






Ministry of Culture  
Government of India

**National Council of Science Museums**  
**33 Block GN, Saltlake Sector V**  
**Bidhannagar, Kolkata 700 091**

**I-18012/7/23(204)**

**Technical Specification**

**1. Supply, Installation and Commissioning of NAS Server with attached 100TB Storage**

| Sr No          |                                     | Specifications   | Compliance (Yes/ No) | Remarks |
|----------------|-------------------------------------|--|----------------------|---------|
| <b>STORAGE</b> |                                     |  |                      |         |
| 1              | Controllers                         | System should be an unified storage to support both file and block without adding any additional hardware. The Block services should not be SAN emulated on File System. System should be configured with Dual controllers. There should be a single GUI for management of both file and block services. The controllers should be active- active.   |                      |         |
| 2              | Controller Operating System Support | The NAS operating system of the vendor should be based on Unix or Linux based operating system, incase if it is a modified Unix or Linux OS for should be a NAS operations optimized OS  |                      |         |
| 3              | Cache                               | The system should have a minimum of 128 GB of cache/ system memory across dual controllers. The cache should be persistent across all controllers offered. Data in the cache should be protected from unlimited period of power outage. Additionally, the same storage should be configured with 200GB SSD / Flash as extended Read and Write Cache across controllers. If extended cache is not able to do write caching, then equivalent capacity of memory (DRAM) should be provided for write caching. or better |                      |         |
| 4              | Disk Support                        | System should support drive type of SSD drives, 10K RPM SAS 12 Gb/s and SATA II 7200 RPM/Nearline SAS 7200 RPM drives.<br>Storage should be provided with File level retention and 256 Bit encryption (FIPS 140-2 compliant) to be offered from Day 1 and should work simultaneously on any file stored.   |                      |         |
| 5              | Protocols and Ports Support         | CIFS, NFS, FC, iSCSI (1 and 10 Gb) support required. The system is to be configured with 8 x 32 Gbps FC ports and 8 nos of 10Gbps iSCSI / IP ports.  |                      |         |
| 6              | Other Protocols Support             | The System should support SNMP, Address resolution protocol, Simple Network Time Protocol, LDAP, Network Lock Manager v4.  |                      |         |
| 7              | Software licenses                   | The system should be configured with licenses for FC and iSCSI. CIFS, NFS. Thin Provisioning, Virtualization integration software license should be provided for entire system.  |                      |         |
| 8              | Performance Monitoring Software     | Performance Monitoring and reporting software should be provided. This should provide details of performance like IOPs, utilization, response time and provide capacity details like amount of capacity allocated, capacity used and capacity free.  |                      |         |
| 9              | Snapshots                           | The system should be configured with Snapshot licenses, snapshot restore licenses for the entire systems capacity.   |                      |         |
| 10             | RAID Support                        | Should support RAID 10, 5 and 6. or better   |                      |         |

Dated

Official Seal

Signature of the Tenderer/Constituted Attorney

***Tender Name: Supply, Installation and Commissioning of NAS Server with attached 100TB Storage***

## Annexure F

|    |                      |  |  |  |
|----|----------------------|--|--|--|
| 11 | Management           | Support a browser based built in management. Should be able to support automated email to vendor support center for proactive maintenance. There should be a dedicated Ethernet port for management, and it should not use the iSCSI host ports for management.                |  |  |
| 12 | Storage space        | The bidder should configure Storage system with 100 TB usable capacity using any combination of the supported disk types or more   |  |  |
| 13 | Automated Tiering    | Storage array be configured with license automated tiering at Sub-LUN level across all the 3 tiers of storage, i.e., EFD, SAS and NL-SAS. It should support simultaneous movement of Sub-LUN data from NL- SAS to SAS to EFD and vice versa based on application I/O workload. |  |  |
| 14 | Replication          | Storage array should be configured with license for Replication.   |  |  |
| 15 | Warranty and Support | 3 Years Support with parts Replacement or more   |  |  |
| 16 | Dual Power supply    | The product should come with a redundant power supply with hot spare support for fail safe operation.  |  |  |
| 17 | Product Life         | OEM should continue supporting the product parts at least for next seven years.  |  |  |
| 18 | Remote Access        | The server should be remotely accessed through VPN . 10 VPN licence has to be provided for one years access  |  |  |

**Make & Model offered:** \_\_\_\_\_

**To be entered by bidder**

**Dated**

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