

Responses to Pre Bid Queries - IT Cloud Solutions/FY:2024-25/RFP/1314 Dated: 31/03/2025

SI no.	RFP Page No	RFP Clause No	Existing Clause	Query Sugestion	Bank's Response
1	23	Applicability of Preference to Make in India, Order 2017 (PPP-MII Order)	Guidelines on Public Procurement (Preference to Make in India), Order 2017 (PPP MII Order and revision thereto will be applicable for this RFP and allotment will be done in terms of said Order	This RFP is a Global tender & almost all the Storage OEMs are does not fall under make in India category. Therefore, we strongly request you to remove this purchase preference clause under PPP-MII Order 2017.	No Change, as per RFP.
2	57	Bidder's Eligibility Criteria, Sr. No. 7	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	For more competitive bidding, we request to revise this clause as "Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references with total 2.5 Peta Bytes combinely , are required)	No Change, as per RFP.
3	88	Scope of Work and Payment Schedule, Sr. No. 4	All milestones/dates are from the date of purchase order • Delivery of total hardware and software should be completed within 8 weeks. • Bidder to arrange planning and documentation within 10 weeks. • Installation and commissioning should be completed within 10 weeks of purchase order. Delivery locations will be in Navi Mumbai and Hyderabad.	We request to revise the delivery period as: • Delivery of total hardware and software should be completed within 12 weeks . • Bidder to arrange planning and documentation within 16 weeks . • Installation and commissioning should be completed within 16 weeks of purchase order. Delivery locations will be in Navi Mumbai and Hyderabad.	No Change, as per RFP.
4	91	Scope of Work and Payment Schedule, Sr. No. 14, Payment Schedule	• 50% + taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. • Remaining 50% + taxes of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG.	For better Cash Flow, we request you to please revise the payment criteria as below: • 70% of the invoice value with 100% GST / taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. • Remaining 30% of the invoice value of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG.	No Change, as per RFP.
5	61	7	Area: Number Of Racks Particulars: Controllers 7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	Different vendor have different technologies to meet the performance and the contoller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 8 cluster would be OEM specific. where a particular OEM has an advantage. There should not be any limit to the cluster count as long we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 12.	No Change, as per RFP.
6	62	5	Area: Performance Particulars: Disk Size 5. Maximum size of each NVMe storage drive should be less than 30.xx TB with TLC or QLC drives.	Since Bank is asking for huge capacity, we feel using 30TB drives will lead to longer re-build time and in case of multiple drive failure there are chances of RAID groups going to de-grade mode which might leads to higher latency, impact in the performance and chance of data loss. Hence, we request bank to limit the drive size to 15.xx TB or lesser like production storage.	No Change, as per RFP.
7	62	7	Area: Number Of Racks Particulars: Controllers 7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	Different vendor have different technologies to meet the performance and the contoller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 4 cluster would be OEM specific. where a particular OEM has an advantage. There should not be any limit to the cluster count as long we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 6.	Please refer Corrigendum No. 1
8	64	17	Area: Number Of Racks 17. The proposed solution should accommodate in maximum 630U (maximum 18 racks size i.e. 35U X 18) at each site.	We request bank to clarify if 630U limited to production storage and non production only at each site or total of all sites	No Change, as per RFP. For each Production and Non Production storage, 630U is the maximum rack size. Bidder should try to accommodate the solution in given number of racks, in case the solution mandatorily requires additional racks, upto 20% extra racks may per permitted.

9	65	28	Area: Architecture & Processing Power Particulars: Data Integrity 28. Each controller operating in an active- active cluster environment should have mirroring support for the system's write cache must be battery protected with unwritten data in write cache protected for up to 72 hours in event of power failure. Data integrity must be retained in any case.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP. Invalid Query
10	65	29	Area: Architecture & Processing Power Particulars: FC Ports 29. Each controller Storage solution must have minimum 8 (4 primary and 4 Secondary) 32Gbps SAN FC ports dedicated for serving SAN requests of Host. Additionally, these ports should also support NVME over fabric protocol	We request bank to clarify if each controller with primary 4 and secondary 4 refer to the HA pair or single controller.	No Change, as per RFP. It refers to HA Pair.
11	65	30	Area: Architecture & Processing Power Particulars: LAN Port 1 30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving iscsi and NFS.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for iSCSI and NFS, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for Production Storage as per banks calculation . Since bank has already asked for almost 160 FC Ports of 32 Gbps per cluster these LAN ports requirement seems to be very high and favouring single vendor . Hence, we request bank to please share the workload would be running on NFS and iSCSI or reduce the number of ports recruitment to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.
12	65	31	Area: Architecture & Processing Power Particulars: LAN Port2 31. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving data replication.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for replication, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for production stoarge only dedicated for replication, as per banks calculation. Where in bank is considering only 60% of capacity for replication. Hence ports requirement for replication seems to be very high and favouring single vendor . Hence, we request bank to please reduce the number of ports requirement to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.
13	66	34	Area: Architecture & Processing Power Particulars: Connectivity between HA Pairs 34. Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.	We request bank to clarify the need of 100Gbps bandwidth, which is OEM specific and helping particular vendor , Request bank either change and reduce the bandwidth to 50Gbps per controller as it is sufficient for data migration or please share the sizing for 100 Gbps bandwidth requirements per controller for backend connectivity.	No Change, as per RFP.
14	67	37	Area: Cache Requirements Particulars: Data Integrity 37. The storage should dynamically allocate Read Cache and Write Cache from the available cache to accommodate the I/O. The storage architecture should provide battery backup to the entire write cache in case of a disaster i.e. Data in cache should be protected against unexpected power failures for 72 hours of time.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP. Invalid Query
15	60/167		Maximum size of each NVMe storage drive should be less than 18.xx TB with TLC (Triple Level Cell) drives only	Kindly allow the Drive size as per the recommended best practise sizing of the Storage OEM to meet the performance and availability asks	No Change, as per RFP.
16	60/167		The storage bill of material should be from a single OEM i.e. all the storages should be from the same OEM. Bidder cannot quote storage from multiple OEMs	Is the bank looking at only Primary Production Storage and Non-Production storage from same OEM? Can Object storage be quoted from a different brand/OEM?	No Change, as per RFP.
17	61/167		5. Maximum size of each NVMe storage drive should be less than 30.xx TB with TLC or QLC drives.	Kindly allow larger size QLC drives to be quoted, as per latest industry trends QLC drives are available in 75TB configurations, while having all requirements of availability and resiliency catered to.	No Change, as per RFP.

18	61/167		Storage solution per site should handle minimum 80 lacs front end IOPS (8 KB block size, 60% read & 40% write) with maximum 2 ms Server side (initiator) latency with 70% cache hit while having capacity optimization features including snapshot, Replication, deduplication, compression and encryption enabled. (SI along with OEM need to perform the test onsite after delivery with enterprise level IO test tool as part of acceptance of the solution).	PL allow Latency allowance of 2-4 ms for the QLC NVMe option at DR site.	No Change, as per RFP.
19	62/167		7. The Proposed solution should provide self-encrypting drives or Data Encryption at Rest that are AES256, FIPS 140 - 2 and other industry leading encryption algorithm or standards compliant. The proposed encryption should not impact performance.	SED are limiting, Is bank ok with System level data encryption; PL allow Storage level encryption solution.	No Change, as per RFP.
20	63/167		19. NVMe disk Raid should be formed with maximum 18 drives in Single RAID Group (16D+2P).	Kindly allow the Drive raid group size as per the recommended best practise sizing of the Storage OEM to meet the performance and availability asks	No Change, as per RFP.
21	63/167		Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.For Non Production Storage(Category 2) Connectivity between HA Pairs :34. Scale out architecture should have at least 50 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair	1. Is the bank planning to connect 8x 25 G ports per HA pair for controller interconnect? 2. Volume or Datastore movement from one HA pair to another in Modern Architecture is not part of Management or back end switch, it use modern FC and/or ethernet peering between HA pairs for low latency data movement, limiting it to only ethernet and a legacy way of cluster interconnect restricts wider participation, please allow 128G FC connection & 64G FC for non production (in addition to 100G/50G ethernet)per HA pair as an option for vol move feature.	No Change, as per RFP.
22	66/167		Storage should be enterprise class (declared in publicly available documentation) high end storage	Is analyst reference allowed to be quoted for this point..	No Change, as per RFP.
23	67/167		Array should be supplied with one global hot spare disk for every 25 disks of same capacity and speed	Kindly allow Equivalent of Spare disk or Reserve spare capacity on the system .	No Change, as per RFP.
24	68/167		62. The Storage array must provide capability for thin and thick provisioning of LUNs along with automatic space reclamation technology	Kindly allow Thin/Thick LUN	No Change, as per RFP.
25	69/167		69. System must have capability to designate global hot spares that can automatically be used to replace a failed disk/drive	Kindly allow Equivalent of designate global hot spare disk or Reserve spare capacity on the system .	No Change, as per RFP.
26	70/167		75. Proposed Storage must homogeneously integrate with existing Cloud incorporating Broadcom (VMware) technology stack, Commvault Backup Solution and existing storage environment.	Kindly expand on the integration with existing storage environment, what integration is the bank envisioning between two different brand storage systems?	No Change, as per RFP.
27	71/167		86. RPO for storage-based replication must be near Zero. Proposed storage should support synchronous replication with support for Near Zero RPO and RTO	True Sync replication solution is Zero RPO and RTO, near zero doesn't qualify as Sync but semi-sync / continous replication, is semi-sync/continous replication required instead of Synchronous?	No Change, as per RFP.
28	71/167		Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites	Kindly allow High capacity,High density 75TB QLC drives in addition of NL-SAS drive as well for the solution to have better performance and efficiency.	No Change, as per RFP.
29	71/167		Each data drives should have a maximum capacity of 16.xx TB 7.2k RPM NL-SAS HDD and maximum of 16.xxTB capacity drive in SSD.	Kindly allow High capacity,High density 75TB QLC drives in addition of NL-SAS drive as well for the solution to have better performance and efficiency.	No Change, as per RFP.
30	72/167		The Storage nodes in the object storage must be provided with redundant physical controllers. Minimum 4 numbers of 25Gbps LAN Ports on each node should be provided. Each node should be a separate appliance or physical servers.	Kindly allow OEM to size the bandwidth at the system/cluster level to deliver the asked throughput/Performance,instead of limiting to per node port/s.Pure Storgae solution is a modern architecture offering 800G bandwidth at the chassis level with built in Load balancers.	No Change, as per RFP.
31	72/167		Erasure coded data must be encoded efficiently, regardless of object size. Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available	the RFP ask-"Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available" points to inter site/global erasure coding that is not applicable here as the deploymet is for less than 3 sites- here there are only 2Sites in RFP ask- which points to replication, Kindly clarify.	No Change, as per RFP.
32	73/167		The Object storage proposed should be integrable solution with scale out architecture. Entire solution should be from Single OEM and must provide single point of support for all levels of issues/escalations for Object Storage.	Kindly expand on the details and level of integration required, also Please allow bidder to quote best of breed solution for Primary as well as Object storage by relaxing the clause of Single OEM for Primary and Object storage solution.	No Change, as per RFP.

33	73/167		Tiering should be able to set based on Object Size or policy on age of data.	Is the bank looking to tier data to Hyperscaler cloud, kindly share details of the Hyperscaler cloud solution.	No Change, as per RFP.
34	73/167		Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	1. Kindly allow nomenclature as -Nodes/blade/controllers. 2. Please allow OEM to provide the required bandwidth at the system/chassis(800G) level to deliver the asked throughput/Performance,instead of limiting to per node port/s. 3.Minimum 28 node limit(is a limiting factor with modern architecture and pointing to a legacy architecture) should be relaxed as upto 28 Nodes or higher to allow latest generation future proof storage design and architecture/s.	No Change, as per RFP.
35	57	Point 7	Client Ref and contact details of customers for whom the bidder has developed similar projects in India. (at least 2 client references of total 5 Peta Bytes are required).	Request Bank to ammend the ask for 2 client reference to 1 client.	No Change, as per RFP.
36	57	Point 8	At least 2 client references along with contact details with install base of minimum 10 Peta Bytes storage total in India of the storage OEM, whose products being proposed as part of this RFP	Request Bank to ammend the ask for 2 client reference to 1 client.	No Change, as per RFP.
37	61	7	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	Different vendor have different technologies to meet the performance and the contoller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 8 cluster would be OEM specific. where a particular OEM has an advantage.There should not be any limit to the cluster count as long we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 12.	No Change, as per RFP.
38	62	5	5. Maximum size of each NVMe storage drive should be less than 30.xx TB with TLC or QLC drives.	Since Bank is asking for huge capacity, we feel using 30TB drives will lead to longer re-build time and in case of multiple drive failure there are chances of RAID groups going to de-grade mode which might leads to higher latency, impact in the performance and chance of data loss. Hence, we request bank to limit the drive size to 15.xx TB or lesser like production storage.	No Change, as per RFP.
39	62	7	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	Different vendor have different technologies to meet the performance and the contoller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 4 cluster would be OEM specific. where a particular OEM has an advantage.There should not be any limit to the cluster count as long we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 6.	No Change, as per RFP.
40	65	28	28. Each controller operating in an active- active cluster environment should have mirroring support for the system's write cache must be battery protected with unwritten data in write cache protected for up to 72 hours in event of power failure. Data integrity must be retained in any case.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP. Invalid Query
41	65	30	30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving iscsi and NFS.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for iSCSI and NFS, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for Production Storage as per banks calculation . Since bank has already asked for almost 160 FC Ports of 32 Gbps per cluster these LAN ports requirement seems to be very high and favouring single vendor . Hence, we request bank to please share the workload would be running on NFS and iSCSI or reduce the number of ports recruitment to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.

42	65	31	31. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving data replication.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for replication, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for production stoarge only dedicated for replication, as per banks calculation. Where in bank is considering only 60% of capacity for replication. Hence ports requirement for replication seems to be very high and favouring single vendor. Hence, we request bank to please reduce the number of ports requirement to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.
43	66	34	34. Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.	We request bank to clarify the need of 100Gbps bandwidth, which is OEM specific and helping particular vendor, Request bank either change and reduce the bandwidth to 50Gbps per controller as it is sufficient for data migration or please share the sizing for 100 Gbps bandwidth requirements per controller for backend connectivity.	No Change, as per RFP.
44	67	37	37. The storage should dynamically allocate Read Cache and Write Cache from the available cache to accommodate the I/O. The storage architecture should provide battery backup to the entire write cache in case of a disaster i.e. Data in cache should be protected against unexpected power failures for 72 hours of time.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP. Invalid Query
45	61	4	4. Per controller cache must be minimum of 1 TB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 2 TB.	4. Per controller cache must be minimum of 1 TB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 2 TB. Justification: Global cache is properitery specifications for some storage vendors. <u>Request to remove it for better participation.</u>	No Change, as per RFP.
46	61	7	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site. Justification: Request to remove controller limitations as more controllers are <u>needed to achive required performance.</u>	No Change, as per RFP.
47	62	4	4. Per controller cache must be minimum of 512 GB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 1 TB.	4. Per controller cache must be minimum of 512 GB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 1 TB. Justification: Global cache is properitery specifications for some storage vendors. <u>Request to remove it for better participation.</u>	No Change, as per RFP.
48	62	7	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site. Justification: Request to remove controller limitations as more controllers are needed to achive required performance.	No Change, as per RFP.
49	63	4	4. The mean time between failures for HA components like Controller should be Five Years The mean time between failures for less critical components like Hard Disks should be Two Years	Please remove this specification. It is properitery.	No Change, as per RFP.
50	63	11	11. Storage solution must include necessary management packs for integration with Aria Operations and should support integrations with Monitoring tools like Dynatrace, Appnomics etc.	Request to clarify the protocols support required from these applications.	No Change, as per RFP. API should be aavible for integration
51	64	17	17. The proposed solution should accommodate in maximum 630U (maximum 18 racks size i.e. 35U X 18) at each site. Bidder should try to accommodate the solution in given number of racks, in case the solution mandatorily requires additional racks, upto 20% extra racks may per permitted.	Request to remove this as it is restrictive specifications for us to bid.	No Change, as per RFP.

52	64	19	19. NVMe disk Raid should be formed with maximum 18 drives in Single RAID Group (16D+2P).	19. NVMe disk Raid should be formed with maximum 12 18 -drives in Single RAID Group (16D+2P) (10D+2P). Justification: Request not to consider RAID Group of more than 10+2 for better <u>availability with high capacity drives</u> .	No Change, as per RFP.
53	65	28	28. Each controller operating in an active- active cluster environment should have mirroring support for the system's write cache must be battery protected with unwritten data in write cache protected for up to 72 hours in event of power failure. Data integrity must be retained in in all cases of power failure either via cache battery or any other equivalent technology.	28. Each controller operating in an active- active cluster environment should have mirroring support for the system's write cache / write IO must be battery protected with unwritten data in write cache protected for up to 72 hours in event of power failure or alternate mechanism to protect write data. Data integrity must be retained in in all cases of power failure either via cache battery or any other equivalent technology.	No Change, as per RFP.
54	65	29	29. Each controller Storage solution must have minimum 8 (4 primary and 4 Secondary) 32Gbps SAN FC ports dedicated for serving SAN requests of Host. Additionally, these ports should also support NVME over <u>fabric protocol</u>	29. Each controller Storage solution must have minimum 8 4 (-4- 2 primary and -4-2 Secondary) 32Gbps SAN FC ports dedicated for serving SAN requests of Host. Additionally, these ports should also support NVME over <u>fabric protocol</u>	No Change, as per RFP.
55	65	30	For production storage (Category -1) LAN Port 1 : 30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiberLAN ports dedicated for serving iscsi and NFS. For non-production storage only(Category 2): LAN Port 1 : 30. Each controller must have minimum 2 (1 primary and 1 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiberLAN ports dedicated for <u>serving data replication</u>	For production storage (Category -1) LAN Port 1 : 30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiberLAN ports dedicated for serving iscsi and NFS. Justification: Request to remove iSCSI. We can provide 4 ports of 25Gbps per controllers. 2 ports can be used for NFS and 2 for Remote replication.	No Change, as per RFP.
56	67	37	37. The storage should dynamically allocate Read Cache and Write Cache from the available cache to accommodate the I/O. The storage architecture should provide battery backup to the entire write cache in case of a disaster i.e. Data in cache should be protected against unexpected power failures for 72 hours of time. Data integrity must be retained in all cases of power failure either via cache battery or any other technology.	37. The storage should dynamically allocate Read Cache and Write Cache from the available cache to accommodate the I/O. The storage architecture should provide battery backup to the entire write cache in case of a disaster i.e. Data in cache should be protected against unexpected power failures for 72 hours of time or alternate mechanism to protect write data. Data integrity must be retained in all cases of power failure either via cache battery or any other technology. Justification: With NVMe drives, data can be directly written to NVMe disks. Mirroring of cache is not needed. Cache Battery protection is not needed.	No Change, as per RFP.
57	67	38	38. Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss	38. Must have either Cache battery backup or better technology for fully automatic de- stage of cache to disks during power failure to prevent possible data loss or alternate mechanism to protect write data. Justification: With NVMe drives, data can be directly written to NVMe disks. Mirroring of cache is not needed. Cache Battery protection is not needed.	No Change, as per RFP.
58	68	52	52. Array should be supplied with one global hot spare disk for every 25 disks of same capacity and speed.	52. Array should be supplied with one global/distributed hot spare disk for every 24 25-disks of same capacity and speed. Justification: sparing can either be fixed or distributed. We use distributed <u>sparing for better rebuild performance</u> .	No Change, as per RFP.

59	68	56	56. Storage must be able to provide application consistent snapshots of Virtual machine and Oracle RAC cluster hosted on Broadcom (VMware) cloud infrastructure	56. Storage must be able to provide application consistent snapshots of Virtual machine and Oracle RAC cluster hosted on Broadcom (VMware) cloud infrastructure either natively or with backup software integration. Justification: Request to allow application consistent snapshots with Backup software integration also.	No Change, as per RFP.
60	69	62	62. The Storage array must provide capability for thin and thick provisioning of LUNs along with automatic space reclamation technology	62. The Storage array must provide capability for thin and/or thick provisioning of LUNs along with automatic space reclamation technology Justification: Request to consider only Thin or Thin LUNs. Data compression and deduplication will require Thin LUNs.	No Change, as per RFP.
61	70	65	65. The proposed solution should have provision to protect and recover data in case of ransomware or malware attack for SAN & NAS workloads. Any license required should be provided on Day one for full capacity of system	65. The proposed solution should have provision to protect and recover data in case of ransomware or malware attack for SAN / NAS workloads. Any license required should be provided on Day one for full capacity of system Justification: Request to allow Ransomware protection solution for either SAN or NAS solution.	No Change, as per RFP.
62	70	67	67. Storage should be able to take VM Snapshot backup/ VM Aware snapshots on VM hosted on Broadcom (VMware) Cloud infrastructure, any additional license required for this functionality must be provided by the OEM from day one.	67. Storage solution should be able to take VM Snapshot backup/ VM Aware snapshots on VM hosted on Broadcom (VMware) Cloud infrastructure, any additional license required for this functionality must be provided by the OEM from day one. Justification: Request to allow Vmware snapshot solution with Backup software integration also.	No Change, as per RFP.
63	70	69	69. System must have capability to designate global hot spares that can automatically be used to replace a failed disk/drive	69. System must have capability to designate global/distributed hot spares that can automatically be used to replace a failed disk/drive	No Change, as per RFP.
64	72	84	84. Proposed storage solution must support storage-based replication, compression and industry leading replication and compression features, from day one	Request to remove compression as it will lead to performance impact on production storage.	No Change, as per RFP.
65	72	86	86. RPO for storage-based replication must be near Zero. Proposed storage should support synchronous replication with support for Near Zero RPO and RTO	86. RPO for storage-based replication must be near Zero or atleast 30 seconds. Proposed storage should support synchronous replication with support for Zero RPO and RTO Justification: Request to allow RPO of 30 seconds. It is as good as near zero.	No Change, as per RFP.
66	73	1	Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites.	Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and atleast 5 % 20% NVMe TLC drive (for data/Caching) based Object Storage for two sites. Request to allow entire capacity with NLSAS tier as SSD for caching tier for better participation.	No Change, as per RFP.
67	74	15	The Object storage proposed should be integrable solution with scale out architecture. Entire solution should be from Single OEM and must provide single point of support for all levels of issues/escalations for Object Storage.	Request to remove this specification for better participation.	No Change, as per RFP.
68	75	27	Object storage should support Compression functionality to optimize the storage capacity usage	Request to remove this specification for better participation.	No Change, as per RFP.
69	74	23	User portal login should provide multi-factor authentication.	Request to change as , User portal login should provide multi-factor authentication or any other equivalent methods.	No Change, as per RFP.
70	75	26	Tiering should be able to set based on Object Size or policy on age of data.	Request to remove this specification for better participation.	No Change, as per RFP.
71	88	4	Delivery of total hardware and software should be completed within 8 weeks.	Delivery of total hardware and software should be completed within 12-8 weeks. Request to allow 12 weeks for Hardware and Software delivery.	No Change, as per RFP.

72	57	3	The Bidder must have an average turnover of minimum Rs. 250 Crore during last 03 (three) financial year(s) i.e. FY2021-22, FY2022-23 and FY2023-24.	The Bidder must have an average turnover of minimum Rs. 250 Crore during last 03 (three) financial year(s) from the business of IT / ITes i.e. FY2021-22, FY2022-23 and FY2023-24.	No Change, as per RFP.
73	57	7	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	Client references and contact details(email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 Projects with client references of total 5 Peta Bytes are required). The Client should Be Govt / BFSI / PSU.	No Change, as per RFP.
74	57	8	At least 2 Client references along with contact details (email/ landline/ mobile) with install base of minimum 10 Peta Bytes storage total in India of the storage OEM, whose products being proposed as part of this RFP.	Request to remove point of specific proposed OEM from experience clause and change to Bidder should have experience relevant to solution proposed or asked by the bank.	No Change, as per RFP.
75	91	14	• 50% + taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. • Remaining 50% + taxes of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG. • No payment will be made on part delivery of ordered hardware. • The product should be under warranty for 5(Five) years. Post warranty period, AMC will be for 2 (two) years. AMC charges will be paid on a quarterly basis in arrears only. • Manpower charges will be paid on actuals on monthly basis in arrears.	Request to change payment terms as below:- 1) 70% + Taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. 2) 30% + Taxes taxes of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG.	No Change, as per RFP.
76	88	4	All milestones/dates are from the date of purchase order • Delivery of total hardware and software should be completed within 8 weeks. • Bidder to arrange planning and documentation within 10 weeks. • Installation and commissioning should be completed within 10 weeks of purchase order. Delivery locations will be in Navi Mumbai and Hyderabad. • Minimum 6 Manpower resources on daily basis to be onboarded within 10 weeks of PO. Remaining manpower can be onboarded within 14 weeks.	All milestones/dates are from the date of purchase order • Delivery of total hardware and software should be completed within 8 weeks. • Bidder to arrange planning and documentation within 12 weeks. • Installation and commissioning should be completed within 12 weeks of purchase order. Delivery locations will be in Navi Mumbai and Hyderabad. • Minimum 6 Manpower resources on daily basis to be onboarded within 12 weeks of PO. Remaining manpower can be onboarded within 14 weeks.	No Change, as per RFP.
77	63/167		Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.For Non Production Storage(Category 2) Connectivity between HA Pairs :34. Scale out architecture should have at least 50 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair	1. Is the bank planning to connect 8x 25 G ports per HA pair for controller interconnect? 2. Volume or Datastore movement from one HA pair to another in Modern Architecture is not part of Management or back end switch, it use modern FC and/or ethernet peering between HA pairs for low latency data movement, limiting it to only ethernet and a legacy way of cluster interconnect restricts wider participation, please allow 128G FC connection & 64G FC for non production (in addition to 100G/50G ethernet)per HA pair as an option for vol move feature.	No Change, as per RFP.
78	72/167		The Storage nodes in the object storage must be provided with redundant physical controllers. Minimum 4 numbers of 25Gbps LAN Ports on each node should be provided. Each node should be a separate appliance or physical servers.	Kindly allow OEM to size the bandwidth at the system/cluster level to deliver the asked throughput/Performance,instead of limiting to per node port/s.Pure Storgae solution is a modern architecture offering 800G bandwidth at the chassis level with built in Load balancers.	No Change, as per RFP.
79	72/167		Erasure coded data must be encoded efficiently, regardless of object size. Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available	the RFP ask-"Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available" points to inter site/global erasure coding that is not applicable here as the deployment is for less than 3 sites- here there are only 2Sites in RFP ask- which points to replication, Kindly clarify.	No Change, as per RFP.

80	73/167		Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	1. Kindly allow nomenclature as -Nodes/blade/controllers. 2. Please allow OEM to provide the required bandwidth at the system/chassis(800G) level to deliver the asked throughput/Performance,instead of limiting to per node port/s. 3. Minimum 28 node limit (is a limiting factor with modern architecture and pointing to a legacy architecture) should be relaxed as upto 28 Nodes or higher to allow latest generation future proof storage design and architecture/s.	No Change, as per RFP.
81	19	11. DEADLINE FOR SUBMISSION OF BIDS	i. Bids must be submitted online on GeM portal by the date and time mentioned in the "Schedule of Events" of this RFP.	Query: We are not able to locate the GeM number for this bid in the document. We request Bank to provide the GeM number.	Please refer Corrigendum No. 1
82	32	29. WARRANTY AND ANNUAL MAINTENANCE CONTRACT:	vii. In the event of system break down or failures at any stage, protection available, which would include the following, shall be specified. (d) Backup of system software/ Configuration	Clarification Sought: Here against the clause "(d) Backup of system software/ Configuration" we understand that bank wants bidder to take backup of the configuration. Not production data. And bank will provide secure storage and tool to store this configuration data. Kindly confirm or provide inputs.	No Change, as per RFP.
83	57	Appendix-B Bidder's Eligibility Criteria	6. The bidder should either be class I or class II local supplier or non-local supplier as per the guidelines on Public Procurement (preference to make in India) order 2017 and subsequent amendments thereof	Query: We request bank to clarify that, a bid with non-local supplier having local content is less than 20% declared in Appendix G will be considered as qualified bid.	No Change, as per RFP.
84	60 62	A: Production Storage (Category 1): B. Non-production Storage (Category 2): Performance IOPS, Throughput and Latency	(SI along with OEM need to perform the test onsite after delivery with enterprise level IO test tool as part of acceptance of the solution).	Request: For running the performance test onsite, servers and SAN switches will be required. We request bank to provide such equipment for the performance test purpose. We shall provide the details and configuration of such equipment required.	No Change, as per RFP.
85	61	A: Production Storage (Category 1): 4 Number of Racks Controllers	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	Clarification Sought: The clause 80+80 (PR+DR) Storage Controllers => Is 80 controllers a typo ? Kindly confirm and provide inputs	No Change, as per RFP.
86	61	A: Production Storage (Category 1): 4 Number of Racks Controllers	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	Query: We request bank to elaborate the clause "maximum 10% more" Does it imply scalability of maximum 10% in addition to 8 + 8 controllers supplied.	No Change, as per RFP.
87	62	B. Non-production Storage (Category 2): 4 Number of Racks Controllers	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	Clarification Sought: The clause 40+40 (PR+DR) Storage Controllers => Is 40 controllers a typo ? Kindly confirm and provide inputs	No Change, as per RFP.
88	62	B. Non-production Storage (Category 2): 4 Number of Racks Controllers	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	Query: We request bank to elaborate the clause "maximum 10% more" Does it imply scalability of maximum 10% in addition to 4 + 4 controllers supplied.	No Change, as per RFP.
89	62	For both the categories of storage mentioned above i.e. Category 1 and Category 2, the bidder must comply with below specifications	2 Security Encryption	Query: We request the bank will use own Key Management Software if required	No Change, as per RFP.
90		E. Manpower Requirement	1. Four L3 Level : Resources on daily basis 24x7x365 2. Four L2 Level : Resources from bidder on daily basis 24x7x365	Clarification Sought: We understand this implies total four resources. And not Four resources per shift. Kindly confirm or provide inputs.	No Change, as per RFP. The requirement is for daily basis 24x7x365
91		F. Rack Enclosure		Query: We request the bank to clarify if the racks can be supplied in dismantled state and assembled at site.	No Change, as per RFP.
92		Appendix-E Scope of Work and Payment Schedule Description of Services	The bidder has to rope-in expert team from OEM for designing, planning and documenting the storage implementation (it should include, migration plan from existing setup, optimal configurations, performance oriented design, SAN switch zoning and configuration) in consultation with bank	Clarification Sought: We understand this implies the migration will be executed by bidder. only the migration plan will be prepared and owned by the OEM. Kindly confirm or provide inputs.	No Change, as per RFP.

93	Appendix-E Scope of Work and Payment Schedule Description of Services	The bidder has to rope-in expert team from OEM for designing, planning and documenting the storage implementation (it should include, migration plan from existing setup, optimal configurations, performance oriented design, SAN switch zoning and configuration) in consultation with bank Bidder has to get the complete initial implementation, commissioning including management, monitoring and integration with existing solution done through OEM engineers.	Query: We request bank to provide details related to migration such as quantum of data to be migrated, existing hardware and connectivity details. details of the hosts connected to.	No Change, as per RFP.
94	Appendix-E Scope of Work and Payment Schedule Description of Services	Bidder has to arrange support and consultancy from OEM and Bidder's SME (Subject Matter Expert) team whenever demanded by Bank	Change Request: We request bank to quantify mandays instead so we can take adequate services from the OEM.	No Change, as per RFP.
95	Appendix-E Scope of Work and Payment Schedule Description of Services	Bidder has to arrange support and consultancy from OEM and Bidder's SME (Subject Matter Expert) team whenever demanded by Bank	Query : We request bank to clarify if this will be onsite or remote activity	No Change, as per RFP. It can be remote or onsite as per bank's requirement.
96	Appendix-E Scope of Work and Payment Description of Deliverables	Bank may procure any quantity from minimum 40% to 125% of the mentioned Bill of Materials(BOM) in this RFP within three years. Accordingly Purchase orders may be issued in phases. The rates discovered will be valid for three years from the date of Purchase order.	Change Request: We request bank to consider price increase due to \$ / INR fluctuation after 6 months of first PO. Predicting/Hedging \$ price for 3 years of period is not possible. Hence this request.	No Change, as per RFP.
97	Appendix-E Scope of Work and Payment Description of Deliverables	All FC cables, Ethernet cables & any other accessories required to establish connectivity between Storage, SAN Switch and respective hosts, LAN switches to be provisioned by bidder. FC Patch panel work need to be done by Bidder	Query: We understand for SAN connectivity, either the new SAN switches will be used or bank will provide SAN switch with active FC ports + transceivers. For LAN connectivity, Bank will provide LAN switches with required active ports + transceivers. Kindly confirm or clarify	No Change, as per RFP.
98	Appendix-E Scope of Work and Payment Description of Deliverables	All FC cables, Ethernet cables & any other accessories required to establish connectivity between Storage, SAN Switch and respective hosts, LAN switches to be provisioned by bidder. FC Patch panel work need to be done by Bidder	Clarification Sought: To arrive at possible length of cables, we understand the Switches will be in the same rack or next 2/3 racks. Kindly confirm or provide inputs.	No Change, as per RFP. The distance between two racks will not exceed 100 meters. Bidder has to provide rack, san switch connectivity cables, within rack connectivity cables within rack and across racks via patch panel (installed by bidder)
99	Appendix-E Scope of Work and Payment Description of Deliverables	All FC cables, Ethernet cables & any other accessories required to establish connectivity between Storage, SAN Switch and respective hosts, LAN switches to be provisioned by bidder. FC Patch panel work need to be done by Bidder	Clarification Sought: If the cables are to be laid across racks, we understand, overhead trays or trays below the flooring will be available in the bank's data centre. Kindly confirm or provide inputs.	No Change, as per RFP. Overhead trays are available in DC
100	Appendix-E Scope of Work and Payment Term of the Project	Installation and commissioning should be completed within 10 weeks of purchase order.	Clarification Sought: We understand, the timeline of 10 weeks does not include migration. Kindly confirm or provide inputs.	No Change, as per RFP. Migration activity is not included in 10 weeks timeline
101	Appendix-E Scope of Work and Payment Performance Requirements		Clarification Sought: We understand, the activities mentioned under this clause will be performed by the L2 and L3 resources deployed onsite. And not additional resources deputation. Kindly confirm or provide inputs.	No Change, as per RFP.
102	Appendix-E Scope of Work and Payment Performance Requirements Appendix-L Other Terms and Penalties	As mentioned in the Appendix - C Any issue faced by the Bank w.r.t. the entire Storage solution (all Hardware & Software components included) has to be resolved/workaround provided in 2 (two) hours except where there is a hardware failure for which a resolution time of 4 (four) hours is acceptable by the bank, provided it does not have major impact on the application availability. (d) Vendor shall ensure that faults and failures intimated by the Bank as above are set right within 4 (four) hours of being informed of the same. In any case the Equipment should be made workable and available not later than the next working day of the Bank	Query: As per the Warranty & AMC, Call to Resolution is provided as 6 (six) hours. Please confirm, which value is to be considered.	No Change, as per RFP.

103		Appendix-E Scope of Work and Payment 13 Training	Bidder need to arrange for OEM manufacturing unit visit, cost of which will be borne by the Bank. Bidder need to arrange for training and certification from OEM for 5 Bank officials.	Clarification Sought: We understand, sign-off will be provide after installation & commissioning. Training is not part of sign-off. Kindly confirm or provide inputs.	No Change, as per RFP.
104		Generic		Clarification Sought: To run the storage configuration and monitoring tool, infra will be required. We understand, bank will provide such infra, o.s., database. We will provide the pre-requisites Kindly confirm or provide inputs.	No Change, as per RFP.
105		ANNEXURE-A Other Terms and Penalties		Clarification Sought: We understand, wherever the terms in the main section of the RFP are different from Annexure-A, all the terms and penalties specified in the main section of the RFP shall prevail. <i>for instance,</i> As per main section: warranty = maximum 2 hours response time with 6 hours Call to Resolution including part replacement As per Annexure-A: (d) Vendor shall ensure that faults and failures intimated by the Bank as above are set right within 4 hours of being informed of the same	Please refer Corrigendum No. 1
106	84	1 Description of Services	In the event of Bank engaging the services of CDAC/any other party for inspection and testing of the supplied material, the bidder should ensure the presence of OEM engineer.	Please share the testing criteria	No Change, as per RFP. The specifications mentioned in the RFP will be verified by C-DAC/Third party.
107	84	1 Description of Services	The bidder has to rope-in expert team from OEM for designing, planning and documenting the storage implementation (it should include, migration plan from existing setup, optimal configurations, performance oriented design, SAN switch zoning and configuration) in consultation with bank.	Please share the existing setup from which migration to be done so that we can identify the tool required for migration	No Change, as per RFP.
108	84	1 Description of Services	Bidder has to get the complete initial implementation, commissioning including management, monitoring and integration with existing solution done through OEM engineers.	please share the existing setup details which need to be integrated with storage system	No Change, as per RFP.
109	84	1 Description of Services	Bidder has to ensure a neat, labelled and high standard implementation. All works related to implementation like cable laying, tagging, lifting, shifting and all relevant activities as per data centre norms are in scope of bidder during the entire contract period.	Please confirm it is a one time activity or need to be done later as well if yes please confirm the occurrence of the activity	No Change, as per RFP. The activity to be done as and when required.
110	84	1 Description of Services	In case if movement of racks (new/existing), cabling etc. to be done, Bidder has to take the responsibility of end to-end implementation.	Please confirm it is a one time activity or need to be done later as well if yes please confirm the occurrence of the activity, as bidder is not aware of existing rack's network connectivity, requesting to remove the existing word from the clause.	No Change, as per RFP. The activity to be done as and when required.
111	85	1 Description of Services	Bidder should arrange yearly review from OEM's SME on efficiency, operations, utilization and areas of improvement.	Please share the testing criteria and parameter	No Change, as per RFP.
112	85	1 Description of Services	Flash Wear warranty: Flash read/write wear out should be covered under warranty.	Please let us know the Flashwear performance acceptable values of the parameters.	No Change, as per RFP.
113	85	1 Description of Services	Bank will procure minimum 40% of the quantity mentioned in first year.	please share the timelines for procurement of remaining 60% quantity	No Change, as per RFP. The remaining hardware may be procured with next 2 years.
114	85	2 Description of Deliverables	Eight onsite manpower resources on all days of the week for management, maintenance and support on 24x7x365 basis.	please confirm eight resources required everyday, also confirm the shift timings and resources required in per shift	No Change, as per RFP. Yes, eight resources are required on daily basis on all days of the contract.
115	86	2 Description of Deliverables	All FC cables, Ethernet cables & any other accessories required to establish connectivity between Storage, SAN Switch and respective hosts, LAN switches to be provisioned by bidder. FC Patch panel work need to be done by Bidder.	FC Patch panel also need to be given by bidder and cabling will be within rack or between different racks. What about LAN switches it will be provided by banks or bidder have to provide	No Change, as per RFP LAN Switches will be provided by bank

116	86	2 Description of Deliverables	Bidder has to arrange for evaluation of the proposed storage setup through OEM SME on yearly basis and submit a whitepaper providing performance benchmarking, optimization measures etc.	What will be the performance benchmarking criteria and parameter	No Change as per RFP. Performance benchmarking will be on IOPS, Throughput and Latency for the bank's workload.
117	86	3 Third-Party Components	New storage solution should be integrated with existing cloud setup without any additional cost to the Bank.	Please share the details of existing cloud setup, is their any requirement for any tool for integration wit existing cloud	No Change as per RFP. The existing setup is VMware Cloud Foundation (VCF) based.
118	87	6 Integration / Migration Requirements with existing systems	Bidder has to arrange for migration of storage from existing setup to new hardware as guided by the Bank.	Please share the details of existing setup from where migration is to be done so that we can plan for the tools and skills required for migration	No Change as per RFP. The existing setup is VMware Cloud Foundation (VCF) based.
119	85	2 Description of Deliverables	Bidder must arrange for delivery, installation, power on, necessary cabling, etc.	Clarification is required : Arrange for "power on". Whether bidder has to provide UPS with power cabling in case of power connection or Bank will provide that?	No Change as per RFP, Bidder needs to provide PDU
120	86	2 Description of Deliverables	clause pg#85 "Eight onsite manpower resources on all days of the week for management, maintenance and support on 24x7x365 basis." - and Pg#87 "Minimum 6 Manpower resources on daily basis to be onboarded within 10 weeks of PO.Remaining manpower can be onboarded within 14 weeks."	Please clarify	No Change, as per RFP. Minimum resources to be supplied within specific timelines.
121	86	2 Description of Deliverables	Bank may place higher or lower quantities or manpower order as per requirement.	We are ok provide higher or lower daily resources.How ever we resquest you to provide the upper & lower limit of the number of additional people by +/- percentage.	No Change, as per RFP.
122	107	For performance and support: pt 5	If any production LUN/volume went offline any point of time due to any Human error /monitoring Negligence/Software bug	Kindly confirm whether only bidder's support engineer will get the admin contgrol for the entire storage Mgmt? As it is mnetioned that 1lac per incident penalty will be imposed if LUN issue occurred by Human error We request you to remove this penalty clause.	No Change, as per RFP.
123	19	PERIOD OF BID VALIDITY AND VALIDITY OF PRICE QUOTED IN REVERSE AUCTION (RA):	ii. Price quoted by the Bidder in Reverse auction shall remain valid for duration of 36 calendar months from the date of Purchase order.	Request bank to Modify the clause " Price quoted by the Bidder in Reverse auction shall remain valid for duration of 12 calendar months from the date of Purchase order."	No Change, as per RFP.
124	60 & 61	1. Usable Caapcity	1. Total 18 Peta Bytes (PB) (9 PB at PR site and 9 PB at DR site) usable storage space, NVMe drive based storage array for two sites. Usable storage space means storage calculated after RAID 6 or equivalent and without deduplication/compression and excluding hotspare.	Request Bank to change this clause to usable PiB instead of PB as it will provide the exact usable space as seen by the application. PB is less than PiB in terms of actual usable space consumed by the application. 9PiB (Actual Usable) = 10.133 PB 9PB (Usable) = 7.993 PiB (Actual usable space available)	No Change, as per RFP. Please refer Definitions Clause on Page no 10 wherein it is clarified that 1 (One) Peta bytes (PB) = 1024 Tera Bytes (TB). 1 TB = 1024 GB and so on
125	64	3. Management, Monitoring and Thirdparty product integrations	15. Storage should provide dashboard with performance data with per second sampling basis. Capability should be available for providing dashboard access to end users if required	Request the bank to change this clause to " provide dashboard with 1-10 second performance data sampling"	No Change, as per RFP.
126	75	28	Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	Request bank to reduce the node count to minimum 24 nodes & allow OEM's to quote more nodes to meet the requirements. As the requested node count of 28 is increasing the usable capacity of the RFP by 30%.	No Change, as per RFP.
127	83	F. Rack Enclosure 2. Environmental Monitoring	6. The rack should be equipped with integrated sensors to monitor temperature, humidity, airflow, and pressure. These sensors should be capable of real-time reporting to ensure optimal environmental conditions and enable proactive management of server health	Request bank to remove the integrated sensors for monitoring temperature humidity, airflow & pressure from the clause, as no OEM nor Third party rack provide these functionality as standard offerings. These are additional solution components that needs to be installed for such montoring requirements.	No Change, as per RFP.
128	83	F. Rack Enclosure 2. Environmental Monitoring	7. The environmental monitoring system should be able to send real-time alerts for critical conditions, such as temperature spikes or airflow issues, to minimize downtime and prevent equipment damage	Request bank to remove the environmental monitoring & Real time alerting functionality in racks, as no OEM nor Third party rack provide these functionality as standard offerings. These are additional solution components that needs to be installed for such montoring requirements.	No Change, as per RFP.
129	83	F. Rack Enclosure 2.Intelligent Power Disribution Units (PDUs)	8. PDUs should provide real-time monitoring of power usage at the outlet level, enabling precise tracking of power consumption per device.	OEM rack PDU's do not provide these functionality . Request bank to drop this clause or allow OEM to quote third party PDU's.	No Change, as per RFP.
130	83	F. Rack Enclosure 2.Intelligent Power Disribution Units (PDUs)	9. PDUs should support remote switching, allowing for the remote shutdown or reboot of servers and devices, providing flexibility in managing power in case of emergencies or maintenance.	OEM rack PDU's do not provide these functionality . Request bank to drop this clause.	No Change, as per RFP.

131	83	F. Rack Enclosure 2. Intelligent Power Distribution Units (PDUs)	10. The PDUs should include power metering capabilities to provide detailed usage data, enabling better energy management and cost control.	OEM rack PDU's do not provide these functionality . Request bank to drop this clause.	No Change, as per RFP.
132	80 & 81	E. Manpower Requirement	Ability to work collaboratively in a team environment, collaboration skills with other IT teams such as Vmware support team, Application teams, Cisco SAN Switch support, system administrators and network engineers	i) Request bank to clarify if the onsite resources need to manage the new SAN Switches as part of the Scope of work for resident engineer resources requested in RFP. ii) Are the RE's required to manage the existing SAN switches and Storage array's.	No Change, as per RFP.
133	87	Onsite Resources	•Eight onsite manpower resources on all days of the week for management, maintenance and support on 24x7x365 basis.	Request Bank to specify whether the onsite resources deployed need to manage the existing storage and the SAN switches inventory in Meghdoot.	No Change, as per RFP. Eight manpower resources are required on daily basis.
134	88	Delivery	•Delivery of total hardware and software should be completed within 8 weeks.	Request bank to modify the delivery upto 10 weeks	No Change, as per RFP.
135	88	Installation and commissioning	•Bidder to arrange planning and documentation within 10 weeks. •Installation and commissioning should be completed within 10 weeks of purchase order. Delivery locations will be in Navi Mumbai and Hyderabad	Request bank to modify the Installation and commissioning should be completed within 12 weeks of purchase order.	No Change, as per RFP.
136	89	Appendix-E	Scope of Work and Payment Schedule (Point 4) - Term of the Project - Minimum 6 Manpower resources on daily basis to be onboarded within 10 weeks of PO. Remaining manpower can be onboarded within 14 weeks.	Bank has requested total 4Nos-L3 & 4 Nos-L2 Engineers i.e Total 8 Nos engineers, Kindly clarify do bank required this 8 nos engineers in roaster or bank require 8 Nos of engineers on daily basis (24*7) as per shifts.	No Change, as per RFP. Eight manpower resources are required on daily basis.
137	94	Appendix-F	Indicative Price Bid	We request Bank to add additional table for Installation/ Commissioning Charges. As this is missing in this indicative commercial.	Please refer Corrigendum No. 1
138		Capacity	Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites.	Request to update this to reflect : NL-SAS/SATA and QLC/TLC	Please refer Corrigendum No. 1
139		Throughput	Sustained Read Throughput: 30 GB/s (Gigabytes per second) or higher per site for object size of 4 MB. Sustained Write Throughput: 20 GB/s or higher per site for object size of 4 MB.	Higher object size is advantageous. Please clarify if any specific reason for the 4MB object size based on workload .	No Change, as per RFP.
140		Latency (Response Time)	Latency for Small Objects (<1MB): < 10 milliseconds (ms) for both read and write operations per site. Latency for Large Objects (>100MB): < 100 ms for read operations.	Defining latency depends on workload, underlying infra. These values are steep for object storage solutions for archive and tertiary workloads	No Change, as per RFP.
141		IOPS (Input/Output Operations Per Second)	Small Object IOPS (e.g., 4KB): 5,00,000 IOPS or higher for mixed read/write workloads. Large Object IOPS (e.g., 1MB): 50,000 IOPS or higher for sequential read/write workloads.	Request to consider Transactions Per Second (TPS) as a better measure for object storage. IOPS is an incorrect parameter for measuring performance in object environment	No Change, as per RFP.
142		Disk Size	Each data drives should have a maximum capacity of 16.xx TB 7.2k RPM NL-SAS HDD and maximum of 16.xxTB capacity drive in SSD.	Please allow Bidder to quote any capacity size drive. Denser Capacity drives are available, this can help reduce the footprint of the solution	No Change, as per RFP.
143			Erasure coding algorithm provided must support data protection against 3 or more simultaneous nodes / disks failures across the storage nodes.	28 Nodes with 3 disks/node failure and 6 9's availability is mathematically inaccurate. Request to be updated to safeguard data as an entity and not individual disks.	No Change, as per RFP.
144			Erasure coded data must be encoded efficiently, regardless of object size. Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available.	Strong consistency methodology of data access	No Change, as per RFP.
145			User portal login should provide multi-factor authentication.	Request To be enabled via the SAML authentication provider	No Change, as per RFP.
146			Object storage must be supplied with ability to tier objects from local disk to external cheaper storage tier like S3 compliant storage, Public Cloud.	Please clarify reason for tiering be required .The object storage is being used for archive workload, which is the last tier in data movement for long term retention. Movement of data/copy to cloud can be considered here.	No Change, as per RFP.
147			Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	Please give clarity on specifically this mentioned number. If the other parameters are met, and can be accomplished with less number of nodes?	No Change, as per RFP.
148			Five years Warranty and 2 years AMC - 24x7 comprehensive onsite support from OEM with maximum 2 hours response time with 6 hours Call to Resolution including part replacement, access to OEM support portal, OEM technical support on 24x7x365 basis. Highest Level of Proactive and Reactive support covering Half yearly Firmware analysis, and Proactive Health analysis.	Request to consider 6 hours response time	No Change, as per RFP.

149	5		Rs. 3,00,00,000/- (Rs Three crore only)- Performance Security in form of BG should be valid for Seven year(s) and three months from the effective date of the Contract.	13	3 Cr PBG for 5 years to cover the warranty period . For AMC period take 1 cr PBG prior to releasing of 3 cr pbg .	No Change, as per RFP.
150	57		Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	7	Request you to please consider PO copies of total 3 peta bytes instead of total 5 peta bytes.	No Change, as per RFP.
151	88			4 Delivery - 8 Weeks	Delivery - 12 Weeks	No Change, as per RFP.
152	88			4 Delivery and Installation - 10 Weeks	Please consider Delivery and Installation -16weeks	No Change, as per RFP.
153	91		Payment - 50% against Delivery , the remaining 50% + taxes of the Servers (hardware, software and warranty) will be released on commissioning, verification of bill of material by Bank/CDAC/Third party and submission of PBG. The remaining 50% + taxes of the Servers (hardware, software and warranty) will be released on commissioning, verification of bill of material by Bank/CDAC/Third party and submission of PBG. No payment will be made on part delivery of ordered hardware.	14	Please consider 80% against Delivery and 20% against installation , on verification by bank and submission of PBG. Request you to drop verification by CDAC or Third party .	No Change, as per RFP.
154	89			14 AMC Payment will be Quarterly	Please consider AMC Payment as monthly instead quarterly or quarterly in advance.	No Change, as per RFP.
155	89			14 Manpower charges will be paid on actuals on monthly basis in arrears.	Request you to please change it to monthly payment.	No Change, as per RFP.
156	92	15- Indicative price	Comprehensive annual maintenance cost for 18 PB Production storage for both sites for two years, (This cost should be in the range of 8% to 12 % p.a. of the Product cost.)		Request you to consider the range 10% to 15% p.a. of the product cost.	No Change, as per RFP.
157	87		The prices discovered through this RFP will be valid for a minimum period of three years from the date of initial purchase order.	1	Reduce the validity of the price discovered through the RFP for a period of 1 year. Request you to incorporate the dollar escalation clause as follows. If the exchange rate with respect to the dollar (USD) increases by more than 3 % from the date of purchase order then SBI will pay extra to the tune of the percentage increase beyond 3%. The dollar rate will be fetched from the RBI website.	No Change, as per RFP.
158	68		The software & hardware quoted and supplied by the bidder in this RFP should not be declared as End of Support / Life (EOS/EOL) by the OEM within the 7 years of Purchase order / contract period		The OEM maximum give seven year for end of support / End of life for the offied product if you are buying after 1 year or 2 year from the intial purchase order then the 7 years support may not be pratical and available. So request you to decrease the support period accordigly to remain within max 7 years from inital purchase order.	No Change, as per RFP.
159	47		i. The Bank, by written notice of not less than 90 (ninety) days, may terminate the Contract, in whole or in part, for its convenience, provided same shall not be invoked by the Bank before completion of half of the total Contract period (including the notice period). ii. In the event of termination of the Agreement for the Bank's convenience, Service Provider shall be entitled to receive payment for the Services rendered (delivered) up to the effective date of termination.	49	This is not a service contract rather it is a capex contract wherein all the equipment are delivered immediately on order and warranty/ AMC support is provided. Due to this this clause is not applicable and so request you to drop this clause .	No Change, as per RFP.
160	30	iii	Service Provider shall be willing to transfer skills to relevant personnel of the Bank, by means of training and documentation		Need clarity at Bank premises or Bidder defined location , Training will be given by OEM or bidder	No Change, as per RFP.
161	30	iii	. Service Provider shall provide and implement patches/ upgrades/ updates for Products (software/ firmware/ OS) as and when released by Service Provider/ OEM free of cost. Service Provider should bring to notice of the Bank all releases/ version changes		OS supply and installation is not part of the scope so request you to please confirm.	No Change, as per RFP. OS Supply and
162	89		Integration / Migration Requirements with existing systems Yes, New hardware should be integrated with old platform without any additional cost to the Bank.	6	Any migration of data will be taken care by bank and is not part of the current RFP scope. For the purpose of integration if any upgradation and firmware is required bank has to take care for the same.	No Change, as per RFP.
163	124		Service Provider shall report the incidents, including cyber incidents and those resulting in disruption of service and data loss/ leakage immediately but not later than one hour of detection.	6.4	This is not related to the storage we are supplying hardware. Please clarify the same.	No Change, as per RFP.
164	145	i,ii,iii	Future additions of Hardware / Software: (a) The Bank would have the right to i. Shift supplied systems to an alternative site of its choice. ii. Disconnect / connect / substitute peripherals such as printers, etc. or devices or any equipment / software acquired from another vendor. iii. Expand the capacity / enhance the features / upgrade the hardware / software supplied, either from Vendor, or third party, or developed in-house.		a) Shifting will be taken care of by bidder mutually agreed rate. b) This is not relevant, request you to please drop this clause . c) the patches, upgrades etc as per standard warranty of OEM will be supplied as per the scope .	No Change, as per RFP.

165	107	1	Penalty for breach in Rs. - Rs. 1 Lac,	Request you to consider Rs 50K instead of Rs 1 Lac.	No Change, as per RFP.
166	107	2	Penalty for breach in Rs. - Rs. 5 Lac,	Request you to consider Rs 1 lac instead of Rs 5 Lac.	No Change, as per RFP.
167	107	3	Rs. 10 Lac and bank may take appropriate decision from invoking PBG or termination of contract etc	Request you to consider Rs 5 lac instead of Rs 10 Lac.	No Change, as per RFP.
168	108	4	If a resource is not available- 150% deduction for the resource on pro-rata basis.	If a resource is not available request you to consider 50% deduction for the resource on pro-rata basis.	No Change, as per RFP.
169	108	5	If any production LUN/volume went offline any point of time due to any Human error /monitoring Negligence/Software bug Rs. 1 Lakhs per incident	If any production LUN/volume went offline any point of time due to any Human error /monitoring Negligence/Software bug Rs. 50 Lakhs per incident.	No Change, as per RFP.
170	108	6	If both controller of HA pair went offline at any point of time due to any Human error /monitoring Negligence/Software bug	Please drop the clause as already SLA penalty is there.	No Change, as per RFP.
171	64	Compatibility	18. The proposed storage solution must be fully compatible with Commvault Backup and Broadcom (VMware) softwares as well as other industry leading backup, virtualization and cloud software's during the entire contract period. The bidder will be completely responsible for end-to-end integration of the proposed solution with the existing setup	Need more details of Existing VMware software & Backup software version details with Storage space	No Change, as per RFP.
172	67	Functional Requirement	41. The proposed storage solution must be fully compatible with Broadcom (VMware) Virtualization portfolio and Commvault Stack. The bidder and OEM will be responsible for end-to-end integration of the proposed solution with the existing VMware setup.	Need more details of Existing VMware software version details	No Change, as per RFP.
173	89	Scope of Work and Payment Schedule	Integration / Migration: Requirements with existing systems: Bidder has to arrange for migration of storage from existing setup to new hardware as guided by the Bank.	Need more details of existing storage volume level details also need more details of higher size of VMDK with application and DB details.also need more details of existing Block, file & Object storage data and its size	No Change, as per RFP.
174	71	Operating System and Clustering support	75. Proposed Storage must homogeneously integrate with existing Cloud incorporating Broadcom (VMware) technology stack, Commvault Backup Solution and existing storage environment. End to end integration will be responsibility of bidder and OEM. In case of noncompliance to any of the integration with the existing system, the bidder will replace/return the solution without	need more details of VMware Stack ,commvault software version and its policy and architecture of existing setup	No Change, as per RFP.
175	72	Storage Based Replication	86. RPO for storage-based replication must be near Zero. Proposed storage should support synchronous replication with support for Near Zero RPO and RTO	for achieving RTO and RPO between DC to DR required bandwidth will be provided by bank	No Change, as per RFP.
176	121	RESPONSIBILITIES OF SERVICE PROVIDER	Service Provider shall report the incidents, including cyber incidents and those resulting in disruption of service and data loss/ leakage immediately but not later than one hour of detection.	need more details of existing Cyber security product and policy for new infra integration	No Change, as per RFP.

177	144	RESPONSIBILITIES OF SERVICE PROVIDER	If Bank desires to shift the Equipment to a new site and install it thereof, the Vendor shall be informed of the same. The Bank shall bear the reasonable mutually agreed charges for such shifting and Vendor shall provide necessary arrangement to the Bank in doing so. The terms of this RFP, after such shifting to the alternate site and reinstallation thereof would continue to apply and binding on Vendor.	Who will be provided the Insurance of equipment at the time of shifting	No Change, as per RFP.
178	57	Eligibility Cireteria	The Bidder must have an average turnover of minimum Rs. 250 Crore during last 03 (three) financial year(s) i.e. FY2021-22, FY2022-23 and FY2023-24.	The Bidder must have an average turnover of minimum Rs. 100 Crore during last 03 (three) financial year(s) i.e. FY2021-22, FY2022-23 and FY2023-24.	No Change, as per RFP.
179	57	Eligibility Cireteria	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 1 Peta Bytes are required)	No Change, as per RFP.
180	57	Eligibility Cireteria	At least 2 Client references along with contact details (email/ landline/ mobile) with install base of minimum 10 Peta Bytes storage total in India of the storage OEM, whose products being proposed as part of this RFP.	At least 2 Client references along with contact details (email/ landline/ mobile) with install base of minimum 2 Peta Bytes storage total in India of the storage OEM, whose products being proposed as part of this RFP.	No Change, as per RFP.
181	62	Cache size	Per controller cache must be minimum of 1 TB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 2 TB	It is requested that the Technical Committee modify the clause to specify a minimum of 512GB cache per array/node/HA pair, as each Storage OEM has its own architecture, and the amount of cache does not impact the performance provided by the storage. Limiting the cache to a specific amount would restrict participation from leading storage OEMs and potentially favor certain OEMs. Not be able to participate with 2TB , please amend this with cache must be minimum 1TB	No Change, as per RFP.
182	91		50% + taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. Remaining 50% + taxes of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG. Manpower charges will be paid on actuals on monthly basis in arrears.	70% + Total taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. Remaining 20% of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution. Remaining 10% against submission of PBG. Manpower charges will be paid on actuals on monthly basis in advance.	No Change, as per RFP.
183	4		13 Bank Guarantee -3Cr	As per standard terms , it has to be 5% of PO value.	No Change, as per RFP.
184	46		46 existing Service Provider is breach of this obligation, they shall be liable for paying a penalty of 10% of the total Project Cost on demand to the Bank, which may be settled from the payment of invoices or Bank Guarantee for the contracted period or by invocation of Bank Guarantee.	Change needed - 10% penalty has to be reduce to 5%.	No Change, as per RFP.
185	61	7, Number of Racks , Controller s	7. The proposed solution model should have at least 80+80 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 8 storage clusters per site.	Different vendor have different technologies to meet the performance and the contoller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 8 cluster would be OEM specific. where a particular OEM has an advantage. There should not be any limit to the cluster count as long we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 12.	No Change, as per RFP.
186	62	5, Performance, Disk Size	5. Maximum size of each NVMe storage drive should be less than 30.xx TB with TLC or QLC drives.	Since Bank is asking for huge capacity, we feel using 30TB drives will lead to longer re-build time and in case of multiple drive failure there are chances of RAID groups going to de-grade mode which might leads to higher latency, impact in the performance and chance of data loss. Hence, we request bank to limit the drive size to 15.xx TB or lesser like production storage.	No Change, as per RFP.

187	62	7, Number of Racks, Controller s	7. The proposed solution model should have at least 40+40 (PR+DR) Storage Controllers or maximum 10% more at each site in scale out architecture on day one which should be divided in not more than 4 storage clusters per site.	Different vendor have different technologies to meet the performance and the controller count per cluster. since bank has already defined the number of controllers required per cluster, Limiting to 4 cluster would be OEM specific. where a particular OEM has an advantage. There should not be any limit to the cluster count as long as we are meeting the number of controller count, performance and rack space criteria. We request Bank to remove the number of cluster count or increase the cluster count to 6.	No Change, as per RFP.
188	64	17, Number of Racks,	17. The proposed solution should accommodate in maximum 630U (maximum 18 racks size i.e. 35U X 18) at each site.	We request bank to clarify if 630U limited to production storage and non production only at each site or total of all sites	No Change, as per RFP. For each Production and Non Production storage, 630U is the maximum rack size. Bidder should try to accommodate the solution in given number of racks, in case the solution mandatorily requires additional racks, upto 20% extra racks may be permitted.
189	65	28, Architecture & Processing power, Data Integrity	28. Each controller operating in an active-active cluster environment should have mirroring support for the system's write cache must be battery protected with unwritten data in write cache protected for up to 72 hours in event of power failure. Data integrity must be retained in any case.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de-stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP. Invalid Query
190	65	29, FC Ports	29. Each controller Storage solution must have minimum 8 (4 primary and 4 Secondary) 32Gbps SAN FC ports dedicated for serving SAN requests of Host. Additionally, these ports should also support NVME over fabric protocol	We request bank to clarify if each controller with primary 4 and secondary 4 refer to the HA pair or single controller.	No Change, as per RFP.
191	65	30, LAN Port 1	30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving iscsi and NFS.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for iSCSI and NFS, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for Production Storage as per banks calculation. Since bank has already asked for almost 160 FC Ports of 32 Gbps per cluster these LAN ports requirement seems to be very high and favouring single vendor. Hence, we request bank to please share the workload would be running on NFS and iSCSI or reduce the number of ports recruitment to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.
192	65	31, LAN Port 2	31. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving data replication.	We request bank to clarify if each controller requires 4 ports of 10 Gbps / 2 ports of 25 Gbps each for replication, which is almost 80 – 10Gbps /40 – 25Gbps ports per cluster for production storage only dedicated for replication, as per banks calculation. Where in bank is considering only 60% of capacity for replication. Hence ports requirement for replication seems to be very high and favouring single vendor. Hence, we request bank to please reduce the number of ports requirement to 4 ports of 10Gbps or 2 ports of 25 Gbps per HA pair.	No Change, as per RFP.
193	66	34, Connectivity between HA Pairs	34. Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.	We request bank to clarify the need of 100Gbps bandwidth, which is OEM specific and helping particular vendor, Request bank either change and reduce the bandwidth to 50Gbps per controller as it is sufficient for data migration or please share the sizing for 100 Gbps bandwidth requirements per controller for backend connectivity.	No Change, as per RFP.
194	67	37, Cache Requirements, Data Integrity	37. The storage should dynamically allocate Read Cache and Write Cache from the available cache to accommodate the I/O. The storage architecture should provide battery backup to the entire write cache in case of a disaster i.e. Data in cache should be protected against unexpected power failures for 72 hours of time.	Use of battery is a legacy way as the battery may be damaged with time. The technology has evolved over the period and now there are better ways to meet the data integrity. 72 Hours battery backup is OEM specific request bank to change this clause with Must have either Cache battery backup or better technology for fully automatic de-stage of cache to disks during power failure to prevent possible data loss	No Change, as per RFP.

195	91	14,Payment Scheudle	50% + taxes of the storage solution (hardware, software and warranty) will be released on delivery of hardware. • Remaining 50% + taxes of the storage solution (hardware, software and warranty) will be released on verification of bill of material, storage capacity and performance as given in the RFP by Bank/CDAC/Third party and commissioning of storage solution as well as submission of PBG. • No payment will be made on part delivery of ordered hardware. • The product should be under warranty for 5(Five) years. Post warranty period, AMC will be for 2 (two) years. AMC charges will be paid on a quarterly basis in arrears only. • Manpower charges will be paid on actuals on monthly basis in arrears.	80% on delivery, 10% on PBG & 10% on Sign off.	No Change, as per RFP.
196				We here by request you to exempt from MII.	No Change, as per RFP.
197	60/167		Maximum size of each NVMe storage drive should be less than 18.xx TB with TLC (Triple Level Cell) drives only	Kindly allow the Drive size as per the recommended best practise sizing of the Storage OEM to meet the performance and availability asks	No Change, as per RFP.
198	60/167		The storage bill of material should be from a single OEM i.e. all the storages should be from the same OEM. Bidder cannot quote storage from multiple OEMs	Is the bank looking at only Primary Production Storage and Non-Production storage from same OEM? Can Object storage be quoted from a different brand/OEM?	No Change, as per RFP.
199	61/167		5. Maximum size of each NVMe storage drive should be less than 30.xx TB with TLC or QLC drives.	Kindly allow larger size QLC drives to be quoted, as per latest industry trends QLC drives are available in 75TB configurations, while having all requirements of availability and resiliency catered to.	No Change, as per RFP.
200	61/167		Storage solution per site should handle minimum 80 lacs front end IOPS (8 KB block size, 60% read & 40% write) with maximum 2 ms Server side (initiator) latency with 70% cache hit while having capacity optimization features including snapshot, Replication, deduplication, compression and encryption enabled. (SI along with OEM need to perform the test onsite after delivery with enterprise level IO test tool as part of acceptance of the solution).	PL allow Latency allowance of 2-4 ms for the QLC NVMe option at DR site.	No Change, as per RFP.
201	62/167		7. The Proposed solution should provide self-encrypting drives or Data Encryption at Rest that are AES256, FIPS 140 - 2 and other industry leading encryption algorithm or standards compliant. The proposed encryption should not impact performance.	SED are limiting, Is bank ok with System level data encryption; PL allow Storage level encryption solution.	No Change, as per RFP.
202	63/167		19. NVMe disk Raid should be formed with maximum 18 drives in Single RAID Group (16D+2P).	Kindly allow the Drive raid group size as per the recommended best practise sizing of the Storage OEM to meet the performance and availability asks	No Change, as per RFP.
203	63/167		Scale out architecture should have at least 100 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair.For Non Production Storage(Category 2) Connectivity between HA Pairs :34. Scale out architecture should have at least 50 Gbps bandwidth per controller for backend interconnect switches / InfiniBand switches / pci-e based multilane connectivity between all HA pair. It is required for quick migration of datastore from One HA pair to another HA pair	1. Is the bank planning to connect 8x 25 G ports per HA pair for controller interconnect? 2. Volume or Datastore movement from one HA pair to another in Modern Architecture is not part of Management or back end switch, it use modern FC and/or ethernet peering between HA pairs for low latency data movement, limiting it to only ethernet and a legacy way of cluster interconnect restricts wider participation, please allow 128G FC connection & 64G FC for non production (in addition to 100G/50G ethernet)per HA pair as an option for vol move feature.	No Change, as per RFP.
204	66/167		Storage should be enterprise class (declared in publicly available documentation) high end storage	Is analyst reference allowed to be quoted for this point..	No Change, as per RFP.
205	67/167		Array should be supplied with one global hot spare disk for every 25 disks of same capacity and speed	Kindly allow Equivalent of Spare disk or Reserve spare capacity on the system .	No Change, as per RFP.
206	68/167		62. The Storage array must provide capability for thin and thick provisioning of LUNs along with automatic space reclamation technology	Kindly allow Thin/Thick LUN	No Change, as per RFP.
207	69/167		69. System must have capability to designate global hot spares that can automatically be used to replace a failed disk/drive	Kindly allow Equivalent of designate global hot spare disk or Reserve spare capacity on the system .	No Change, as per RFP.

208	70/167		75. Proposed Storage must homogeneously integrate with existing Cloud incorporating Broadcom (VMware) technology stack, Commvault Backup Solution and existing storage environment.	Kindly expand on the integration with existing storage environment, what integration is the bank envisioning between two different brand storage systems?	No Change, as per RFP.
209	71/167		86. RPO for storage-based replication must be near Zero. Proposed storage should support synchronous replication with support for Near Zero RPO and RTO	True Sync replication solution is Zero RPO and RTO, near zero doesn't qualify as Sync but semi-sync / continuous replication, is semi-sync/continuous replication required instead of Synchronous?	No Change, as per RFP.
210	71/167		Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites	Kindly allow High capacity,High density 75TB QLC drives in addition of NL-SAS drive as well for the solution to have better performance and efficiency.	No Change, as per RFP.
211	71/167		Each data drives should have a maximum capacity of 16.xx TB 7.2k RPM NL-SAS HDD and maximum of 16.xxTB capacity drive in SSD.	Kindly allow High capacity,High density 75TB QLC drives in addition of NL-SAS drive as well for the solution to have better performance and efficiency.	No Change, as per RFP.
212	72/167		The Storage nodes in the object storage must be provided with redundant physical controllers. Minimum 4 numbers of 25Gbps LAN Ports on each node should be provided. Each node should be a separate appliance or physical servers.	Kindly allow OEM to size the bandwidth at the system/cluster level to deliver the asked throughput/Performance,instead of limiting to per node port/s.Pure Storgae solution is a modern architecture offering 800G bandwidth at the chassis level with built in Load balancers.	No Change, as per RFP.
213	72/167		Erasure coded data must be encoded efficiently, regardless of object size. Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available	the RFP ask-"Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available" points to inter site/global erasure coding that is not applicable here as the deploymet is for less than 3 sites- here there are only 2Sites in Rfp ask- which points to replication, Kindly clarify.	No Change, as per RFP.
214	73/167		The Object storage proposed should be integrable solution with scale out architecture. Entire solution should be from Single OEM and must provide single point of support for all levels of issues/escalations for Object Storage.	Kindly expand on the details and level of integration required, also Please allow bidder to quote best of breed solution for Primary as well as Object storage by relaxing the clause of Single OEM for Primary and Object storage solution.	No Change, as per RFP.
215	73/167		Tiering should be able to set based on Object Size or policy on age of data.	Is the bank looking to tier data to Hyperscaler cloud, kindly share details of the Hyperscaler cloud solution.	No Change, as per RFP.
216	73/167		Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	1. Kindly allow nomenclature as -Nodes/blade/controllers. 2. Please allow OEM to provide the required bandwidth at the system/chassis(800G) level to deliver the asked throughput/Performance,instead of limiting to per node port/s. 3.Minimum 28 node limit(is a limiting factor with modern architecture and pointing to a legacy architecture) should be relaxed as upto 28 Nodes or higher to allow latest generation future proof storage design and architecture/s.	No Change, as per RFP.
217	61	Cache size	Per controller cache must be minimum of 1 TB in case of 2 controller HA pair. If 4 controller HA pair system is proposed, then global cache must be minimum 2 TB.	Suggestion - It is requested with Technical Committee to modify the clause to minimum 512GB cache per array/node/HA pair as each Storage OEM have their own architecture and role of cache quantity is independent of the performance given by storage. Limiting cache to particular number will restrict leading storage OEM participation & would favour particular OEMs.	No Change, as per RFP.
218	63	Encryption	The Proposed solution should provide self-encrypting drives or Data Encryption at Rest that are AES256, FIPS 140 - 2 and other industry leading encryption algorithm or standards compliant. The proposed encryption should not impact performance.	Suggestion - It is requested with Technical Committee to modify this clause to "The Proposed solution should provide Data at Rest Encryption through controller or self encrypting drives/SSDs and should be compliant to AES-256, FIPS 140-2 and other industry leading encryption algorithm compliant"	No Change, as per RFP.
219	65-66	LAN Port 1	For production storage (Category -1) LAN Port 1 :30. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiberLAN ports dedicated for serving iscsi and NFS. For non-production storage only(Category 2): LAN Port 1 :30. Each controller must have minimum 2 (1 primary and 1 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiberLAN ports dedicated for serving data replication	Suggestion - As each Storage OEM have their own architecture It is requested that Technical Committee to amend this clause as "Each controller must have minimum 1 (1 primary and 1 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving iscsi and NFS"	No Change, as per RFP.

220	66	LAN Port 2	For production storage (Category -1) LAN Port 2 :31. Each controller must have minimum 4 (2 primary and 2 secondary) x 10 Gbps fiber LAN ports or minimum 2 (1 primary and 1 secondary) 25 Gbps or higher fiber LAN ports dedicated for serving data replication.	Suggestion - As each Storage OEM have their own architecture It is requested that Technical Committee request you to relax this clause as 10Gbps/ 25Gbps ports are not used for replication in some of the OEMs and they continue using FC ports only.	No Change, as per RFP.
221	73	Capacity	Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites.	Suggestion - As each Storage OEM have their own architecture It is requested that Technical Committee to amend this clause to use SAS SSD TLC drive instead of NVMe SSD TLC. Using NVMe interface for drive doesnt add any performance benefit as NVMe is not used as end to end protocol & in Object storage the protocol used in S3 so this point is vendor specific and should be considered for modification as asked.	No Change, as per RFP.
222	73	Throughput	Sustained Read Throughput: 30 GB/s (Gigabytes per second) or higher per site for object size of 4 MB. Sustained Write Throughput: 20 GB/s or higher per site for object size of 4 MB	With the sustained throughput asked storage will be filled within a two days time. With 30GB/s throughput can write 2.5PB data per day thus filling the entire storage within two days. Is this realistic throughput required. Considering the 7 years support and planning would request technical committee to adjust the throughput to 7 GB/s With the sustained throughput asked storage will be filled within a two days time. With 20GB/s throughput can read 1.8PB data per day. Is this realistic throughput required. Considering the 7 years support and planning would request technical committee to adjust the throughput to 3 GB/s	No Change, as per RFP.
223	73	Latency (Response Time)	Latency for Small Objects (<1MB): < 10 milliseconds (ms) for both read and write operations per site. Latency for Large Objects (>100MB): < 100 ms for read operations.	Latency is the measured used with Block storage the right measure would be TTFB - time to first byte -request technical committee to adjust it to 15ms.	No Change, as per RFP.
224	73		IOPS (Input/Output Operations Per Second) Small Object IOPS (e.g., 4KB): 5,00,000 IOPS or higher for mixed read/write workloads. Large Object IOPS (e.g., 1MB): 50,000 IOPS or higher for sequential read/write workloads	IOPs are measure of Block storage performance & not related to object storage rather TPS is the measure used in it. Even considering IOPS formula which is IOPS = throughput / object size there is discrepancy in the throughput asked versus object size given and IOPs asked in as per point 2 vs ask in point in 4.	No Change, as per RFP.
225	75		Proposed Object based storage should be fully distributed, symmetrical and scale-out architecture. Minimum 28 nodes per site should be provided for user data access with minimum 4 numbers of 25Gbps LAN Ports on each node. Each node should be a separate appliance or physical servers.	Every OEM has different solution architecture It is requested that Technical Committee to reduce minimum nodes quantity to 10	No Change, as per RFP.
226	20	13	Price quoted by the Bidder in Reverse auction shall remain valid for duration of 24 calendar months from the date of purchase order.	It is requested to revise this clause as " Price quoted by the Bidder in Reverse auction shall remain valid for duration of 6 calendar months from the date of purchase order".	No Change, as per RFP.
227	46	46	If existing Service Provider is breach of this obligation, they shall be liable for paying a penalty of 10% of the total Project Cost on demand to the Bank, which may be settled from the payment of invoices or Bank Guarantee for the contracted period or by invocation of Bank Guarantee.	It is requested to amend this clause as "If existing Service Provider is breach of this obligation, they shall be liable for paying a penalty of 5% of the total Project Cost on demand to the Bank, which may be settled from the payment of invoices or Bank Guarantee for the contracted period or by invocation of Bank Guarantee."	No Change, as per RFP.
228	47	49		It is requested to delete this clause	No Change, as per RFP.
229	93	Appendix F sl no 11	Quantity -2 Rate per item- Per Man day	Do we have to submit only 2 man day cost of OEM L3 resource?	No Change, as per RFP. The requirement is for Seven Years.
230	93	Appendix F sl no 12	Quantity -2 Rate per item- Per Man day	Do we have to submit only 2 man day cost of Bidder L3 resource?	No Change, as per RFP. The requirement is for Seven Years.
231	93	Appendix F sl no 13	Quantity -4 Rate per item- Per Man day	Do we have to submit only 4 man day cost of Bidder L2 resource?	No Change, as per RFP. The requirement is for Seven Years.
232	93 & 94	Appendix F sl no 15 to 19		Do we have to submit 2 years total AMC cost?	No Change, as per RFP.

233	106- 108	(g) Penalties:		It is requested to include capping of Penalty clause as " Penalty Cap: The penalty for non- performance of SLA to not exceed 5% of Contract Value / Project Cost"	No Change, as per RFP.
234	34	33. i.		.RIGHT TO AUDIT:	No Change, as per RFP.
235	38	40. vi.		SERVICE PROVIDER'S OBLIGATIONS	No Change, as per RFP.
236	64	B. 4. 18.		Non-production Storage (Category 2):	No Change, as per RFP.
237	79	D. 1. 28.		SAN Switch Specifications	No Change, as per RFP.
238	86		1	Scope of Work and Payment Schedule	No Change, as per RFP.
239	90		10	Scope of Work and Payment Schedule	No Change, as per RFP.
240	91		11	Scope of Work and Payment Schedule	No Change, as per RFP.
241	121	6. 5.		RESPONSIBILITIES OF SERVICE PROVIDER	No Change, as per RFP.
242	57		7	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	No Change, as per RFP.
243	73	1 Capacity		Total 10.5 Peta Bytes (PB) (5.25 PB at PR site and 5.25 PB at DR site) usable storage space, 80% NLSAS and 20% NVMe TLC drive based Object Storage for two sites.	Please refer Corrigendum No. 1
244	73	6 Disk Size		Each data drives should have a maximum capacity of 16.xx TB 7.2k RPM NL-SAS HDD and maximum of 16.xxTB capacity drive in SSD.	Please refer Corrigendum No. 1
245	73	7 Resiliency		The object storage must be enterprise class object storage that provides no single point of failure, high resiliency, and redundant components with 99.9999% data availability and uptime guaranteed on yearly basis.	No Change, as per RFP
246	74	10		Erasure coding algorithm provided must support data protection against 3 or more simultaneous nodes / disks failures across the storage nodes.	No Change, as per RFP
247	74	12		Erasure coded data must be encoded efficiently, regardless of object size. Object Storage shall allow any object to be accessed from any node at any site with most recent version of data always available.	No Change, as per RFP
248	75	25		Object storage must be supplied with ability to tier objects from local disk to external cheaper storage tier like S3 compliant storage, Public Cloud.	No Change, as per RFP

249	75	26	Tiering should be able to set based on Object Size or policy on age of data.	Copy of object to cloud should be able to set based on Object Size or policy on age of data.	No Change, as per RFP
250	75	36	Each Cluster Data Center must provide high availability and support a throughput of 25 Gbps x 4 per load balancer. While the default requirement specifies two external third-party load balancers in HA mode to achieve this, solutions that leverage built-in load balancing mechanisms without external load balancers may also be considered. Such solutions must demonstrate equivalent or superior throughput (25 Gbps x 4 per site) and high availability through internal mechanisms.	Please specify throughput required in load balancer as well. The LB should be compatible with storage throughput asked. Hence LB throughput should also be mentioned.	No Change, as per RFP
251	19	11.i.	Bids must be submitted online on GeM portal by the date and time mentioned in the "Schedule of Events" of this RFP.	Both the Clauses are contradictory therefore it is requested to please clarify the online bid submission process / portal.	Please refer Corrigendum No. 1
252	3	1.7	Address for submission of Bids is https://etender.sbi	Kindly Clarify	No Change, as per RFP.
253	57	Bidder's Eligibility . 7	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	This clause is restrictive in nature, Therefore, for wider participation it is requested to amend this clause as mentioned below: Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of supply of storage solutions)	No Change, as per RFP
254	57	Eligibility SI # 7	Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 client references of total 5 Peta Bytes are required)	Request SBI to change to : Client references and contact details (email/ landline/ mobile) of customers for whom the Bidder has executed similar projects in India. (Start and End Date of the Project to be mentioned) in the past (At least 2 PO references of total 4 Peta Bytes are required for new PO or augmentation PO)	No Change, as per RFP
255	57	Eligibility SI # 8	At least 2 Client references along with contact details (email/ landline/ mobile) with install base of minimum 10 Peta Bytes storage total in India of the storage OEM, whose products being proposed as part of this RFP.	Request SBI to change to : At least 2 PO references along with contact details (email/ landline/ mobile) with install base of minimum 4 Peta Bytes or above of storage total in India. These storage POs can be of same or similar OEM products being proposed as part of this RFP.	No Change, as per RFP