost during the warranty period.
- On-Site (at IPR) Tests shall include testing of all equipments or the acceptance level of various parameters for system reliability, availability and maintainability. The Vendor shall broadly include/submit a comprehensive write up to cover the performance test as proposed to be conducted.
- The intent of the performance shall be to demonstrate that the system performs all the functions of hardware and software (as indicated in the Specification Sheet) correctly and reliably.

4.2 Delivery of systems

- Vendor is required to provide delivery schedule for the delivery of the items at Installation site.

4.3 Installation & Integration

- The Vendor is required to supply, install & integrate system as shown in system configuration diagram. Cables of necessary length, connectors are required to be provided as per the site requirements.
- Vendor is required to provide the installation site preparation requirements document in advance.
- Necessary media (papers, CDs & DVDs) cables & connectors to test the system should be provided by the vendor.
- All the systems are required to be connected through 100/1000 Mbps SST-1 LAN. Necessary network cables (preferred from standard brands & ready to use Gigabit enable) should be provided to connect all systems.

4.4 Testing of systems at Installation site

- Individual and integrated testing with all software and other systems and peripherals is required to be done by the vendor. The following parameters are required to be demonstrated:
 - a) Individual and integrated working of systems
 - b) Diagnostic software run and its acceptable results

- c) Performance & throughput testing
 - d) System to system data transfer through Network.
 - e) Computer systems to SAN and vice versa performance
 - f) Peripherals testing
 - g) Network load test
 - h) System load test
 - i) Environment test
 - j) System burn in (24 X 7 continuous in “ON” condition) test
- The Vendor is expected to cooperate and work in a team mode at installation site for the system interface & integrated test related aspects for integrating and testing systems which are supplied by other vendor also.

4.5 System Training

- Certified training is required to be organized at IPR or at vendor’s site. There should not be any extra cost to be added for suggested training. It should be part of or included in hardware & software quotation.
- Training should be in modules & include all hardware & software aspects of Storage solution (Storage Area Network) – Management, Operations & Maintenance.

Venue	: at IPR or vendor’s site
Duration	: 5 Days
Number of participants	: 10 (Batches for 5 persons preferred)
Training material	: To be provided in hardcopy. It should also include be good technical literature other than presentation slides printout, Extra reference technical literature etc.
Faculty	: Technical & experienced person, Certified faculty from Parent company (OEM). Presence of technical person from the parent company preferred.

- **Topics:**

1. Basic System Introduction
2. System Administration
3. System interface aspects
4. Configuration & tuning of system for better performance including RAID settings.
5. Hardware & Software Installation, configuration & Upgrades
6. System Operations & Trouble-shooting
7. Maintenance Operations – recommendations for safe operations
8. I/O, memory Performance improving measures
9. Running diagnostic software & analysis of results
10. Details on Bundled –add on packages.

4.6 Product license

- Product licenses of all the hardware and support software packages should be transferred in the name of end user.

4.7 Warranty

- On site comprehensive warranty on all the systems should be provided with the quotation. The warranty period is three years.
- The vendor has to provide the following information for the coordination during the installation & warranty period:
 1. Contact persons
 2. Coordinating / support office address
 3. Phone (land line and mobile) & FAX number & Email address of the support providing office and managerial and engineers.
- Warranty support offered by the parent OEM party should be informed to IPR with the document proof and party should not add any extra cost for the same. The local supplier should ensure a timely and proper warranty support from the parent company.

4.8 Acceptances

The acceptance of the equipment, software, hardware, instruments, services and items, pertaining to this contract shall take place according to the following stages:

1) Technical acceptance

The Supplier shall carry out the final inspection and testing of the equipment as per standard utilization procedures in his premises, before the dispatch of the concerned equipments.

2) Validation Tests for satisfactory functioning

- After the installation and the commissioning of systems, the vendor shall carry out in the presence of the IPR representatives, validation tests for satisfactory functioning and conformity tests for each of the sub-systems individually and for all the integrated batches. If these tests are evaluated as satisfactory by the representatives, these shall be approved by a jointly signed validation tests for satisfactory functioning report, shall be issued; this shall mark the beginning of the warranty period.
- Vendor should provide following during the installation and acceptance:
 1. Test plan and test cases document with the expected performance of the systems.
 2. Software licenses
 3. List (with identification code)of the CDs, DVDs, Cable, connectors, manuals, operating systems, bundled software etc.
 4. List of the hardware (CPU, Display monitor, Keyboard, Mouse, External drives etc) with identification code
 5. Demo / evaluation (30 day trial) copy of the system & performance test software.

- In case of inconclusive tests, due to major failures, the vendor shall correct them or develop replacement solutions within the next seven days, without altering in any way the performances of the initially planned systems.

3) Final acceptance

- Final acceptance of the equipment pertaining to this contract shall be declared jointly and in the presence of both the contracting parties.
- The equipment pertaining to this contract works appropriately during the warranty period which starts on the day of jointly signing the report of the validation tests for satisfactory functioning and that repairs if any, have been carried out successfully.
- All failures noted during provisional acceptance and validation tests for satisfactory functioning have to be rectified;
- The vendor should fulfill all contractual obligations as required on the date of final acceptance.