

Bid Number: GEM/2021/B/1627350 Dated: 27-10-2021 - Purchase of All Flash NVMe for GSDC

#	Clause/Page no.	Existing Clause/Specification	Clarification sought with Justification	Final Clarifications
1.	2. specifications	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed array should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header/ gateway/ appliance. NAS header should be in HA mode, subject to non-interruption of services	<p>1. IBM Storage Supports Active-Active Controllers with scale-up and scale-out architecture.</p> <p>2. However, we do not recommend File protocols (NFS/CIFS) being processed by same controllers to ensure Block workload performance is not compromised.</p> <p>3. Since this requirement is predominantly for SAN storage, requesting you to remove this clause so that vendors with only block storage product can participate.</p>	See the corrigendum.
2.	5. specifications	The solution should be provided with minimum of 4 controllers. Expandable upto at least 12 controller.	<p>1. IBM Storages can be scaled upto 8 Active - Active controllers with significant performance scalability.</p> <p>2. These enterprise class storages are capable of giving you the required performance.</p> <p>3. Requesting you to normalize the scalability of controllers to 8, would allow multiple vendors to bid for this RFP.</p>	See the corrigendum.
3.	6. specifications	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure.	<p>1. IBM Storage's cache algorithm has industries smallest 4KB cache page size which helps to manage cache in most optimised and efficient way with very less block waste. This essentially mean, IBM Storage shall need lowest cache to perform the required performance and therefore our systems are built with optimized cache hardware and overall cost savings.</p> <p>2. Every Storage OEM has proprietary caching algorithms and hence their implementation differs. Our Caching algorithm is called Federated which essentially only mirrors the write data to controller pair and do not mirror the write to other controllers to avoid delay in IO acknowledgement due to increased mirroring and metadata management.</p> <p>3. This is an architectural decision and running across thousands of customers from last 20+ years.</p>	See the corrigendum.

			4. Kindly remove the point "Cache should be available to all LUNs /Devices across all controllers as a single unit."	
4.	7. specifications	Storage array cache shall be globally shared and mirrored across controllers that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures)	<p>1. Every Storage OEM has proprietary caching algorithms and hence their implementation differs. Our Caching algorithm is called Federated which essentially only mirrors the write data to controller pair and do not mirror the write to other controllers to avoid delay in IO acknowledgement (latency) due to increased mirroring and metadata management.</p> <p>2. This is an architectural decision and running across thousands of customers from last 20+ years.</p> <p>3. Kindly remove this "Globally shared and mirrored across controllers that are in different controller pairs, and not just across controllers within the same pair at all times" point to allow "Federated Caching" algorithms as well.</p>	See the corrigendum.
5.	23. specifications	Solution should provide a Web and Mobile App based interface of Management software with Dashboard	1. IBM FlashSystem Storages has web based GUI though desktop or mobile browser. This provides safe and secure sessions to manage storage with built in security for various administration roles. 2. Enterprise systems are secured by zero trust method and we do not recommend using mobile app to manage them. 3. This feature is promoted by very few vendor and not essential. Requesting you to remove this point "Mobile App based interface"	See the corrigendum.
6.	2	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance.	<p>Solution should symmetric / asymmetric active-active multi-controller scale-up and scale-out architecture. The proposed array should support Block, File (NFS, NFS4.1, CIFS/SMB3) data services natively/ or with add-on NAS header / gateway / appliance running specialized OS & File system owned by storage OEM for development & bug fixes.</p> <p>We understand that GIL is considering to procure the best (performance and price) storage product across all available products for which a below technical features are considered - (1) - Storage controllers should actively take part in performance and capacity, (2) Storage controllers should have resiliency to tolerate the failure of one or more controllers. Proposed technologies from NetApp can meet the performance, capacity, resiliency as asked in RFP. If NAS header / gateway is offered the general purpose OS & File systems should not be offered as general purpose OS & File systems are not meant for storage resiliency performance and their bug fixes and development are not in control of storage OEM.</p>	See the corrigendum.

7.		The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc.	The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, etc. We understand that GIL wishes to have solution with NoSPOF and NetApp offers the solution with noSPOF, Backplane is passive components and does not lead to failure.	See the corrigendum.
8.	3	The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 micro second latency. It should also support SCM (Storage Class Memory)	The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 micro second latency. NetApp will be able to offer the performance alongwith reliability, availability & serviceability on the offered technologies as envisaged in this RFP. SCM are not widely accepted by major storage OEMs and customers due to its limited availability by one specific Principal OEM. NetApp will be able to offer the performance along with reliability, availability & serviceability on the offered technologies as envisaged in this RFP. SCM are not widely accepted by major storage OEMs and customers due to its limited availability by one specific Principal OEM.	No change. As per bid
9.	6	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure.	Each storage Controller should be supplied with min 512 GB Cache and and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all/ owner controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache/ write cache protection to prevent data in the event of power failure. As per RFP each controller is asked with 512 GB memory and total of 4 controllers are asked, which makes to 2 TB of memory. cache with write IO protection should be asked for data integrity protection mechanism. Netapp offers write cache protection with NVRAM technology which not only protects write cache data but also optimizes the memory used for user data by offering nore cache availability. The existing clause is limiting factor and allows only one technology/type of OEM to participate, we request GIL to consider the functional requirement which is write IO protection.	See the corrigendum.
10.	7	Storage array cache shall be globally shared and mirrored across controllers that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures)	Storage array cache shall be globally shared / federated and mirrored across controllers/ write cache protection across controller HA pair that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures) We understand that GIL is considering to procure the best (performance and price) storage product across all available products for which abelow technical features are	No change. As per bid See the corrigendum

			considered - (1) - Storage controllers should actively take part in performance and capacity, (2) Storage controllers should have resiliency to tolerate the failure of one or more controllers. Proposed technologies from NetApp can meet the performance, capacity, resiliency as asked in RFP. We request GIL to consider the functional requirement which is resiliency & performance.	
11.	8	Disk Drives - Dual ported NvME SSD drive, if compatible with SAS and NL-SAS , it is preferable.	Disk Drives - Dual ported NvME SSD drive, if compatible with SAS and NL-SAS , it is preferable. All OEM have separate product series for all Flash & hybrid.	See the corrigendum.
12.	10	Raid Level - 5/6 or equivalent Group of Raid may limited to 10	We request to remove this clause GIL is looking for storage which should meet the performance, capacity, scalability & resiliency as envisaged in RFP. We suggest to allow OEMs to follow their best practices to meet the desired performance , capacity, resiliency & scalability. We request GIL to consider the functional requirement.	No change. As per bid
13.	18	Number of Volume / LUN Supported for Remote Replications - 6000	Number of Volume / LUN Supported for Remote Replications - 2000 With the latest technologies the LUN of as big as 100 TB can be carved out which allows the less qty of LUNs for replication. Earlier the LUNs use to be of smaller size so large qty of LUNs were required for replication. So we suggest to reduce it to 2000. Also 6000 LUNs for replication support may favor a particular OEM.	No change. As per bid
14.	20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware/software assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required. We understand that GIL is looking for de duplication functionality without having performance impact, NetApp supports de duplication with no performance impact. We request GIL to consider functional requirement which is de duplication with no performance impact and kindly allow all technologies available to achieve same functionality. The existing clause is limiting factor.	No change. As per bid
15.	24	Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to T10-DIF (Data Integrity Field) standards.	Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to NVME Data Integrity standards / equivalent. Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives be protected with NVME Data Integrity standards / equivalent T10 is SCSI standard not applicable on NVME. We suggest to	See the corrigendum.

		Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives be protected with T10-DIF.	change this to NVME data integrity protection or equivalent mechanism ensuring that there is no silent data corruption for storage. This clause is limiting factor and does not allow many OEM even if they are able to offer required functionality, we request GIL to consider functional requirement.	
16.	27	Data migration from existing storage to new storage	1. According to RFP, 5 storage details are mentioned. So do we need to migrate all data to new proposed storage?	Details will be shared with successful bidder.
			2. Total space consumption is 2473 TB which is near about 2.2 PB. So how much data we need to migrate and also what is the total migration capacity ?	Details will be shared with successful bidder.
			3. What all protocols are used in existing storage (CIFS, NFS etc and use cases i.e. list of application mapped with storage LUNs).	Details will be shared with successful bidder.
			4. Kindly Share network connectivity details of each storage (DELL, HP etc)	Details will be shared with successful bidder.
			5. Network connectivity details of SAN switch and also make and model no, please	Details will be shared with successful bidder.
			6. Please provide Data categories (File server data, App and DB data etc) for each storage.	Details will be shared with successful bidder.
			7. Whether existing storages are under warranty? And also under support contract?	Details will be shared with successful bidder.
17.	Page-2/9. Point 5	The supplied solution should be compatible with Object storage i.e. solution should support NAS, SAN, Object storage support S3 for private/public cloud.	<p>"The supplied storage should co-exist with Object storage i.e. GSDC applications should be able to access NAS, SAN, Object storage support S3 for private/public cloud concurrently".</p> <p>Understand GIL is looking to procure Object Storage in the coming future and needs confirmation that applications can use asked enterprise storage with upcoming object storage concurrently. For clarity consider rewording this clause as requested.</p>	See the corrigendum.

18.	Page-4/9. Point 3.	Latest dual ported native NVMe Flash drives, for 100 micro second latency.	Latest dual ported native NVMe Flash drives, for 1 ms or lower latency. Since frontend service time is what matters, so instead of drive latency, GIL should look for Sub-ms Latency for production hosts accessing all-NVMe storage.	At the time of FAT, the same may be demonstrated with overall storage system with multiple disks sustaining latency under 1 ms
19.	Page-4/9. Point 8.	Disk Drives - Dual ported NVMe SSD drive, if compatible with SAS and NL-SAS, it is preferable.	Disk Drives - Dual ported NVMe SSD & SCM drives. As we understand that GIL is looking for end to end NVMe storage as stated in the scope of work. Hence SAS and NL-SAS should be removed and instead compatibility for SCM drives must be asked for.	See the corrigendum.
20.	Page-4/9. Point 6.	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 6 TB , which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure We request GIL to consider the amendment requested, as we understand current deployed Enterprise storage is with 4TB cache with 600TB capacity delivering the performance as defined by GIL. With 1PB usable capacity it will ensure that balanced architecture is proposed not only to deliver current performance ask but also perform linearly with scale of capacity in future.	See the corrigendum. No change, as per bid
21.	Page-4/9. Point 11.	Min. Hot spare drive - 10 disk	The storage must be offered with Hot spare disks as per best practices 1 Drive per 30 capacity drive. Enterprise NVMe Drives come with best in class endurance from failures, ideally we do not foresee any drive failures within 5 year period therefore recommend GIL to look for 1 spare for every 30 data drives which will provide adequate protection without unnecessary cost escalation.	No change. As per bid
22.	Page-4/9. Point 18.	Number of Volume / LUN Supported for Remote Replications - 6000	Number of Volume/LUN & vVols Supported for Remote Replications - 60000 Current RFP is missing on latest vVol capability available in Vmware environments	No change. As per bid

			which allow volume allocation for individual VMs, that helps simplifying storage admin tasks with granularity of VM. So GIL must ask compatibility with vVols and also must look to increase volume count to 60k as 6000 looks small from GIL's scale.	
23.	Page-4/9. Point 19.	Solution should support 3 Site replication and for zero data loss required licenses should be supply.	Solution should support 3 Site replication and for zero data loss required licenses should be supply. IT must support :A) 3-DC Zero Data Loss License must be included B) Support for Three Site Replication Topology (A-B-C).C) Support for Three Site Replication Topology (A-B and A-C)D) Seamless Change of Replication Topology from (A-B-C) to (A-B and A-C) and Vice VersaThe current clause is not fully elaborating on 3 DC Zero data loss replication , therefore we suggest GIL to consider the add on capabilities as per GeM TP (Technical Parameters) for Enterprise storage. These capabilities will enable GIL to have seamless implementation of 3DC Zero data loss across sites.	No change. As per bid
24.	Page-4/9. Point 14.	Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site	We request GIL to confirm that 32Gbps SAN Switch ports will be provided by GIL for storage connectivity Since DR site has not been asked, should we provision the ports now!!	Should be provisioned from day 1

25.	Page-4/9. Point No. 23	<p>Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of:</p> <ol style="list-style-type: none"> 1. A single command console for entire storage system. 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarter 	<p>Solution should provide a Web and Mobile App based interface of Management software with minimum features of:</p> <ol style="list-style-type: none"> 1. A single command console for entire storage system for All SAN and NAS management. 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarter <p>Refer to Point No. 2 where NAS protocols are being asked in addition SAN, we request GIL to elaborate the requirement of single management for all capabilities.</p>	See the corrigendum.
26.	Page-4/9. Point No. 10	Raid Level - 5/6 or equivalent Group of Raid may limited to 10	<p>Raid Level - 5/6 Industry standard RAID levels and Group of Raid may limited to 8 disk group maximum.</p> <p>We request GIL to implement Industry standard RAID levels as, OR equivalent proprietary implementation may not result into required throughput performance as desired by GIL, Also limiting the disk groups to 8 would ensure optimal performance of the array while delivering the required capacity and throughput numbers asked.</p>	No change. As per bid

27.	Page-4/9. Point No. 11	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance.NAS header should be in HA mode, subject to non-interruption of services	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance from Day 1 .NAS header should be in HA mode, subject to non-interruption of servicesWe request GIL to ask for the NAS functionality implementation from day 1. AS this will ensure fully functional and integrated solution is proposed from Day 1. This will help optimize the CAPEX and OPEX of GIL.	No change. As per bid
28.	Page-1/9. Point 3	The OEM of the proposed product should have a total sum of turnover of Rs. 100 Crore (Minimum) in the last three financial years as on 31st March 2021.	The OEM of the proposed product should have a total sum of turnover of Rs. 500 Crore (Minimum) in the last three financial years as on 31st March 2021.	No change. As per bid
29.	Page-1/9. Point 5	The bidder should be authorized by its OEM to quote this bid for the authenticity, authorized representation and after sales support. The bidder should have a back-to-back support agreement/arrangement for services including supply of spare parts with providing Next Business Day (NBD) support etc. with the Original Equipment Manufacturer (OEMs).	The bidder should be authorized by its OEM to quote this bid for the authenticity, authorized representation and after sales support. The bidder should have a back-to-back support agreement/arrangement for services including supply of spare parts with providing Same Day (24 X 7 - 365 days for 5 years) support etc. with the Original Equipment Manufacturer (OEMs). Request you to please clarify on the support required.	See the corrigendum
30.	Page 4/8. Delivery Days	As per the GEM Bid document the delivery period mentioned is 90 days	Request GIL to please consider amending it to 120 days. Due to global semiconductor & other critical components shortage/delay we request GIL to please consider amending the delivery period to 120 days.	See the corrigendum
31.	1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	-	-

32.	2	Solution should be symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance.	The solution is asked for a multi-controller scale up and scale out architecture, we request to specify the scalability of performance and capacity required and relax the scale up and scale out functionality adding no downtime or reboot to be allowed. We request to change the clause as: Solution should be symmetric active-active and scale-up or scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance.	No change. As per bid.
33.		NAS header should be in HA mode, subject to non-interruption of services	-	-
34.	3	The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc.		-
35.		Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).		-
36.		The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 microsecond latency. It should also support SCM (Storage Class Memory)	The system is asked with end-to-end NVMe architecture, we understand the backend connectivity is also NVMe, please confirm	No change. As per bid.
37.	4	Usable Capacity - 1 PB each (without considering de-dup, compression)		-

38.	5	The solution should be provided with a minimum of 4 controllers. Expandable up to at least 12 controllers. The controller should function such that the entire load of the solution is spread across all the controllers. However, in case of failure of any controller(s), the remaining working controller(s) should be able to cater to the entire load of the solution and should not lead to decrease in Read and write performance.	<p>Since the performance requirement is already defined, we request to remove the minimum controller ask and the expandability. as it is making the specification proprietary for a vendor.</p> <p>We request to change the clause as: The solution should be provided with a minimum of 2 controllers. The controller should function such that the entire load of the solution is spread across all the controllers. However, in case of failure of any controller(s), the remaining working controller(s) should be able to cater to the entire load of the solution and should not lead to decrease in Read and write performance.</p>	No change. As per bid.
39.	6	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable up to 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk, to prevent data in the event of power failure.	<p>The cache requirement specified is High and in modern higher architecture higher cache is not required to deliver performance. This can be clearly seen with the latest NVMe based products offering available with all leading vendors.</p> <p>We request to change the clause as: Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 1.3 TB. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk, to prevent data in the event of power failure.</p>	See the corrigendum.
40.	7	Storage array cache shall be globally shared and mirrored across controllers that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures)	We request to change the clause as: Storage array cache shall be globally shared and mirrored across controllers.	No change. As per bid.
41.	8	Disk Drives - Dual ported NVMe SSD drive, if compatible with SAS and NL-SAS, it is preferable.		
42.	9	Each drive Capacity - Max 15.36 TB	As the department wishes to get the space, reliability and sustained performance size of the disk does not make a difference, we request to specify the minimum size	No change. As per bid.

			acceptable.	
43.			We request to change the clause as: Each drive capacity: Minimum 3.8 TB drives The storage supplier needs to be OEM for disk as it forms the major portion of the requirement, please clarify	No change. As per bid.
44.	10	Raid Level - 5/6 or equivalent Group of Raid may limited to 10	we understand the uptime required is 99.9999% , request to specify as raid 6 or equivalent without limiting the size.We request to change the clause as: Raid Level - 6 or equivalent Group of Raid should support a minimum of 10 SSD with option to expand up to 20 drives.	No change. As per bid.
45.	11	Min. Hot spare drive - 10 disk	Hot spare asked is 10, we request to change this as applicable to storage design. Min. Hot spare drive - 10 disk or as applicable to storage design and to support protection in event of 2 drive failure at a time	No change. As per bid.
46.	12	Speed of Dual Ported Disk Drive - - PCI Gen3 NVMe or higher	latest generation Drives are PCI Gen 4, request to change this to the latest generation We request to change the clause as: Speed of Dual Ported Disk Drive - - PCI Gen4 NVMe or higher	No change. As per bid.
47.	13	IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size, Read/Write ratio of 70:30) > 6,00,000 Random r/w	Please clarify if the block size is fixed as 8K or there are workloads with higher block size	No change. As per bid.
48.	14	Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site	The number of ports asked is High Favouing a few vendors trying to propose monolithic architecture hardware's. We request to change the clause as: Front end port - FC port - 20 x 32 Gbps speed, iSCSI port - 8 x 10 gbps speed and should also support 4 number of 10 Gb ports capable of remote replication to DR site	No change. As per bid.
49.	15	Type of backend port - PCI Gen3 NVMe or higher	latest generation Drives are PCI Gen 4, request to change this to the latest generation Type of backend port - PCI Gen4 NVMe or higher	No change. As per bid.
50.	16	Remote Replication Ethernet ports - 08 ports 10/25 G		

51.	17	No. of snapshot per volume - Min 200 , performance for solution should not be impacted during snapshot process.		
52.	18	Number of Volume / LUN Supported for Remote Replications - 6000		
53.	19	Solution should support 3 Site replication and for zero data loss required licenses should be supply		
54.		Solution should have De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact.	we understand the requirement of the performance i.e., IOPS with Latency is with dedupe and compression ON. Please clarify	No change. As per bid.
55.	20	It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	we understand the requirement of the performance i.e., IOPS with Latency is with all features On, please clarify Data reduction functionality should be automated without the need for manual turn on/off and with no impact to performance of the applications / workloads	No change. As per bid.
56.	21	Solution should having RESTful API for integration with third party tool & management		
57.	22	Solution should support all existing versions of all Operating Systems. Defective HDD will not be given back to OEM/SI.		
58.		Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of:		
59.		1. A single command console for the entire storage system.		
60.		2. The Solution should allow role-based access for auditing, monitoring and other general operations and		

		administration capabilities through GUI/CLI		
61.		3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log,		
62.		4. Should generate Alert, Notification		
63.	23	5. Reports – Scheduled or Manual		
64.		6. Historical logs of storage performance utilization for at least one quarter	Log analysis for a quarter is too small, we request it to be available for at least a year. 6. Historical logs of storage performance utilization for at least one Year	No change. As per bid.
65.	24	Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to T10-DIF (Data Integrity Field) standards. Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives be protected with T10-DIF.	This is a specific term of an OEM, requesting removal of T10-DIF or equivalent may be specified. The system does not ask for Ransomware attack data protection. Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to T10-DIF (Data Integrity Field) standards. Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives can be protected with T10-DIF or equivalent. The data should be available on the system in case of Ransomware attack.	See the corrigendum.
66.	25	The proposed solution should also support creation of secure snapshots/volume to protect against		

		intentional or accidental deletion. It should be possible to define a retention period for such snapshots during creation. It should be possible to automatically delete such snapshots, but only on expiry of the retention period.		
67.	26	Application aware snapshot - Oracle, SAP etc	Request to share the complete application and data details	It will be shared with successful bidder.
68.	27	Data Migration from Existing Storage to new Storage	Request to define the scope	Further details will be shared with successful bidder.
69.	28	After FAT, Bidder has to handover storage solution to existing Data Centre Operator for O&M		
70.	26	Application aware snapshot - Oracle, SAP etc	<p>We need clarity on whether the requirement mentioned means that:- <u>"the proposed Storage should support Application aware snapshot for Oracle, SAP OR the proposed Storage should be offered with Application aware snapshot licenses for Applications like Oracle, SAP"</u>.</p> <p>If customer needs required Application aware snapshot licenses to be also part of the proposed Storage BoQ, then we request customer to please specify the net usable capacity in GB/TB which is been used for hosting such Applications and envisaged for usage in future and also help us by giving the list of such Applications for which Application aware snapshot is required including the details of Operating System versions being used by these Applications.</p> <p>Application aware snapshot is supported in all multi-controller Enterprise Storage solutions but the feature requires capacity based license to be configured in the BoQ to enable and use this feature. It's critical that customer specifies the list of such Applications including their respective Operating System versions and total capacity of such Applications used and envisaged to be used in 5years horizon so that all Storage OEM's size the equal capacity as required by customer and all OEM's are on level playing field.</p>	See the corrigendum.

71.		Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of:	<p>We request you to kindly allow for Mobile App / browser interface for Mobile users logging remotely for Storage Management.</p> <p>Request the clause to be modified as mentioned below for wider participation:</p> <p>Solution should provide a Web and Mobile App / browser based interface of Management software with Dashboard with minimum features of:</p> <p>Mobile devices have built in web browsers.</p> <p>With sufficient access control and privileges browser can be used to manage the storage remotely.</p> <p>However, for security reasons, we do not recommend enabling Mobile based remote access to storage.</p>	See the corrigendum.
72.	Point#13	IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size, Read/Write ratio of 70:30) > 6,00,000 Random r/w	<p>Please confirm if the required IOPS of 6,00.000 shall be delivered while all the data services also ON?</p> <p>As GSDC is looking for various data service capabilities like snapshots, replication, encryption, deduplication and compression. This will help ensure proper size the SAN array for both performance and capacity.</p>	No change. As per bid.
73.	Point#14	Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site	<p>Please amend as below:</p> <p>Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed, 12 X 10 GbE ports for NAS and should also support 8 number of 10 Gb ports capable of remote replication to DR site</p> <p>As per point#2, GSDC is looking for unified storage with capabilities of SAN and NAS. But no front-end ports for NAS has been asked in the specifications.</p>	No change. As per bid.
74.	point#20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data	<p>Please amend the clause as below:</p> <p>"Solution should having De-Duplication Data Reduction functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact on either compression or de-duplication or both. It should be possible to enable or disable data</p>	No change. As per bid

		reduction functionality on volumes for specific applications or group of volumes as and when required.	reduction functionality on volumes for specific applications or group of volumes as and when required. As per the clause storage shall have min 2.5x data reduction with deduplication. Majority of storage OEMs offers Data reduction as combination of deduplication and compression, and also data reduction is not applicable for pre-compressed & pre-encrypted data. Therefore requesting to change the clause by adding compression or replacing deduplication with data reduction. Further, modern NVMe based all slash storage systems can deliver more than 3.5 x data reduction	
75.	point#23	Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of: 1. A single command console for entire storage system. add command/gui 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log,	Please amend clause as below: "Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of: 1. A single command console for entire storage system. add command/gui 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarter" a) Kindly remove the requirement for Mobile App based interface as it is not offered by all storage OEMs. Therefore requesting to remove the requirement of Mobile App based interface for management software. b) Requesting to remove "A Single command console for entire storage system". As department required NAS functionality, We will be offering NAS gateways, which will be having different command console than SAN storage because	See the corrigendum

		<p>4. Should generate Alert, Notification</p> <p>5. Reports – Scheduled or Manual</p> <p>6. Historical logs of storage performance utilization for at least one quarter</p>	<p>1. Asking for both SAN and NAS Functionality into one systems divide the resources for these workloads resulting in resource contention which slows the performance and functioning by restricting users to fully benefit from both SAN and NAS functionalities</p> <p>2. Industry standards clearly states that the unstructured data to be separately tackled and not to be part of the production data. it not only disturbs the critical resources needed for the production but also hampers - back up window with stringent RTO/ RPO.</p> <p>Therefore, requesting to remove the requirement of single command console.</p>	
76.	Point#27	Data Migration from Existing Storage to new Storage	<p>Please confirm if the Data Migration from old storage to new storage should be non-disruptive i.e. using storage virtualisation or any other compatible technology, etc. (native/external)</p> <p>We believe Data migration should be supported with Minimum outage or impact on server performance.</p>	Storage migration should be non-disruptive.
77.	Point#27	Data Migration from Existing Storage to new Storage	<p>Kindly provide the details for factoring the efforts for data migrations as below,</p> <p>a) Total capacity to be migrated</p> <p>b) Source storage</p> <p>c) Number of hosts with details of OS, virtualization if any.</p>	details will be shared with successful bidder.
78.	Scope of Work, Point#5	The supplied solution should be compatible with Object storage i.e. solution should support NAS, SAN, Object storage support S3 for private/public cloud.	Please confirm if this is a support required or these functionalities needs to be configured from Day 1	See the corrigendum
79.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license	Please confirm if 1PB capacity will be used for SAN workloads only and/ or how much NAS capacity is required	See the corrigendum

		required and installation of storage at GSDC.		
80.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm the existing network infrastructure available and connectivity required. This is to configure OEM Rack and/ or cables, etc.	No change. As per bid.
81.	point#2	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc. Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).	Please amend clause as below: "Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc. Offered storage shall be true enterprise class and there should not be any data loss. Vendor shall design their solution accordingly and shall provide the written undertaking at bid submission Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions). All IT applications for Gujarat state will store their critical and important data on this enterprise class storage so it is important that there isn't any data loss and it should be backed by guarantee from Vendor	See the corrigendum
82.	point#13	IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size,	Please confirm if the required IOPS of 6,00,000 shall be delivered while all the data services also ON?	No change. As per bid

		Read/Write ratio of 70:30) > 6,00,000 Random r/w	As GSDC is looking for various data service capabilities like snapshots, replication, encryption, deduplication and compression. This will help ensure proper size the SAN array for both performance and capacity.	
83.	point#20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	Please confirm if storage OEM shall support the require 2.5x data reduction to provide 2.5 PB of effective capacity using the supplied Storage hardware. This will help Gujrat SDC that proposed storage hardware shall be able to provide the required effective capacity so that Gujarat SDC can use the benefits of data reduction features with the required effective capacity without any limitation.	No change. As per bid
84.	point#27	Data Migration from Existing Storage to new Storage	Please confirm if the Data Migration from old storage to new storage should be non-disruptive i.e. using storage virtualisation or any other compatible technology, etc. (native/external) We believe Data migration should be supported with Minimum outage or impact on server performance.	
85.	point#27	Data Migration from Existing Storage to new Storage	Kindly provide the details for factoring the efforts for data migrations as below, a) Total capacity to be migrated b) Source storage c) Number of hosts with details of OS, virtualization if any.	details will be shared with successful bidder.
86.	Scope of Work, Point#6	The Bidder shall configure the proposed solution in such a way that it should comply with all the policies of the Gujarat State Data Centre.	we request you to kindly share the policies of the Gujarat State Data Centre.	details will be shared with successful bidder.
87.	SOW Document Pg 6	Implementation timeline and penalties	Document specifying penalties based on storage boxes/arrays, which gives an impression that there are multiple arrays. This needs to change in terms of wording as it is clear that the shipment would happen at one-go. Kindly clarify.	Implementation Timelines & Penalties has been clearly defined milestone wise. No changes to be made.

88.	point#20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	<p>Please amend the clause as below:</p> <p>"Solution should having De-Duplication Data Reduction functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact on either compression or de-duplication or both. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.</p> <p>As per the clause storage shall have min 2.5x data reduction with deduplication. Majority of storage OEMs offers Data reduction as combination of deduplication and compression, and also data reduction is not applicable for pre-compressed & pre-encrypted data.</p> <p>Therefore requesting to change the clause by adding compression or replacing de-duplication with data reduction. Further, modern NVMe based all slash storage systems can deliver more than 3.5 x data reduction</p>	No change. As per bid
89.	point#27	Data Migration from Existing Storage to new Storage	<p>Kindly provide the details for factoring the efforts for data migrations as below,</p> <p>a) Total capacity to be migrated</p> <p>b) Source storage</p> <p>c) Number of hosts with details of OS, virtualization if any.</p>	details will be shared with successful bidder.
90.	SOW document Point # 6	The Bidder shall configure the proposed solution in such a way that it should comply with all the policies of the Gujarat State Data Centre	Require Policies details of Gujarat State Data Center	details will be shared with successful bidder.
91.	SOW document Warranty Section Point # 1.4	Bidder shall provide the performance warranty in respect of performance of the installed hardware and software to meet the performance requirements and service levels in the bid.	Kindly share Performance requirement details document	details will be shared with successful bidder.

92.	SOW document Warranty Section Point # 1.5	Bidder is responsible for sizing and procuring the necessary hardware and software licenses as per the performance requirements provided in the bid. During the warranty period bidder, shall replace or augment or procure higher-level new equipment or additional licenses at no additional cost in case the procured hardware or software is not adequate to meet the service levels	Kindly share Sizing and Performance requirement document	details will be shared with successful bidder.
93.	SOW Document Warranty Support Point # 1.9	Warranty should not become void, if DST/GIL buys, any other supplemental hardware from a third party and installs it within these machines under intimation to the bidder. However, the warranty will not apply to such supplemental hardware items installed.	Pls clarify this point	No change. As per bid
94.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Kindly confirm whether we need to provide rack.	Yes. The bidder is required to provide separate storage of usable capacity of 1 PB along with necessary rack, iPDU, other related accessories, software & license required and installation of storage at GSDC

95.	Scope of Work, Point#5	The supplied solution should be compatible with Object storage i.e. solution should support NAS, SAN, Object storage support S3 for private/public cloud.	Please confirm if this is a support required or these functionalities needs to be configured from Day 1	See the corrigendum.
96.	PRICE BID SCHEDULE:		Please confirm if bidder should submit cost in terms of monthly/ quarterly payments There is an Opex model of purchase available, where total cost would be charged on a monthly/ quarterly basis instead of upfront payment. Hence, the query	See the corrigendum.
97.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm if 1PB capacity will be used for SAN workloads only and/ or how much NAS capacity is required	See the corrigendum.
98.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm the existing network infrastructure available and connectivity required This is to configure OEM Rack and/ or cables, etc.	No change. As per bid
99.	point#2	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No	Please amend clause as below: "Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc. Offered storage shall be true enterprise class and there should not be any data loss. Vendor shall design their solution accordingly and shall provide the written	See the corrigendum.

		<p>Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc.</p> <p>Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).</p>	<p>undertaking at bid submission</p> <p>Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).</p> <p>All IT applications for Gujarat state will store their critical and important data on this enterprise class storage so it is important that there isn't any data loss and it should be backed by guarantee from Vendor</p>	
100.	point#13	<p>IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size, Read/Write ratio of 70:30) > 6,00,000 Random r/w</p>	<p>Please confirm if the required IOPS of 6,00.000 shall be delivered while all the data serices also ON?</p> <p>As GSDC is looking for various data service capabilities like snapshots, replication, encryption, deduplication and compression. This will help ensure proper size the SAN array for both performance and capacity.</p>	No change. As per bid
101.	point#14	<p>Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site</p>	<p>Please amend as below: Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed, 12 X 10 GbE ports for NAS and should also support 8 number of 10 Gb ports capable of remote replication to DR site</p> <p>As per point#2, GSDC is looking for unified storage with capabilities of SAN and NAS. But no front-end ports for NAS has been asked in the specifications.</p>	See the corrigendum
102.	SOW document Warranty Section Point # 1.1	<p>Bidder shall provide a comprehensive on-site free warranty for 5 years from the date of FAT for proposed solution.</p>	<p>As the renewal of the comprehensive warranty and OEM Support is on yearly basis, kindly confirm whether we need to provide 5 years warranty certificate at the time of FAT sign off.</p>	Yes, the warranty support will start from the date of FAT sign off so Warranty certificate to be submitted at the time of FAT sign off.

103.	SOW document Warranty Section Point # 1.9	Warranty should not become void, if DST/GIL buys, any other supplemental hardware from a third party and installs it within these machines under intimation to the bidder. However, the warranty will not apply to such supplemental hardware items installed.	Customer should take concern/confirmation from OEM/vendor before installing supplement hardware from a third party and this should be subject to OEM warranty and T&C.	
104.	IMPLEMENTATION TIMELINE S & PENALTIES: Page 6	Installation and Commissioning	Kindly confirm whether the migration activity to be carried out will be pre or post FAT. In case the migration activity is prerequisite to FAT, there is no scope or time lines mentioned for the migration of the data in the implementation time lines. Migration may take time considering on the data size , connectivity, downtime and source device performance.	Please refer the Implementation Timelines & Penalties defined in the bid.
105.	Page No. 4. sr. No. 1 Minimum Specification for All Flash NvME Storage	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Do we need to provide rack along with the storage. If yes, please share specification and prerequisite of the rack.	Yes. The bidder is required to provide separate storage of usable capacity of 1 PB along with necessary rack, iPDU, other related accessories, software & license required and installation of storage at GSDC
106.	Pg. no. 1 Clause No 5	The bidder should be authorized by its OEM to quote this bid for the authenticity, authorized representation and after sales support. The bidder should have a	The bidder should be authorized by its OEM to quote this bid for the authenticity, authorized representation and after sales support. The bidder should have a back-to-back support agreement/arrangement for services including supply of spare parts with providing 24x7 support etc. with the Original Equipment Manufacturer (OEMs).	See the corrigendum

		back-to-back support agreement/arrangement for services including supply of spare parts with providing Next Business Day (NBD) support etc. with the Original Equipment Manufacturer (OEMs).		
107.	Pg. no. 3 1.9 of 14. Warranty Support:	Warranty should not become void, if DST/GIL buys, any other supplemental hardware from a third party and installs it within these machines under intimation to the bidder. However, the warranty will not apply to such supplemental hardware items installed	We request you to remove the same clause however None of the Product OEM shall allow to use non certified third party parts/equipment/component which may impact on product performance or service support	No change. As per bid
108.	Pg. no. 3 1.10 of 14. Warranty Support:	The bidder shall carry out Preventive Maintenance (PM), including cleaning of interior and exterior, of all hardware and testing for virus, if any, and should maintain proper records at each site for such PM. Failure to carry out such PM will be a breach of warranty and the warranty period will be extended by the period of delay in PM.	We request you to define the time line or time interval of Preventive Maintenance window in RFP. And remove the clause of testing of virus. It shall be under OS/Application or department's scope.	See the corrigendum
109.	Pg. no. 3 1.12 of 14. Warranty Support:	Bidder shall ensure that the warranty complies with the agreed Technical Standards, Security Requirements, Operating	We request you to provide the guidelines of literature of such requirements. It will help product OEM to ensure better serviceability to the department	To be discussed and decided mutually with the successful bidder.

		Procedures, and Recovery Procedures.		
110.	Pg. no. 6 MILESTONE BASED PAYMENT TERMS:	Successful migration of existing SAN storage to new solution – 10 %	We request you to elaborate the scope of work for Data Migration, OS Type and Version and application type and version. We also suggest that Product Installation & Data Migration services shall be under OEM's Scope.	To be discussed with the successful bidder while execution of the project.
111.	Pg. no. 7 PRICE BID SCHEDULE	Cost for 1st to 5th year Comprehensive warranty and OEM Support	We request you consider as product shall have to support at least 10 Years so Price bid should have Base 1 Year warranty + 10 Year warranty/AMC so department gets better and latest product and service offering from the OEM. also ask to Product OEM that during the warranty/C-AMC storage expansion shall be available	The offered products should not be “end-of-support” for at least 7 years from the date of FAT sign off. The OEM should have required to submit the declaration on their letter pad.
112.	Pg. no. 7 PRICE BID SCHEDULE	suggestion	We also request that department has to ask to freeze additional xxTB capacity expansion price during the warranty/C-AMC	No change. As per bid
113.	Scope of Work, Point#5	The supplied solution should be compatible with Object storage i.e. solution should support NAS, SAN, Object storage support S3 for private/public cloud.	Please confirm if this is a support required or these functionalities needs to be configured from Day 1	See the corrigendum.

114.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm if 1PB capacity will be used for SAN workloads only and/ or how much NAS capacity is required	See the corrigendum.
115.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm the existing network infrastructure available and connectivity required This is to configure OEM Rack and/ or cables, etc.	No change. As per bid
116.	point#13	IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size, Read/Write ratio of 70:30) > 6,00,000 Random r/w	Please confirm if the required IOPS of 6,00,000 shall be delivered while all the data services also ON? As GSDC is looking for various data service capabilities like snapshots, replication, encryption, deduplication and compression. This will help ensure proper size the SAN array for both performance and capacity.	No change. As per bid
117.	point#20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	Please confirm if Storage Vendor should guarantee min. 2.5 PB Effective Capacity considering Data Reduction Since GSDC is looking for 2.5x1PB= 2.5 PB of effective capacity after this 2.5x data reduction	No change. As per bid

118.	point#23	<p>Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of:</p> <ol style="list-style-type: none"> 1. A single command console for entire storage system. 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarte 	We request to kindly remove mobile app based interface of management software	See the corrigendum.
119.	point#27	Data Migration from Existing Storage to new Storage	<p>Kindly provide the details for factoring the efforts for data migrations as below,</p> <ol style="list-style-type: none"> a) Total capacity to be migrated b) Source storage c) Number of hosts with details of OS, virtualization if any. 	details will be shared with successful bidder.

120.	Payment Terms Final - Scope of work, Specification pageno.6	<p>Payment of Storage box in following manner;</p> <ul style="list-style-type: none"> o Delivery of all components (Hardware, Software, Licenses, etc.) at respective location - 70% o Successful Installation, Testing, Integration and Commissioning – 10% o Successful migration of existing SAN storage to new solution – 10 % o Successful completion of Three-month post completion of Final Acceptance test as per the scope – 10% 	We request you kindly amend as 90% against delivery and balance after completion of testing , installation and commissioning of the storage bix	No change. As per bid
121.	SOW Page 2 - pint 6	The Bidder shall configure the proposed solution in such a way that it should comply with all the policies of the Gujarat State Data Centre.	Details of the Policy must be available before finalization of the cost, as re-work will add on cost of the Resources	It should be shared with successful bidder.
122.	Sow Page 2 - Point 9	Successful bidder in coordination with the representatives from the TENDERER/GIL is required to conduct FAT of the solution.	FAT Documents required before cost finalization	The activities are to be performed as part of the FAT is already defined in the bid document.
123.	Warranty Support 14 - 1.3	Bidder shall provide the comprehensive manufacturer's warranty and support in respect of proper design, quality and workmanship of all hardware, equipment, accessories etc. covered by the bid. Bidder must warrant all hardware, equipment, accessories,	Manufacturer Warranty / Support is as per Premium - Warranty and Support based on OEM Policy / OEM Terms of Warranty and Support : " <u>in respect of Proper Design</u> " <u>needs Tobe Clarified ---</u>	Not acceptable.

		spare parts, software etc. procured and implemented as per this bid against any manufacturing defects during the warranty period.		
124.	Warranty Support 14 - 1.3	Bidder shall provide the performance warranty in respect of performance of the installed hardware and software to meet the performance requirements and service levels in the bid.	Performance Warranty from OEM , it should not be from Bidder	No change. As per bid
125.	Warranty Support: 1.10.	The bidder shall carry out Preventive Maintenance (PM), including cleaning of interior and exterior, of all hardware and testing for virus, if any, and should maintain proper records at each site for such PM. Failure to carry out such PM will be a breach of warranty and the warranty period will be extended by the period of delay in PM.	We request customer to please specify the frequency of preventive maintenance	See the corrigendum.
126.	IMPLEMENTATION TIMELINE S & PENALTIES:	Kick-off meeting --1 week from issuance of LoI/WO	We request GIL to please provide 10 working days for the Kickoff meeting	No change, As per bid
127.	2	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File	Solution should symmetric / asymmetric active-active multi-controller scale-up and scale-out architecture. The proposed array should support Block, File (NFS, NFS4.1 , CIFS/SMB3) data services natively/ or with add-on NAS header / gateway / appliance running specialized OS & File system owned by storage OEM for development & bug	See the corrigendum

		(NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance.	fixes. We understand that GIL is considering to procure the best (performance and price) storage product across all available products for which a below technical features are considered - (1) - Storage controllers should actively take part in performance and capacity, (2) Storage controllers should have resiliency to tolerate the failure of one or more controllers. Proposed technologies from NetApp can meet the performance, capacity, resiliency as asked in RFP. If NAS header / gateway is offered the general purpose OS & File systems should not be offered as general purpose OS & File systems are not meant for storage resiliency performance and their bug fixes and development are not in control of storage OEM.	
128.		The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc.	The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, etc. We understand that GIL wishes to have solution with NoSPOF and NetApp offers the solution with noSPOF, Backplane is passive components and does not lead to failure.	See the corrigendum
129.	3	The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 micro second latency.. It should also support SCM (Storage Class Memory)	The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 micro second latency. NetApp will be able to offer the performance along with reliability, availability & serviceability on the offered technologies as envisaged in this RFP. SCM are not widely accepted by major storage OEMs and customers due to its limited availability by one specific Principal OEM. NetApp will be able to offer the performance along with reliability, availability & serviceability on the offered technologies as envisaged in this RFP. SCM are not widely accepted by major storage OEMs and customers due to its limited availability by one specific Principal OEM.	See the corrigendum
130.	6	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored	Each storage Controller should be supplied with min 512 GB Cache and and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all/ owner controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache/ write cache protection to prevent data in the event of power failure. As per RFP each controller is asked with 512 GB memory and total of 4 controllers are asked, which makes to 2 TB of memory. cache with write IO protection should be asked for data integrity protection mechanism. Netapp offers write cache protection	No change. As per bid

		cache, Vault to disk , to prevent data in the event of power failure.	with NVRAM technology which not only protects write cache data but also optimizes the memory used for user data by offering more cache availability. The existing clause is limiting factor and allows only one technology/type of OEM to participate, we request GIL to consider the functional requirement which is write IO protection.	
131.	7	Storage array cache shall be globally shared and mirrored across controllers that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures)	Storage array cache shall be globally shared / federated and mirrored across controllers/ write cache protection across controller HA pair that are in different controller pairs, and not just across controllers within the same pair at all times (during normal operations & during any controller failures) We understand that GIL is considering to procure the best (performance and price) storage product across all available products for which below technical features are considered - (1) - Storage controllers should actively take part in performance and capacity, (2) Storage controllers should have resiliency to tolerate the failure of one or more controllers. Proposed technologies from NetApp can meet the performance, capacity, resiliency as asked in RFP. We request GIL to consider the functional requirement which is resiliency & performance.	See the corrigendum
132.	8	Disk Drives - Dual ported NVME SSD drive, if compatible with SAS and NL-SAS , it is preferable.	Disk Drives - Dual ported NVME SSD drive, if compatible with SAS and NL-SAS , it is preferable. All OEM have separate product series for all Flash & hybrid.	See the corrigendum
133.	10	Raid Level - 5/6 or equivalent Group of Raid may limited to 10	We request to remove this clause GIL is looking for storage which should meet the performance, capacity, scalability & resiliency as envisaged in RFP. We suggest to allow OEMs to follow their best practices to meet the desired performance , capacity, resiliency & scalability. We request GIL to consider the functional requirement.	No change, as per bid
134.	18	Number of Volume / LUN Supported for Remote Replications - 6000	Number of Volume / LUN Supported for Remote Replications - 2000 With the latest technologies the LUN of as big as 100 TB can be carved out which allows the less qty of LUNs for replication. Earlier the LUNs use to be of smaller size so large qty of LUNs were required for replication. So we suggest to reduce it to 2000. Also 6000 LUNs for replication support may favor a particular OEM.	No change, as per bid
135.	20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware/software assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	No change, as per bid

		performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	We understand that GIL is looking for de duplication functionality without having performance impact, NetApp supports de duplication with no performance impact. We request GIL to consider functional requirement which is de duplication with no performance impact and kindly allow all technologies available to achieve same functionality. The existing clause is limiting factor.	
136.	23	<p>Solution should provide a Web and Mobile App based interface of Management software with Dashboard with minimum features of:</p> <ol style="list-style-type: none"> 1. A single command console for entire storage system. 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarter 	<p>we request to modify as "Solution should provide a Web based interface of Management software with and Mobile App Dashboard with minimum features of: A single command console for entire storage system.</p> <ol style="list-style-type: none"> 2. The Solution should allow role-based access for auditing, monitoring and other general operations and administration capabilities through GUI/CLI 3. System status i.e. CPU, Memory, Disks, Network resources, Display total, allocated and utilized capacity, performance, throughput, storage utilization, Hardware details like disk, controllers, overall status of compaction of data, System Audit Log, 4. Should generate Alert, Notification 5. Reports – Scheduled or Manual 6. Historical logs of storage performance utilization for at least one quarter 7. Mobile app for management and monitoring. <p>Please share the more details on the features required at mobile app, as mobile app always has limited features as compared to full web GUI for management</p>	See the corrigendum
137.	24	Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to T10-	Proposed storage should be designed to store and retrieve data without any possibility of silent data corruption, it should comply to NVME Data Integrity standards / equivalent. Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives be protected with NVME Data Integrity	See the corrigendum

		DIF (Data Integrity Field) standards. Data movement within the array from Front-End module to Cache to backend to Flash/NVMe drives be protected with T10-DIF.	standards / equivalent T10 is SCSI standard not applicable on NVME. We suggest to change this to NVME data integrity protection or equivalent mechanism ensuring that there is no silent data corruption for storage. This clause is limiting factor and does not allow many OEM even if they are able to offer required functionality, we request GIL to consider functional requirement.	
138.	3	Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed array should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header/gateway/ appliance. NAS header should be in HA mode, subject to non-interruption of services	1. Please clarify on the capacity that is required for File Access, so that necessary license can be included in the BOM.	See the corrigendum
139.	6	The solution should be provided with minimum of 4 controllers. Expandable upto at least 12 controller.	1. Request to be modified to a scalability of 8 controllers.	See the corrigendum
140.	7	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure.	2. Every Storage OEM has different controller architectures and cache technology also is different, in order to achieve desired performance and resiliency. Our storage systems are designed on "Federated caching architecture", i.e. each controller will have dedicated cache resources. However we will be able to meet the performance and other functionality mentioned in this RFP. Hence we request that the specification "cache should be available to all LUNs/ Devices across all controller as a single unit" be deleted.	See the corrigendum
141.	8	Storage array cache shall be globally shared and mirrored across controllers that are in different controller pairs, and not just	Since we do not support a global cache architecture, kindly remove the clause "Globally shared and mirrored across controllers that are in different controller pairs,	See the corrigendum

		across controllers within the same pair at all times (during normal operations & during any controller failures)	and not just across controllers within the same pair at all times" point to allow "Federated Caching" architectures as well.	
142.	10	Raid Level - 5/6 or equivalent Group of Raid may limited to 10	When using higher capacity drives, it is recommended to have at least RAID 6 or equivalent. Hence we request you to delete RAID 5 from the specifications, so that all vendors propose a sizing which is equivalent. Since storage systems today have technology to proactively detect drive failures and other reliability features, limiting the number of drives in a RAID set to 10 will lead to lower utilization of capacity on costly SSD/ Flash drives. Request you to please increase it to 16.	No change. As per bid
143.	24	Solution should provide a Web and Mobile App based interface of Management software with Dashboard	<p>1. Our storage systems have web based GUI which can be accessed through desktop or mobile browser. This provides safe and secure sessions to manage storage with built in security for various administration roles.</p> <p>2. Enterprise systems are secured by zero trust method and we do not recommend using mobile app to manage them.</p> <p>3. This feature is promoted by very few vendor and not essential. Requesting you to remove this point "Mobile App based interface"</p>	See the corrigendum
144.	Scope of Work, Point#5	The supplied solution should be compatible with Object storage i.e. solution should support NAS, SAN, Object storage support S3 for private/public cloud.	Please confirm if this is a support required or these functionalities needs to be configured from Day 1	See the corrigendum
145.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	Please confirm if 1PB capacity will be used for SAN workloads only and/ or how much NAS capacity is required	See the corrigendum

146.	point#1	Bidder to provide separate storage of usable capacity of 1 PB along with necessary rack, other related accessories, software & license required and installation of storage at GSDC.	<p>Please confirm the existing network infrastructure available and connectivity required</p> <p>This is to configure OEM Rack and/ or cables, etc.</p>	No change. As per bid
147.	point#2	<p>Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc.</p> <p>Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).</p>	<p>Please amend clause as below:</p> <p>"Solution should symmetric active-active multi-controller scale-up and scale-out architecture. The proposed solution should support Block, File (NFS, CIFS/SMB3) data services natively or with add-on NAS header / gateway / appliance. NAS header should be in HA mode, subject to non-interruption of services The proposed solution should be with No Single Point of Failure (NSPOF). All the components should be redundant and hot swappable including power supply, fans, batteries, backplane etc. Offered storage shall be true enterprise class and there should not be any data loss. Vendor shall design their solution accordingly and shall provide the written undertaking at bid submission</p> <p>Should support non-disruptive replacement of failed/damaged hardware components & Firmware without any controller reboot (except OEM release note suggestions).</p> <p>All IT applications for Gujarat state will store their critical and important data on this enterprise class storage so it is important that there isn't any data loss and it should be backed by guarantee from Vendor</p>	See the corrigendum
148.	point#13	IOPs per second - Minimum Aggregate front-end IOPS of proposed array (8K I/O Block size, Read/Write ratio of 70:30) > 6,00,000 Random r/w	<p>Please confirm if the required IOPS of 6,00.000 shall be delivered while all the data serices also ON?</p> <p>As GSDC is looking for various data service capabilities like snapshots, replication,</p>	No change. As per bid

			encryption, deduplication and compression. This will help ensure proper size the SAN array for both performance and capacity.	
149.	point#14	Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site	<p>Please amend as below:</p> <p>Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed, 12 X 10 GbE ports for NAS and should also support 8 number of 10 Gb ports capable of remote replication to DR site</p> <p>As per point#2, GSDC is looking for unified storage with capabilities of SAN and NAS. But no front-end ports for NAS has been asked in the specifications.</p>	No change. As per bid
150.	point#20	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.	<p>Please amend the clause as below:</p> <p>"Solution should having De-Duplication Data Reduction functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact on either compression or de-duplication or both. It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.</p> <p>As per the clause storage shall have min 2.5x data reduction with deduplication. Majority of storage OEMs offers Data reduction as combination of deduplication and compression, and also data reduction is not applicable for pre-compressed & pre-encrypted data.</p> <p>Therefore requesting to change the clause by adding compression or replacing de-duplication with data reduction. Further, modern NVMe based all slash storage systems can deliver more than 3.5 x data reduction</p>	No change. As per bid
151.	point#27	Data Migration from Existing Storage to new Storage	<p>Kindly provide the details for factoring the efforts for data migrations as below,</p> <p>a) Total capacity to be migrated</p> <p>b) Source storage</p> <p>c) Number of hosts with details of OS, virtualization if any.</p>	It will be shared with successful bidder.

152.	1	<p>The bidder should have a total sum of turnover of Rs. 20 Crore (Minimum) in the last three financial years as on 31st March 2021.</p>	<p>Request the department to amend this to as "The bidder should have a total sum of turnover of Rs. 40 Crore (Minimum) in the last three financial years as on 31st March 2021."</p> <p>Considering the bid size, we request you to increase the minimum turnover so that only the serious bidders with the capability to execute such projects can participate.</p>	<p>No change. As per bid.</p>																		
153.	2	<p>The details of the currently available storages at Gujarat State Data Center (GSDC) and to be considered in the scope.</p> <table border="1" data-bbox="342 500 680 662"> <thead> <tr> <th>OEM</th> <th>Model</th> <th>Capacity Usable (TB)</th> </tr> </thead> <tbody> <tr> <td>EMC</td> <td>VMAX 200K</td> <td>584</td> </tr> <tr> <td>NetApp</td> <td>FASR200</td> <td>1500</td> </tr> <tr> <td>HP</td> <td>HP MSA 2040</td> <td>72</td> </tr> <tr> <td>Dell</td> <td>SC 8000</td> <td>21.83</td> </tr> <tr> <td>HP</td> <td>3PAR Store Serv 7400</td> <td>25</td> </tr> </tbody> </table>	OEM	Model	Capacity Usable (TB)	EMC	VMAX 200K	584	NetApp	FASR200	1500	HP	HP MSA 2040	72	Dell	SC 8000	21.83	HP	3PAR Store Serv 7400	25	<p>Request the department to clarify the exact scope of the aforementioned storage products of different OEMs.</p> <p>The scope of pre-installed storage components is unclear.</p>	<p>No change. As per bid.</p>
OEM	Model	Capacity Usable (TB)																				
EMC	VMAX 200K	584																				
NetApp	FASR200	1500																				
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154.	4	<p>The solution should be based on end-to-end NVMe architecture, which is NVMe over Fabric for front-end connectivity and also be configured with latest dual ported native NVMe Flash drives, for 100 micro second latency.. It should also support SCM (Storage Class Memory)</p>	<p>The system is asked with end to end NVMe architecture, we understand the backend connectivity is also NVMe, request the department to please clarify.</p>	<p>No change. As per bid</p>																		
155.	4	<p>The solution should be provided with minimum of 4 controllers. Expandable upto at least 12 controller. The controller should function such that the entire load of the solution is spread across all the controllers. However, in case of failure of any controller(s), the remaining working controller(s) should be able to cater to entire load of the solution and should not lead to</p>	<p>We request the department to remove this clause and state that the solution should be provided with no single point of Failure and there should be no performance degradation on any component failure as this clause is making the specification biased towards a vendor.</p> <p>As this is OEM Specific.</p>	<p>See the corrigendum</p>																		

		decrease in Read and write performance.		
156.	4	Each storage Controller should be supplied with min 512 GB Cache and solution's total cache should be minimum 4 TB and expandable upto 6 TB of Cache, which should be available to all LUNs /Devices across all controllers as a single unit. Cache should be dynamically used for Read and Write operations. Mirrored cache, Vault to disk , to prevent data in the event of power failure.	Since the performance expectation is already defined, we request the department to dilute the clause asking for minimum of 1 TB cache or as required by the solution.	No change. As per bid.
157.	4	Each drive Capacity - Max 15.36 TB	We request the department to change the clause to minimum 7 TB drives as the maximum specified is actually the maximum being provided by one Vendor. As this is OEM Specific.	No change. As per bid.
158.	4	Speed of Dual Ported Disk Drive - - PCI Gen3 NVMe or higher	Request the department to ammend the drive type to PCI Gen 4 as this is the latest and available with all vendors.	See the corrigendum
159.	4	Front end port - FC port - 64 x 32 Gbps speed, iSCSI port - 16 x 10 gbs speed and should also support 8 number of 10 Gb ports capable of remote replication to DR site	Request the department to change this clause and specify a total of 26 Ports for the solution.	No change. As per bid.
160.	4	Type of backend port - PCI Gen3 NVMe or higher	Request the department to change this to the latest generation i.e PCI Gen 4	No change. As per bid.
161.	5	Solution should having De-Duplication functionality min 2.5 x, Inline, hardware assisted data reduction so that there is no performance impact.	Request the department to ask for an undertaking from OEM that 2.5X efficiency will be delivered during the warranty period. As the performance asked is with all functionality ON, request you to delete this clause or specify that this feature should be always enabled.	It is very much part of it as we have asked OEM Certifications as part of the FAT.

		It should be possible to enable or disable data reduction functionality on volumes for specific applications or group of volumes as and when required.		
162.	5 & 6	Data Migration from Existing Storage to new Storage. & o Successful migration of existing SAN storage to new solution – 10 %	We request the department to specify and define the scope of migration, also the size or volume of the migration and other important parameters, so that the bidder can accurately estimate the product/solution to be offered.	As above.
163.	6	Payment of Storage box in following manner; o Delivery of all components (Hardware, Software, Licenses, etc.) at respective location - 70% o Successful Installation, Testing, Integration and Commissioning – 10% o Successful migration of existing SAN storage to new solution – 10 % o Successful completion of Three-month post completion of Final Acceptance test as per the scope – 10%	Request the department to amend this to as below: Payment of Storage box in following manner; o Delivery of all components (Hardware, Software, Licenses, etc.) at respective location - 85% + 100% of GST o Successful Installation, Testing, Integration and Commissioning – 5% o Successful migration of existing SAN storage to new solution – 5 % o Successful completion of Three-month post completion of Final Acceptance test as per the scope – 5% This will help in offering most competitive quote.	No change. As per bid.