Pre-Bid Response for "SITC OF All FLASH UNIFIED STORAGE & SAN SWITCHES AT DATA RECOVERY CENTRE BURLA, ODISHA" against tender ENQ. No.- TPCODL/P&S/1000000287/2022-23				
Sr. No	**Parameters as per Bid Document**	**Description as per Bid Document**	**Remarks - Query / Clarification**	**Response from TPCODL**
1	SAN Storage	The all flash Storage system should be unified (Block and File), with minimum 150 TB SAS SSD usable capacity in RAID 5 (4+1). Bidders must include 1 Hot Spare drive for every 8 drives. It should contain at least 512 GB cache across controllers with at least 128 GB cache per controller pair. The proposed storage should fall under the category of All Flash storage system, hybrid storage system populated with SSD drives will not be considered as an All Flash Storage system.	The all flash Storage system should be unified (Block and File), with minimum 150 TB SAS SSD OR NVMe usable capacity in RAID 6 . Bidders must include 1 Hot Spare drive for every 24 drives. It should contain at least 1 TB cache across controllers. Dell will qualify with Power store 7000 /9000 as it can be configured with 1.5 TB cache. HP will qualify with Primer 670 as they can be configured with 1 TB cache.	Tender clause stands.However additional/ better features are acceptable.
2	Disk Type	Flash Drives – In range of 1.92 TB to 7.68 TB SAS SSD.	Flash OR NVMe Drives – In range of 1.92 TB to 15 TB SAS SSD.	This clause is to be read as follows. "*Flash OR NVMe Drives – In range of 1.92 TB to 15 TB SAS SSD*"
3	Host Interface	Storage should contain minimum 8 No. of FC 16 Gb/s ports and 4 No. of 1/10GbE ports per controller. Storage should have at least 2 ports of 12 Gbps SAS backend across controllers. Ports mentioned here is in addition to the ports required for NAS header connectivity.	Storage should contain minimum 8 No. of FC 32 Gb/s ports and 4 No. of 1/10GbE ports per controller . Storage should have at least 8 ports of 12 Gbps SAS backend across controllers. Ports mentioned here is in addition to the ports required for NAS header connectivity. Dell will qualify with 880F / 880 as they have 768 GB cache. HP will qualify with Primera 670.	This clause is to be read as follows. "*Storage should contain minimum 8 No. of FC 16 Gb/s ports or higher and 4 No. of 1/10GbE ports or higher per controller. Storage should have at least 2 ports of 12 Gbps SAS backend across controllers. Ports mentioned here is in addition to the ports required for NAS header connectivity*"

4	Compatibility	Storage to work & co-exist with existing Storage environment**(Hitachi G700 unified storage,** brocade switch 6520/G620, HP switches HP SN8000B etc.) Backup infrastructure(Commvault, Quantum i6 tape library, HPE ESL G3 738H.GS00800 Tape library, HP Data protector etc.).	Storage to work & co-exist with existing Storage environment. New Storage should be able to utilise the existing **Hitachi G700 unified storage . It should also be able to work with** brocade switch 6520/G620, HP switches HP SN8000B etc.) Backup infrastructure(Commvault, Quantum i6 tape library, HPE ESL G3 738H.GS00800 Tape library, HP Data protector etc.).	Tender clause stands.
5	Operating System Support	Storage system must support following guest operating system Windows Server 2008,2012,2016,2019 and 2022 Red hat Linux, IBM AIX, Solaris, SusE Linux and their latest versions	Operating system Windows Server 2008,2012,2016 not supported . Rest of OS are supported	This clause is to be read as follows. "*Storage system must support all major hardwares and following guest operating system Windows Server 2012, 2016, 2019 and 2022, Red hat Linux, IBM AIX, Solaris, SusE Linux and their latest versions*"
6	SAN Storage	The all flash Storage system should be unified (Block and File), with minimum 150 TB SAS SSD usable capacity in RAID 5 (4+1). Bidders must include 1 Hot Spare drive for every 8 drives. It should contain at least 512 GB cache across controllers with at least 128 GB cache per controller pair. The proposed storage should fall under the category of All Flash storage system, hybrid storage system populated with SSD drives will not be considered as an All Flash Storage system.	The all flash Storage system should be unified (Block ,object and File) with minimum 150 TB SAS SSD usable capacity in . RAID 6 or better. Bidders must include 1 Hot Spare drive for every 30 drives. It should contain at least 256 GB cache and minimum 40 cores of Intel xeon CPU cores across controllers with at least 128 GB cache per controller. and it should be scalable upto 1.5 TB in a scale out architecture. The proposed storage should fall under the category of All Flash storage system, hybrid storage system populated with SSD drives will not be considered as an All Flash Storage system.	Tender clause stands.However additional/ better features are acceptable.
7	Scalability	Storage should be scalable to minimum 3 times of its usable capacity in alignment with supplied specification including controllers.	Storage should be scalable to minimum 3 times of its usable capacity in alignment with supplied specification including controllers. Offered Storage system must support scale-out to minimum 8 controllers for all protocols asked	Tender clause stands.

8	IOPS Requirement	System to deliver 4,00,000 IOPS FE for 70:30 Read Write (Random Read 50%, Sequential Read 20%, Random Write 20%, and Sequential Write 10%) with 16 or 32 KB Block size. Response time to be less than 1 ms. OEM to submit relevant performance proof document along with the proposal. From Day 1 IOPS requirement is 100000 but system should be capable to deliver 400000 IOPS without adding additional controller.	System to deliver 4,00,000 IOPS FE for 70:30 Read Write (Random Read 50%, Sequential Read 20%, Random Write 20%, and Sequential Write 10%) with 16 or 32 KB Block size. Response time to be less than 1 ms. OEM to submit relevant performance proof document along with the proposal. From Day 1 IOPS requirement is 250000 but system should be capable to deliver 400000 IOPS without adding additional controller. 2.5 Lac IOPS are achievable with asked capacity and 256GB cache with scalability to 4 lac iops.	Tender clause stands.
9	RAID Type	RAID 5, RAID 6/RAID DP, RAID1.	RAID 6/RAID DP, or better	Tender clause stands.
10	Host Interface	Storage should contain minimum 8 No. of FC 16 Gb/s ports and 4 No. of 1/10GbE ports per controller. Storage should have at least 2 ports of 12 Gbps SAS backend across controllers. Ports mentioned here is in addition to the ports required for NAS header connectivity.	Storage should contain minimum 8 No. of FC 32 Gb/s ports and 4 No. of 25 GbE ports per controller. Storage should have at least 2 ports of 12 Gbps SAS backend across controllers, offered controller must support expansion with NVMe drive enclosures as well.	This clause is to be read as follows. "*Storage should contain minimum 8 No. of FC 16 Gb/s ports or higher and 4 No. of 1/10GbE ports or higher per controller. Storage should have at least 2 ports of 12 Gbps SAS backend across controllers. Ports mentioned here is in addition to the ports required for NAS header connectivity*"
11	Compatibility	Storage to work & co-exist with existing Storage environment(Hitachi G700 unified storage, brocade switch 6520/G620, HP switches HP SN8000B etc.) Backup infrastructure(Commvault, Quantum i6 tape library, HPE ESL G3 738H.GS00800 Tape library, HP Data protector etc.).	Storage to work & co-exist with existing Storage environment(Hitachi G700 unified storage, brocade switch 6520/G620, HP switches HP SN8000B etc.) Backup infrastructure(Commvault, Quantum i6 tape library, HPE ESL G3 738H.GS00800 Tape library, HP Data protector etc.).	Tender clause stands.

12	Local & Remote Data Replication	The storage must support local PIT protection mechanism. Should support seamless DC-DR remote hardware based (host independent,) data replication(both block and file level) to a remote site and bidirectional data copy without any third party software. License for Local & remote replication capabilities to be included with solution. Volume of any type/ size should be replicated.	The storage must support local PIT protection mechanism. Should support seamless synchronous and asynchronous DC-DR remote hardware based (host independent,) data replication(both block and file level) to a remote site and bidirectional data copy without any third party software. License for Local & remote replication capabilities to be included with solution. Volume of any type/ size should be replicated.	This clause is to be read as follows. "*The storage must support local PIT protection mechanism. Should support seamless synchronous and asynchronous DC-DR remote hardware based (host independent,) data replication(both block and file level) to a remote site and bidirectional data copy without any third party software. License for Local & remote replication capabilities to be included with solution. Volume of any type/ size should be replicated*"
13	Security	The Storage array must provide multiple levels of access control including role-based security and auditing capability. Storage should support Integration with third- party anti-virus software. License if any for listed features should be configured for entire supported capacity of the array. The proposed storage array should integrate with iNMS tools such as Microfocus, CA,IBM and other NMS Software.	The Storage array must provide multiple levels of access control including role-based security and auditing capability. Storage should support Integration with third- party anti-virus software. License if any for listed features should be configured for entire supported capacity of the array.	Tender clause stands and the specified features must be available without any additional cost to TPCODL.
14	Encryption	The proposed array must provide Data at Rest Encryption on all drives from Day1	The proposed array must provide Data at Rest as well as data in flight Encryption on all drives and from Day1	Tender clause stands and additional functionalities are welcome.
15	Architecture	The proposed array should be a unified storage supporting block, file services. In case additional hardware is proposed for NAS functionality then it should be provided in redundancy and with 64GB memory per NAS header. Each NAS header should have 12 Gbps SAS or 16 Gbps FC backend connectivity with block storage.	The proposed array should be a unified storage supporting block, file and object services.The Storage supplied should be an appliance with a Single Microcode offering all protocols and should not be based on server based General Purpose Filesystems or Operating systems such as Linux, Windows etc.	Tender clause stands and additional functionalities are welcome.

16	Cloud based management (Optional Feature)	Storage OEM shall provide software-as-a-service cloud management dashboard that provides Basic performance characteristics like IOPS, Throughput, configuration related analytics and Storage health reporting for trending analysis.	Storage OEM shall provide software-as-a-service cloud management dashboard that provides Basic performance characteristics like IOPS, Throughput, configuration related analytics and Storage health reporting for trending analysis.Offered Storage OS must be available in minimum 3 Meity Compliant clouds for setting up DR to Cloud as desired. It must also support backup to cloud storage natively without using addon software.	Tender clause stands and additional functionalities are welcome.