

ISTRAC-ISRO

Spec Ref	Specifications	Compliance	Remarks
1.	ISTRAC is using Microsoft Exchange platform for Email Solution and NFS/CIFS file share for user data storage. This indent aims to add following capability to ISTRAC infrastructure		
1.1	Tape and disk based backup of MS Exchange setup and Active Directory with 10 Node configuration – 40 TB of source Data backup capability as per detailed specification		
1.2	Tape and Disk based backup of File share (NFS or CIFS) – 100 TB of source Data backup capability as per detailed specification		
1.3	Tape Library for Tape Backup with Backup Server and Backup Software built with suitable license as per requirement as per detailed specification		
1.4	DR Server as per specification with VM platform with 80TB Storage for DR Capability with required backup software license as per detailed specification		
1.5	Unified Storage of 250 TB Capacity as per detailed specification		
1.6	Server as per specification with 140 TB disk based immutable backup as per detailed specification		
1.7	SAN switch as per detailed specification		
1.8	Network Switch as per detailed specification		
1.9	The detailed specification of the items is explained in subsequent specification. Vendor needs to consider all the requirement and offer a turnkey solution involving hardware (Server, SAN Switch, Tape Library etc.) and software (Backup Software, application connectors etc.) with associated license and offer as a single solution. Partial offer or offer with partial compliance to this specification shall be rejected.		
2.	Specification for Storage		
2.1	High Available Unified Storage 250 TB – 01 No as per Specification		
2.1.1	General Information –		
2.1.1.1	Vendor has to offer storage solution at ISTRAC, Peenya Bangalore The scope of the system Integrator/vendor shall include the system delivery as per specification, Installation and commissioning, onsite performance testing complete implementation of the storage solution with onsite support as per specification.		
2.2	General Specification –		
2.2.1	Vendor shall offer an Unified Storage which supports out of the box capability for different storage protocol under a single management console		
2.2.2	Vendor should quote the entire solution from the same product family of a single manufacturer.		
2.2.3	The Unified Storage Operating System should be owned by the Storage Hardware Manufacturer.		
2.2.4	19 inch Rack mountable Storage hardware rack mount kit shall be offered		
2.3	High Availability Features -		
2.3.1	The offered solution should be configured with no single point of failure (NSPoF).		
2.3.2	The offered solution should be configured with dual controllers which supports Active-Active mode.		

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2.3.3	The offered solution should provide session/cache information replication across the controllers to support faster failover across the controllers.		
2.3.4	It should retain the state information of the active transactions during a controller failover event.		
2.3.5	During controller failover shall complete well with in before the client nodes detect file system or storage block is unavailable. Storage which requires remounting of file system or block storage during controller failover event should not be offered.		
2.3.6	Any maintenance activity on the storage, controller OS upgradation, and file system expansion should be performed online without downtime. Any maintenance activity should be non-destructive for the stored data.		
2.4	Protocol Support -		
2.4.1	The storage controller should be offered with NFS (v3, v4, v4.1 support), FC, CIFS & iSCSI protocol support. If any additional hardware software is required to support all the required protocol then should be offered in redundancy to ensure NSPoF.		
2.5	Disk Enclosure –		
2.5.1	The Disk enclosures shall be offered with sufficient capacity to house required number of disks.		
2.5.2	The disks offered should be 12Gbps dual ported drives.		
2.5.3	The disk enclosure shall be configured with required interconnection cables to have connectivity with both the controller to avoid single point of failure.		
2.5.4	The disk enclosure shall be configured with hot swappable redundant power supply and fan tray.		
2.6	Scalability-		
2.6.1	The offered storage solution shall be scalable up to 400 drives.		
2.6.2	The unified proposed system should be field upgradeable to a higher model through data-in-place upgrades.		
2.7	Storage Solution Features and Architecture -		
2.7.1	The unified storage architecture should be based upon dedicated appliance, running specialized operating system optimized for storage operations.		
2.7.2	The host operating system in the controller should be strictly based on Unix/Linux based kernel with a specialized environment built to support high performance file service. The storage operating system should not be based on general purpose OS.		
2.7.3	The proposed NAS storage architecture should not be based upon file services running on general purpose OS and conventional server hardware.		
2.7.4	The storage should be able to provide single name space/file system for configured capacity and should be scalable upto 256 TB		
2.7.5	The controller NAS operating system should be protected by RAID.		
2.7.6	The controller should support creating disk groups in different RAID levels viz., mirroring, single parity and dual parity or equivalent data protection technologies.		

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2.7.7	Each controller should be configured with at least 64 GB of memory.		
2.7.8	The system should be configured with minimum 2 TB of SSD/Flash/NVMe based cache for accelerating the performance. This SSD or NVMe based pool will not be part of file system.		
2.7.9	Storage Controller should be capable of supporting a single LUN of size of at least 16 TB.		
2.7.10	Controllers should support different disk drives viz., SSD, SAS, NL-SAS.		
2.7.11	It should be possible to grow the file system online.		
2.7.12	It should be possible to grow the disk pool online to grow the file system.		
2.7.13	The storage should support data tiering with real-time movement of hot data to high performing drives. It should offer the capability to move data between one tier of drives to another tier of drives.		
2.7.14	The controller cache should support battery backup option or equivalent technology to protect uncommitted data against power failure.		
2.7.15	The controller should be configured for point in time images or snapshots and applicable licensing should be offered. It should be possible to take at least 64 snapshots per file system.		
2.7.16	Proposed storage shall support compression and required license shall be offered.		
2.7.17	The proposed storage array must support data at rest encryption offering industry standard certification/compliance. The storage array may implement data at rest encryption using self-encrypting drives or controller based functionality there by not impacting performance.		
2.7.18	The controller should have DE-duplication & compression features for file system access and necessary licensing for the offered solution should be included.		
2.7.19	It should be possible to configure quotas on the user, volume and directory level.		
2.7.20	The storage controller shall be licensed for partitioning / virtual controller / feature for multitenant environment. It should be possible to partition the storage and the network resources and assign it to different virtual storage domain. Each virtual storage can be managed as independent storage zone with required controls and rights delegation by storage administrator.		
2.7.21	Storage controller shall support NDMP for backup and restore operation.		
2.7.22	Shall support LDAP and Active Directory integration.		
2.8	Management Software -		
2.8.1	The software for managing the storage device should be Web GUI based or CLI.		
2.8.2	Storage administrator console shall be protected by multi-factor authentication.		
2.8.3	The proposed management interface should be able to manage, configure and monitor the environment.		
2.8.4	Single management, easy to use GUI based and web enabled administration interface for configuration, storage management and performance analysis tools for both block and file.		
2.8.5	The interface shall allow managing the entire storage solution from single interface which allows - Storage Management, Cluster Management, DR Configuration Management.		

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2.8.6	The management console shall allow generating reports on block and filing access for a given duration for per node, per user, per volume on a specific administrative domain.		
2.8.7	Audit Trail Capability – The Storage solution shall offer suitable solution to retain detailed of NFS Transaction Log to record every file access on the shared file system. The audit log shall include access time stamp, client node IP, mode of access (read or write) and user information. This log shall be retained at least for last 72 hours and shall be in searchable format. Vendor shall offer required resources for capturing this information.		
2.9	Power-		
2.9.1	The offered storage solution should be supplied with hot swappable redundant power supply units, for all the components (Storage Controller, desk Shelves).		
2.9.2	Power Supply rating: 220 volt/50 Hz.		
2.9.3	Required power cable shall be offered with the storage.		
2.10	Compliance		
2.10.1	RoHS India [E-Waste (Management) Rules, 2016] certification or equivalent global certification		
2.10.2	Compliance to BIS norms for safety standard IS 13252:2010 or equivalent BIS standard.		
2.10.3	Energy Star 6.1 or equivalent – As per Bureau of Energy Efficiency, Govt of India Guideline for Computer/ Hardware or or equivalent global certification.		
2.10.4	Valid Indian Common Criteria Certification Scheme (IC3S) for EAL2 or better for the offer product or offered version of firmware or equivalent global certification.		
2.10.5	Security Compliance – OEM signed image verification		
2.11	Disk Shelf configuration:		
2.11.1	The usable storage capacity of 250 TB at the file system level should be offered. The offered capacity shall have 245 TB NL-SAS and 5 TB on SSD.		
2.11.2	Vendor should note that the capacity mentioned above is the usable/workable capacity at the file system level. Vendor should quote for appropriate configuration considering the spares and RAID configuration. Vendor should consider maximum 12 drives in a RAID group offering 3 disk protections per RAID group. If the solution does not offer 3 Disk protection capabilities, the solution should be designed with equivalent numbers of disks in global hot spare. The detailed breakup on the disk count to be provided along with the proposal.		
2.11.3	The SSD pool can be offered on RAID 6 or on RAID 1 with two global hot spare.		
2.11.4	Vendor should demonstrate the usable capacity on a Linux NFS client using standard Linux commands like "du -sh".		
2.11.5	A detailed calculation in arriving at the number of disks to meet the usable storage requirement of 250 TB should be provided along with the offer.		
2.11.6	Vendor shall include 20% of disk space as file system snapshot reserve area in the file system calculation. The usable capacity shall be derived excluding snapshot reserve area in the file system.		

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2.11.7	The storage enclosure shall be populated with maximum 10 TB Enterprise NL-SAS and maximum 960 GB SSD as performance drive. The vendor can offer lower capacity disk.		
2.11.8	If vendor is offering higher capacity disk than specified above the total number of disk count shall be as per 10 TB NL SAS and 960GB SSD disk. Vendor has to offer disks counts accordingly and licenses shall be extended for full capacity.		
2.12	Performance for Storage:		
2.12.1	The offered storage controller (each controller) shall support minimum throughput of 30000 IOPS with 8K block size at 80% read and 20% write with NFS		
2.12.2	Bandwidth – 1 GBps with 32 K block size at 80% read and 20% write with NFS.		
2.13	Interfaces / Ports per Controller –		
2.13.1	Each storage controller should be configured following network ports		
2.13.1.1	10 G Fiber Ethernet (10 G SR LC Type) – 2 Nos		
2.13.1.2	FC Port – Each storage controller should also be configured with two 16 Gb FC port with transceiver (SR type) for connecting to the SAN switch for backup and for providing block access.		
2.13.2	Required network cables and FC cables to be offered (5 Meter Length).		
2.14	Product Feature Evaluation in Remote access mode –		
2.14.1	The vendor/OEM shall offer storage similar storage product in remote access mode over Internet for ISTRAC engineers to evaluate the features of the offered product during technical evaluation of the offer.		
2.14.2	The product must of same product family as offered in the BOM and must have same storage operating system as offered in the BOM. A product of different product line of the same OEM or with different version of storage operating system shall not be considered for Product Evaluation.		
2.14.3	If multiple vendors offers same OEM product on identical BOM, a single remote access offered directly from OEM shall be considered for evaluation of the product.		
2.14.4	ISTRAC will need access to the storage product for management console and two NFS clients on the network to evaluate the product features. The storage must be enabled with all the required licenses.		
2.14.5	Vendor shall ensure ISTRAC team has remote access to storage controller management console, storage controller logs, client device and logs. ISTRAC shall evaluate high availability feature, multi-tenancy feature etc for the product and suitable configuration shall be offered.		
2.14.6	ISTRAC will communicate to the Vendor on specific feature sets which ISTRAC would like to evaluate on the offered product. The selection of the specific product features will be decided by ISTRAC during the technical evaluation process.		
2.14.7	ISTRAC will decide the demonstration requirement of feature sets across OEM products and the requirement may vary based on OEM product offered.		
2.14.8	Vendor shall be responsible to configure the required features and demonstration to ISTRAC team for the test cases asked in the evaluation process.		

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2.14.9	Vendor shall keep all the required resource ready for remote evaluation during quoting for this tender. The remote lab configuration diagram, access credentials and access methods shall be shared along with the technical offer. The vendor shall enable remote access immediately after receipt of the email communication via ISTRAC purchase.		
2.14.10	In case the vendor or OEM is not able to successful demonstration of the feature with-in a weeks' time after receipt of the product feature demonstration requirement, ISTRAC will not accept any further request for extension or re-evaluation of the feature demonstration activity.		
2.14.11	The outcome of the feature demonstration will be based on the decision of the ISTRAC Purchase		
2.14	Quality Requirements		
2.14.1	The design and production of critical subsystems like system board, controllers etc., shall be under the control of manufacturer & international quality certified realization process		
2.14.2	All subsystems of the system shall have been selected to achieve optimal performance and high reliability.		
2.14.3	The system architecture shall ensure maximum performance for data forwarding. The subsystems, the processor boards, the interconnections among subsystems and the software shall be properly matched to ensure maximum performance		
2.14.4	Systems shall be only from a proven product line from highly reputed manufacturers. The product line shall be an internationally established brand reputed for high quality and with wide acceptance in deployment for mission critical and business critical functions in the industry.		
2.14.5	The manufacturer of the system shall be in total control of the lifecycle (Design, release, support, obsolescence and termination of the critical subsystems like motherboard, controllers etc.,) of the product.		
2.15	Installation and Commissioning		
2.15.1	Vendor should install & commission the systems as per the configuration at ISTRAC sites in Bangalore and Lucknow.		
2.15.2	Vendor should provide detailed documentation on the implementation as a part of solution implementation activity.		
2.15.3	System installation, commissioning is the sole responsibility of the vendor. It includes the installation of all hardware, operating System, configuring the storage solution and configuring the backup solution as per ISTRAC's requirement.		
2.15.4	At the time of installation and commissioning of the configuration if it is found that some additional hardware accessories or software items with licenses are required to complete the configuration to meet the operational requirement of the configuration which were not included in the vendor's original list of deliverables then vendor is required to supply such items to ensure the completeness of the configuration at no extra cost to ISTRAC. Vendor should ensure completeness of the list of deliverables in the offer to avoid such discovery during installation.		
2.16	Acceptance test -		
2.16.1	The system Integrator/Vendor along with system integrator has to conduct the functional acceptance test of all the hardware and software elements as per speciation at user site at ISTRAC, Bangalore.		
2.16.2	Vendor has to generate an acceptance test report based on functional test conducted mentioning the specific configuration with diagram wherever required and verification of the feature set, commands used and by capturing		

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	the screenshots as evidence.		
2.17	Acceptance test Criteria for Storage –		
2.17.1	In addition to the functional test, Vendor and OEM has to setup storage performance test at ISTRAC site to match the performance requirement as mentioned in specification for delivered storage. ISTRAC shall provide following NFS client nodes for generating the loads on the storage with suitable LAN connectivity – Servers on 10G LAN – 5 Nos		
2.17.2	Workstations on 1 G LAN = 10 Nos		
2.17.3	OEM/Vendor has to plan for suitable test scenario using the client nodes (all in Linux platform) to generate the required load to achieve the performance figures as mentioned in the specification. Vendor may use VDBench, IOR or IOMeter tools to generate the loads in optimum configuration scenario as recommended by storage OEM. The general workload will be 80% Read and 20% write for showcasing the performance of the deployed hardware with the given block size.		
2.17.4	Vendor has to supply additional hardware if they fail to achieve the performance figure as stated without any extra cost to ISTRAC.		
3	Specification for Backup Solution		
3.1	The offered backup solution should have suitable hardware interconnects, licensing to integrate the solution with the offered storage solution.		
3.2	The backup solution should support NDMP backup over SAN.		
3.3	The offered backup solution should have interconnections with the storage controller for taking backup from any of the controller.		
3.4	The backup solution should be able to automatically resume backup from the latest checkpoint during a controller failover event		
3.5	In case of tape drive failure, backup should run on the other tape drive automatically		
3.6	The proposed solution for backup/Restore should include all the hardware & software components required to meet the specifications. Vendor should include the list of such hardware & software items and their specifications in their proposal.		
3.7	Vendor shall provide a solution diagram for Backup solution with complete explanation.		
3.8	Backup solution Shall Include One number each of following items:-		
3.8.1	Backup Software - 01 Lot (suitable license component to be offered as per licensing model)		
3.8.2	Backup Server – 01 No as per configuration		
3.8.3	Disk Based Backup Storage Server – 01 No as per configuration		
3.8.4	DR Server with VM Infrastructure – 01 No as per configuration		
3.8.5	Tape Library – 01 No as per configuration		

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3.8.6	SAN Switch – 03 No as per specification																							
3.9	Backup Software																							
3.9.1	The following sections describe the backup software license capability requirement. Based on the backup software offered and it's licensing model suitable license shall be offered.																							
3.9.1.1	<table border="1"> <thead> <tr> <th>Spec Ref</th> <th>Source</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3.9.1.1.A</td> <td> <ul style="list-style-type: none"> 40 TB Host backup 10 Nos of nodes Host backup shall have capability of MS Exchange (1500 Mailbox), Active Directory (1500 users) & Bare Metal Restore (BMR) or equivalent. </td> <td> <p>This is a single deliverable where vendor should either offer 10 Nodes with 40TB total backup capability , or</p> <ul style="list-style-type: none"> 10 Nodes with unlimited capability, or 40 TB total volume with unlimited number of hosts (40TB should be computed as the utilized capacity of systems under BMR or host backup consideration) <p>In all the cases Active Directory (1500 Users) and MS exchange with 1500 mailbox backup shall be offered</p> </td> </tr> <tr> <td>3.9.1.1.B</td> <td>100 TB of NFS or CIFS file system</td> <td>Shall be part of NDMP backup</td> </tr> <tr> <th>Spec Ref</th> <th>Target</th> <th>Description</th> </tr> <tr> <td>3.9.1.1.C</td> <td>Immutable disk backup (140 TB)</td> <td>Backup software and associated capability which shall convert 140 TB disk partition as a WORM backup target (for all type of sources) maximum of two copies of any type of source</td> </tr> <tr> <td>3.9.1.1.D</td> <td>80 TB VM Restore point</td> <td>Backup software and associated capability which shall convert 80TB disk partition as a VM Restore point for restoring backup (Sources – MS Exchange or Active Directory or BMR or WORM backup)</td> </tr> <tr> <td>3.9.1.1.E</td> <td>Tape Library with dual drive (LTO-9) with 720TB native and 1.8 PB compressed Capacity</td> <td>Backup software shall provide dynamic drive sharing capability with 720TB native and 1.8 PB compressed Capacity (for all type of sources)</td> </tr> </tbody> </table>	Spec Ref	Source	Description	3.9.1.1.A	<ul style="list-style-type: none"> 40 TB Host backup 10 Nos of nodes Host backup shall have capability of MS Exchange (1500 Mailbox), Active Directory (1500 users) & Bare Metal Restore (BMR) or equivalent. 	<p>This is a single deliverable where vendor should either offer 10 Nodes with 40TB total backup capability , or</p> <ul style="list-style-type: none"> 10 Nodes with unlimited capability, or 40 TB total volume with unlimited number of hosts (40TB should be computed as the utilized capacity of systems under BMR or host backup consideration) <p>In all the cases Active Directory (1500 Users) and MS exchange with 1500 mailbox backup shall be offered</p>	3.9.1.1.B	100 TB of NFS or CIFS file system	Shall be part of NDMP backup	Spec Ref	Target	Description	3.9.1.1.C	Immutable disk backup (140 TB)	Backup software and associated capability which shall convert 140 TB disk partition as a WORM backup target (for all type of sources) maximum of two copies of any type of source	3.9.1.1.D	80 TB VM Restore point	Backup software and associated capability which shall convert 80TB disk partition as a VM Restore point for restoring backup (Sources – MS Exchange or Active Directory or BMR or WORM backup)	3.9.1.1.E	Tape Library with dual drive (LTO-9) with 720TB native and 1.8 PB compressed Capacity	Backup software shall provide dynamic drive sharing capability with 720TB native and 1.8 PB compressed Capacity (for all type of sources)		
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3.9.1.2	General Specification --																							
3.9.1.2.1	All license offered shall be perpetual basis and support shall be included as per warranty terms.																							
3.9.1.2.2	Software shall support feature of both direct and 3 way NDMP Backup to Tape.																							
3.9.1.2.3	Offered Solution must support Browsable Volume Selection and Direct Access Restore(DAR) for Backups from the Tape to NAS Mount Point, which enables fast recovery of whole directories, single files, or subsets of files by recording each file's location within the backup media and should avoid sequential-read through the entire backup set for faster restoration																							
3.9.1.2.4	Offered Solution must support Incremental Restore for specific backup data.																							
3.9.1.2.5	Offered Solution must support Dynamic Drive Sharing on SAN Tape Drives between NAS devices (Filers) / Backup																							

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	Server / SAN Clients and Operate seamlessly between multiple platforms.		
3.9.1.2.6	Proposed solution must provide any number of backups for host (A.D, Exchange) and File System as per mentioned capacity at source.		
3.9.1.2.7	Backup/restore software architecture should assure continuity of backup/restore operations even under the failure of one of the nodes involved in the backup/restore (i.e. NAS filer/file server nodes)		
3.9.1.2.8	It shall be possible to take tape backups for the following:		
3.9.1.2.8.1	A file		
3.9.1.2.8.2	A directory		
3.9.1.2.8.3	A directory structure		
3.9.1.2.8.4	An entire volume		
3.9.1.2.8.5	Any snapshot copy		
3.9.1.2.9	The following backup options shall be supported:		
3.9.1.2.9.1	Full backup		
3.9.1.2.9.2	Incremental backup		
3.9.1.2.9.3	Differential Backup		
3.9.1.2.10	The administration facility should be provided using a suitable easy-to-use GUI to centrally monitor and administer the backup environment.		
3.9.1.2.11	The backup software should be capable to perform policy based automated backup scheduled based on calendar schedule (specific day, week, month.		
3.9.1.2.12	The backup software should have options to choose the following features:		
3.9.1.2.12.1	Backup Window		
3.9.1.2.12.2	Backup Retry		
3.9.1.2.12.3	Backup Source		
3.9.1.2.12.4	Backup Media Pool		
3.9.1.2.13	The backup software should have option to take backup of entire backup configuration and catalog data		
3.9.1.2.14	It should be possible to restore the following:		
3.9.1.2.14.1	Full File System.		
3.9.1.2.14.2	Selected Directories.		
3.9.1.2.14.3	Selected file/s		
3.9.1.2.15	The offered backup software should be capable to provide native (without third party plugin) data protection for any containerized platform with application aware capability from day-1		
3.9.1.2.16	The offered backup solution should have capability where back up can be restored on a Virtualized infrastructure. One server as per specification (DR Server with VM Infrastructure) shall be offered with required virtualization software.		

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3.9.1.2.17	The proposed backup software should provide Instant recoveries for any backup to VMware, KVM, Hyper-V or AHV Virtual machine		
3.9.1.2.18	Backup software should have integrated data de-duplication engine with multi-vendor storage support to save space by storing de-duplicated copies of data. The de-duplication engine should also facilitate IP base replication of de-dupe data. All necessary hardware and software required to support this functionality should be supplied along with other components.		
3.9.1.2.19	Backup software must have a feature of data validation, whereby a workload (VM with OS and application) is powered-on in a VM or sandbox environment and tested for its recoverability.		
3.9.1.2.20	Backup software should support instant file share recovery of backup data set via NFS/CIFS in NAS storages/ VM to allow users to access files fast after disaster.		
3.9.1.2.21	Backup and restoration software must deliver maximum investment protection by supporting restoration of workloads between dis-similar systems like hyper converged infrastructure to stand alone servers and storage running similar hypervisors across sites, thereby creating a Disaster recovery environment for production workloads irrespective of the underlying hardware		
3.9.1.2.22	Proposed backup solution must have capability to transfer all data that is backed up on disk to tape without source server intervention.		
3.9.1.2.23	Proposed solution must include safeguards against ransomware attacks or intentional deletion of backup data by malicious actors who exploit compromised authentication on the backup server or software. Access to data in recovery scenarios must be restricted to "Recovery Admin" or "Super Admin" roles, and this access should be secured through dedicated local authentication, segmented business user access, or Multi-Factor Authentication (MFA) utilizing SAML or integration with third-party solutions such as OneLogin, Azure, and Okta etc.		
3.9.1.2.24	Proposed backup solution should strengthen the defenses against ransomware and other cyberattacks with features including: immutable backups, ransomware recovery, data encryption, multi-factor authentication, restricted backup storage protocol for Storing all critical backups		
3.9.1.2.25	The proposed backup solution should include capability to create immutable backup (on disk and tape) to prevent unauthorized modifications to backed up data and to protect against malicious attacks like Ransomwares.		
3.9.1.2.26	The backup software will be offered with required capability and license for vaulting the Tape media in Data Safe.		
3.9.1.3	Active Directory Backup (1500 Users)		
3.9.1.3.1	The solution should be able to facilitate backup of entire Active Directory forest data from single console		
3.9.1.3.2	The solution should support Active directory bare metal recovery		
3.9.1.3.3	The solution should support restore of active directory data to a clean operating system		
3.9.1.3.4	Solution should be able to compare the information available in backup with the live AD data.		
3.9.1.3.5	Solution must be able to restore AD object, including users, groups, computers, organizational units, sites, subnets, configuration and Group Policy Objects (GPOs) without using any third party components		
3.9.1.4	Exchange Backup Features		

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3.9.1.4.1	Backup Software should provide Protection for standalone and DAG environments		
3.9.1.4.2	Backup Software Online VSS-based backups to constant crash consistent recovery point including configuration data and mailbox data		
3.9.1.4.3	Backup Software should provide Full, Incremental, and Differential Backups while data is online and accessible		
3.9.1.4.4	Backup Software should provide Copy-Only Backups of Exchange data		
3.9.1.4.5	Backup Software should provide Full, Incremental, and Differential Restores		
3.9.1.4.6	Backup software should maintain exchange metadata/flags of mailbox data after the restore		
3.9.1.4.7	Backup Software should provide Restores of complete Information Stores, individual databases and individual mailboxes.		
3.9.1.4.8	Backup Software should provide option to Rename of Mailbox Databases during restore in same or alternate Exchange Server		
3.9.1.4.9	Backup Software should Restore entire EDB file to the same or alter server		
3.9.1.4.10	It should be able to take exchange backup running on lower version and restore/migrate it a higher version of exchange platform without additional licensing		
3.9.1.5	Backup Software Security Features		
3.9.1.5.1	The offered backup solution shall offer built-in Malware Detection Engine to perform low-impact, real-time data and file extensions analysis during backup for immediate malware detection. (disk backup only)		
3.9.1.5.2	Offered platform shall offer Syslog / SIEM tool integration for detected backup inconsistencies for faster action and reduce further risk to organization data.		
3.9.1.5.3	The offered should shall be provide ransomware detection capabilities		
3.9.1.5.4	The solution shall offer features to prevent the accidental or malicious deletion or encryption of backups by employing a zero-trust architecture, admin protection and immutable backups.		
3.9.1.5.5	The solution shall offer features to boost recovery success with automated scans using inbuilt Security & Compliance Analyzer, which utilizes top-notch infrastructure hardening and data protection best practices.		
3.9.1.5.6	Backup software should do Anomaly Detection on backup data by providing automated alerting to unusual data patterns based anomalous data operations from backup storage history. Example:-		
3.9.1.5.6.1	Excessive data retirement or unusual deletions		
3.9.1.5.6.2	Provides deeper data protection intelligence for future planning		
3.9.1.5.6.3	Increases ransomware awareness for your backup data		
3.9.1.6	Backup Management Feature:		
3.9.1.6.1	It should be possible to restore the contents of the media on a system different from the one on which the backup was taken		
3.9.1.6.2	It should provide a user-friendly enterprise console that enables the administrator to manage the complete backup and recovery environment via a Web-based interface		

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Spec Ref	Specifications	Compliance	Remarks
3.9.1.6.3	The proposed backup solution should allow search capability enables fast and granular searches of its backup index for backup and restore. Include fast-search capabilities for metadata (name, mod date, type, etc.) and save-sets with offline indexes in your search results		
3.9.1.6.4	Backup Solution must have Single sign-on (SSO) features to Log into Backup Software using AD/LDAP credentials along with Role-based access control to regulates operations administrators		
3.10	Backup Server – 01 No		
3.10.1	19 inch rack Mount Server with rack mount Kit.		
3.10.2	Form Factor: 1U/2U		
3.10.3	Should be configured with minimum 32 CPU cores and 2.2 Ghz clock on latest processor series.		
3.10.4	Server to be offered with 128 GB memory		
3.10.5	RAID Controller – 12G Raid card with RAID 1,0,10,5 and 6 support with 4 GB cache		
3.10.6	Hot pluggable HDD: 8 Nos of 20 TB 7.2K RPM 12G NL-SAS disk in RAID 6		
3.10.7	2 Nos of 480GB M.2 NVMe (in RAID 1) with Storage Subsystem Controller Card		
3.10.8	The server should be configured with Four 10 G Ethernet copper ports and Four 1G Ethernet ports		
3.10.9	The server will be configured with 1 no. 16 Gbps FC-HBA Card for Tape Connectivity through SAN switch		
3.10.10	Power efficient power supply in redundant configuration. 220V, 50 Hz.		
3.10.11	Remote management configured with IPMI2.0		
3.10.12	The server shall be offered with OS latest version compatible with the backup software with five years support		
3.10.13	OS Certification – The offered hardware must be certified for Windows Server 2019/ 2022 and RHEL 9. The offered server model must be listed in RHEL and Microsoft website in compatible list of hardware.		
3.10.14	Security Feature – TPM 2.0, Secure Boot		
3.10.15	If the offered backup software requires a better configuration, the required hardware should be offered with suitable improvement. Vendor must provide technical note for the improvements done.		
3.11	Disk Based Backup Storage Server – 01 No		
3.11.1	19 inch rack Mount Server with rack mount Kit.		
3.11.2	Form Factor: 2U/3U/4U		
3.11.3	Should be configured with minimum 24 CPU cores and 2.2 Ghz clock on latest processor series		
3.11.4	Server to be offered with 128 GB memory (deployment should be for best performance model)		
3.11.5	RAID Controller – 12G Raid card with RAID 1,0,10,5 and 6 support with 8 GB cache		
3.11.6	Hot pluggable HDD: : 12 Nos of 20TB 7.2K RPM 12G NL-SAS disk in RAID 6		
3.11.7	2 Nos of 480 GB M.2 NVMe (in RAID 1) with Storage Subsystem Controller Card		
3.11.8	The server should be Configured with Four 10 G Ethernet Copper ports and Four 1G Ethernet ports		
3.11.9	Power efficient power supply in redundant configuration. 220V, 50 Hz.		
3.11.10	Remote management configured		

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Spec Ref	Specifications	Compliance	Remarks
3.11.11	The server shall be offered with suitable OS license to host the server as a disk based backup device		
3.11.12	OS Certification – The offered hardware must be certified for Windows Server 2019/ 2022 and RHEL 9. The offered server model must be listed in RHEL and Microsoft website in compatible list of hardware.		
3.11.13	Security Feature – TPM 2.0, Secure Boot.		
3.11.14	If the offered backup software requires a better configuration which calls for appliance based hardware for disk storage, the required hardware should be offered with suitable configuration matching with the server specification.		
3.11.15	Vendor must offer required capabilities of the backup software to convert this server as an immutable disk based backup appliance as per licensed capacity described in the specification		
3.12	DR Server with VM Infrastructure – 01 No		
3.12.1	19 inch rack Mount Server with rack mount Kit.		
3.12.2	Form Factor: 2U/3U/4U		
3.12.3	Should be configured with minimum 48 CPU cores and 2.4 Ghz clock on latest processor series.		
3.12.4	Server to be offered with 512 GB memory (deployment should be for best performance model).		
3.12.5	RAID Controller – 12G Raid card with RAID 1,0,10,5 and 6 support with 8 GB cache.		
3.12.6	Hot pluggable HDD: 20 Nos of 7.6 TB SAS SSD with DWPD of 1		
3.12.7	2 Nos of 480 GB M.2 NVMe (in RAID 1) with Storage Subsystem Controller Card		
3.12.8	The server should be configured with Four 10 G Ethernet copper ports and Four 1G Ethernet ports.		
3.12.9	Power efficient power supply in redundant configuration. 220V, 50 Hz.		
3.12.10	Remote management configured.		
3.12.11	The server shall be offered with suitable VM infrastructure license to host the VM restore points.		
3.12.12	OS Certification – The offered hardware must be certified for Windows Server 2019/ 2022 and RHEL 9. The offered server model must be listed in RHEL and Microsoft website in compatible list of hardware.		
3.12.13	Security Feature – TPM 2.0, Secure Boot.		
3.12.14	If the offered backup software requires a better configuration which calls for appliance based hardware for disk storage, the required hardware should be offered with suitable configuration matching with the server specification.		
3.12.15	Vendor must offer required capabilities of the backup software to convert this server as an virtual infrastructure to restore the MS Exchange or Active Directory or BMR as per licensed capacity		
3.13	Tape Library – 01 No		
3.13.1	19-inch Rack Mountable – 3U/4U Tape library.		
3.13.2	The tape library should be configured with two LTO9 tape drives and scalable upto 4 LTO-9 drives for future expansion. All the drives must be Dual Port LTO9 FC Drives. The LTO 9 Drive FC interface shall be compatible with offered SAN switch.		
3.13.3	The number of slots for tape media should be minimum 40 Slots usable/Licensed, without Stacking modules.		
3.13.4	The tape library should support minimum five mail slot.		

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Spec Ref	Specifications	Compliance	Remarks
3.13.5	The tape library should be with two or more magazine configuration.		
3.13.6	The tape library should support both read and write operations of LTO9 media.		
3.13.7	Offered LTO9 drives in the Library shall conform to the Continuous and Data rate matching technique for higher reliability.		
3.13.8	Offered Tape Library shall have partitioning support so that each drive can be configured in a separate partition. Required license shall be offered.		
3.13.9	The tape library should have a GUI panel & also should be manageable remotely from web based GUI.		
3.13.10	It should be possible to manage the following using both local & remote management - Moving media, Load/unload tape drives, Access to the diagnostics, Library configurations, Library statistics, Inventory check.		
3.13.11	The tape library native capacity should be minimum 720TB Native and 1.8 PB (compressed 2.5:1). Required license shall be offered for the backup software to use the full capacity of the Tape as per license requirement.		
3.13.12	The tape library transfer rate should be 3.24 TB/Hr (native) in fully loaded configuration (3 Drive configurations).		
3.13.13	MSBF (Mean Swaps between Failures) >= 2 Million Robot load/unload cycles or MTBF of 125,000 Hours.		
3.13.14	Native Transfer Rate: > = Shall support full throughput from all the drives operating concurrently at their maximum transfer rates.		
3.13.15	The Tape Library should have FC interconnect to the SAN switch to enable NDMP backup and restore operations.		
3.13.16	The Tape Library should support taking backup over NDMP.		
3.13.17	The offered tape library should be configured with Field Replaceable Tape Drives, Magazines, and Power Supply Units.		
3.13.18	The Tape Library should have barcode reader feature for media management. Required number of Barcodes shall be included in the offer.		
3.13.19	Proactive Diagnostics: Proactive monitoring feature within the library to monitor major subsystems, run self-diagnostic procedures, and send policy-based communications to system administrators.		
3.13.20	Support for auto clean feature.		
3.13.21	Encryption capability - AES 256-bit.		
3.13.22	Dedicated management port for remote management of Library.		
3.13.23	Number of LTO9 Tape Media to be offered = 90		
3.13.24	Number of cleaning cartridges to be offered =20		
3.13.25	Hot Pluggable redundant power supply, Gold rating.		
3.13.26	Regulatory Ratings –		
3.13.26.1	Safety: IEC-60950 with worldwide country deviations with Class 1 Laser product.		
3.13.26.2	Emissions Standards: FCC Class A or equivalent Indian standard.		
3.13.26.3	ROHS or ROHS India.		
3.14	SAN Switch = Total 03 Nos (01 No for backup solution and 02 Nos for independent standalone deployment)		

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Spec Ref	Specifications	Compliance	Remarks
3.14.1	Vendor has to offer SAN Switch as per specification		
3.14.2	16 Gb FC ports = 12 nos		
3.14.3	Non-blocking wire speed performance for all ports. i.e. minimum 384 Gbps of switch bandwidth.		
3.14.4	Required FC transceivers should be included.		
3.14.5	12 nos of 5 meter FC cables should be offered.		
3.14.6	Should be offered with ISL trunking license.		
3.14.7	Class of service: Class 2, Class 3, and Class F.		
3.14.8	Supported fabric services – Name server, Registered state change notification (RSCN), Login services, Public loop, Broadcast, In-order delivery, Name-server zoning, NTP.		
3.14.9	Supported diagnostics features – Power-on self-test (POST) diagnostics, Online diagnostics, Fiber Channel trace route capability, Fiber Channel ping and debug, Syslog, Port-level statistics.		
3.14.10	The product shall have features for zoning (default zoning, port/WWN zoning, and broadcast zoning) and VSAN		
3.14.11	Supported management features – HTTP, SNMP V1/V3, SSH		
3.14.12	Should be configured with dual hot swappable power supply.		
3.14.13	Should be configured with adequate cooling fans.		
3.14.14	Should support out of band management over Ethernet.		
3.14.15	Should support configuration and management over web console.		
3.14.16	19 inch rack mountable with rack mount kit.		
3.14.17	Compliance – CB, WEEE, ROHS		
3.15	Capability Verification for Backup Platform –		
3.15.1	The vendor shall ensure the following features shall be demonstrated online in remote access mode to ISTRAC team during offer evaluation, if ISTRAC needs to check specific features of the offered backup software. Vendor may build a test bed in his premise with smaller scale of hardware or virtual machines to demonstrate the feature of the backup platform.		
3.15.2	Integration of Microsoft exchange 2019 as per specification.		
3.15.3	Integration with active directory service as per specification.		
3.15.4	The Disaster Recovery feature of the backup software – restoration of the physical systems on VM.		
3.15.5	Disk based immutable backup and instant recovery of service during a disaster.		
3.15.6	Security features as mentioned in specification.		
3.15.7	The same features will also be evaluated at site post-delivery as acceptance criteria of the product.		
3.15.8	Vendor must ensure that they have setup required infrastructure for capability demonstration to ISTRAC as per above criteria in cloud or in vendor premise while quoting for the solution. Vendor must ensure the readiness of the setup while submitting the bid.		
3.15.9	ISTRAC Purchase will provide intimation through email to the Vendor for demonstration of backup software		

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Spec Ref	Specifications	Compliance	Remarks
	capability. Vendor has to demonstrate all the capabilities with-in seven working days after receipt of the intimation. If vendor is unable to demonstrate the capability, the offer will be technically rejected.		
4	1/10G 48 Port Gig Ethernet Switch = 3 Nos		
4.1	Vendor needs to offer following switches to integrate the storage and backup solution across Campus connected via 40G Fiber infrastructure. Two switches will be deployed to connect the delivered components on LAN and one switch will serve as a cold standby for the network. The following is the specification of each switch		
4.1.1	19 inch Rack mountable		
4.1.2	Switch Form Factor= Maximum 2U		
4.1.3	Each switch shall be offered with following configuration		
4.1.3.1	1/10G Ethernet Port = 48 Nos		
4.1.3.2	40 Gbps QSFP+ uplink ports = 2 Nos		
4.1.3.3	Following Transceivers shall be loaded in the switch		
4.1.3.3.1	40G (LR) QSFP+ LC (Upto 10 KM) = 2 Nos =2 Nos.		
4.1.3.3.2	SFPs offered shall be of same make as switch OEM.		
4.1.3.4	Minimum Switching capacity 1120 Gbps (Excluding Stacking Bandwidth).		
4.1.3.5	Minimum Throughput 840 million pps (Excluding Stacking Bandwidth).		
4.1.4	General Specification-		
4.1.4.1	Offered switch shall be fully non-blocking architecture.		
4.1.4.2	Switch shall support for PTP and NTP.		
4.1.5	Layer 2 Features		
4.1.4.1	VLAN support and tagging.		
4.1.4.1	VXLAN.		
4.1.4.1	802.1s Multiple Spanning Tree Protocol.		
4.1.4.1	802.1X Authentication.		
4.1.4.1	Jumbo packet support, Max Size=9000 Bytes.		
4.1.4.1	Rapid Per-VLAN Spanning Tree (RPVST+).		
4.1.6	Layer -3 Features		
4.1.6.1	VRF / VRF-lite.		
4.1.6.2	BGP, OSPF and IS-IS Routing.		
4.1.6.3	VRRP/VRRP-E/HSRP.		
4.1.6.4	Multicast Routing.		
4.1.7	IPV6 Support		
4.1.7.1	Ipv6 host support at the edge network.		
4.1.7.2	Ipv6 Routing (OSPF v3),BGP4+ (Ipv6).		

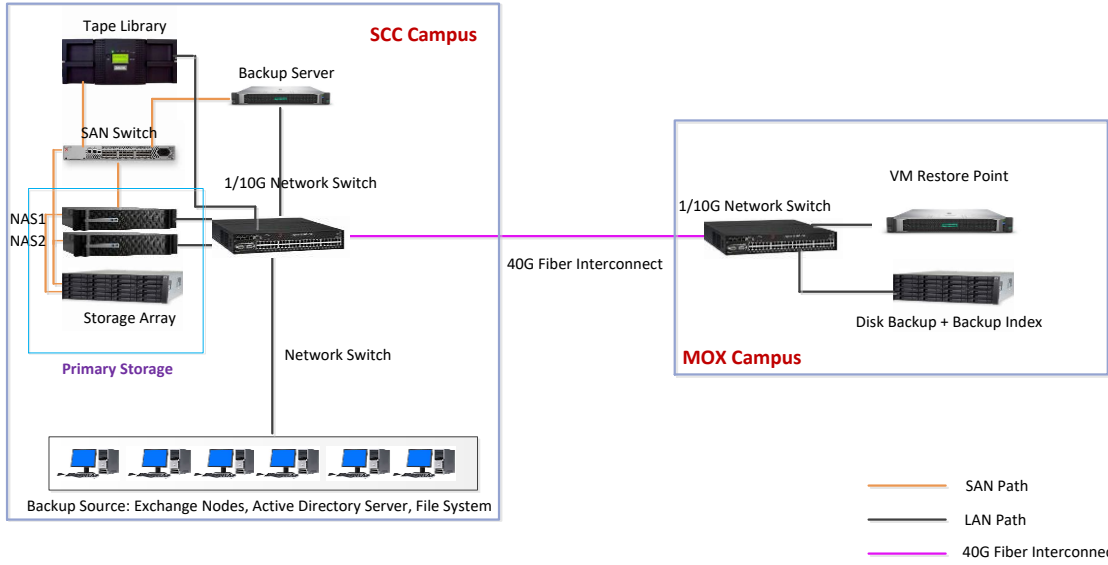
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Spec Ref	Specifications	Compliance	Remarks
4.1.7.3	VRF (Ipv6).		
4.1.7.4	Ipv6 over Ipv4 tunnels.		
4.1.7.5	Multicast Listener Discovery (MLD) version 2 snooping.		
4.1.8	Security Feature		
4.1.8.1	802.1x Accounting.		
4.1.8.2	MAC Authentication.		
4.1.8.3	Protection against Denial of Service (DoS) attacks.		
4.1.8.4	MACSec – 256 Bit (IEEE 802.1AE)		
4.1.9	Power and Cooling		
4.1.9.1	Switch shall be configured with Redundant hot-swappable internal power supplies.		
4.1.9.2	All the switches shall be delivered with required power cables with C13 PDU cables with suitable length (3 Ft or 5 Ft).		
4.1.10	Reliability		
4.1.10.1	Switch shall have MTBF 100,000 Hours or better. Vendor shall provide required datasheet or OEM certification to establish MTBF of the offered hardware.		
4.1.10.2	Components, like modules/ power supplies/ fan tray should be Hot Swappable. Online insertion and removal (OIR) support is must for modules, Power supply and FAN.		
4.1.10.3	Switch should support for (Bidirectional Forwarding Detection) BFD for Multipoint network for fast Failure Detection as per RFC 5881 or equivalent.		
4.1.11	Compliance – Following or equivalent global certification		
4.11.11.1	RoHS India [E-Waste (Management) Rules, 2016] certification Compliance to BIS norms for safety standard IS 13252:2010 or equivalent BIS standard.		
4.11.11.2	Energy Star 6.1 or equivalent – As per Bureau of Energy Efficiency, Govt. of India Guideline for Computer/ Hardware.		
4.11.11.3	Security Compliance – OEM signed image verification.		
4.11.11.4	Valid Indian Common Criteria Certification Scheme (IC3S) for EAL2 or better for the offer product or offered version of firmware.		
5	Data Migration, implementation and Onsite Support:-		
5.1	Vendor has to complete Stateful migration of data form Microsoft Exchange 2016 to Microsoft Exchange 2019 as a graceful migration.		
5.2	Vendor has to ensure the Active Directory and all dependent services are migrated to gracefully in the process.		
5.3	Vendor shall use licensed software for the migration process which is compatible with Microsoft Exchange 2016 and 2019 platform.		
5.4	Vendor shall establish the data backup environment with DR capability as stated in the specification. Vendor has to		

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Spec Ref	Specifications	Compliance	Remarks
	showcase all the capability as stated in the specification along with successful restoration as a part of implementation process.		
5.5	Vendor has to provide complete documentation of the implementation as per requirement.		
5.6	Vendor has to provide onsite support weekly two days (atleast 4 man hours activity per day) to verify the entire setup and also demonstrate selective restoration of data (without affecting the services) during the support period. This will also include onsite upgrade for firmware and software of all components to latest version during support period.		
5.7	Vendor shall ensure the support engineer shall be available on site with-in two hours after registering issue report with vendor via email during the support period. Vendor shall identify suitable resource and shall provide necessary arrangement to ensure the support calls are supported on site as per tender terms. The onsite support shall include weekends and holidays.		
5.8	The vendor must ensure the resource identified for installation and support call shall be assigned to resource with minimum five years' experience in Microsoft Exchange 2019.		
5.9	The support engineer must have knowledge on Storage and Backup software to carry out the maintenance activity.		
6	Warranty		
6.1	All the deliverables (hardware and software including operating system and VM environment) shall have on-site Comprehensive Warranty for 5 years at ISTRAC Bangalore		
6.2	Warranty support shall be Next Business Day with advance hardware replacement directly from the OEM.		
6.3	Failed Hard Disk media shall not be returned to the OEM during the warranty replacement. Vendor shall include required part numbers in the offer.		
6.4	Manufacturers support package for Warranty and technical support only should be quoted. The specific part number for such support should be clearly indicated. Vendor shall not replace manufacturer's warranty with their own warranty package.		
6.5	Warranty shall start from the date of acceptance of the full configuration.		
6.6	The warranty details after acceptance of the product by ISTRAC must reflect on OEM website as per warranty SLA.		
6.7	OEM/Vendor to note that all for all the support deliverables no remote access will be provided to the system for troubleshooting and support resolution purpose. For any unresolved issue if the system expert needs access to the setup, they need to visit ISTRAC installation site for such access.		
6.8	Technical Support to cover the following-		
6.8.1	Access to technical support information for resolving problems, configuration issues, utilities etc.		
6.8.2	Firmware & device drivers and software patch and version update during support period		
6.8.3	Access to technical literature relating to the system		
6.8.4	Onsite trouble-shooting and support delivery		
6.9	Support engagement by Vendor-		
6.9.1	Vendor must have a support center in Bangalore for quick resolution and support call logging.		

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6.9.2	Vendor shall ensure all support delivery on site and carry out replacement of faulty items, upgradation of firmware/software and collection logs at ISTRAC site and Bangalore and Lucknow.		
7	Onsite Acceptance Criteria		
7.1	Storage – As per section mentioned in unified storage specification including feature set demonstration, performance demonstration and security feature demonstration.		
7.2	Backup Software – The vendor needs to build the environment as per following diagram at 7.3		
7.3	 <p>The diagram illustrates a backup environment setup between two campuses: SCC Campus and MOX Campus. In the SCC Campus, a Tape Library is connected to a Backup Server via a SAN Path (orange line). The Backup Server is also connected to a SAN Switch, which is linked to a 1/10G Network Switch. This switch is connected to two Network Attached Storage (NAS) units (NAS1 and NAS2) and a Storage Array, all via SAN Paths. Additionally, the 1/10G Network Switch is connected to a central Network Switch, which in turn connects to a group of servers representing Backup Sources (Exchange Nodes, Active Directory Server, and File System) via LAN Paths (grey lines). The MOX Campus features a 1/10G Network Switch connected to a VM Restore Point and a Disk Backup + Backup Index unit, both via LAN Paths. A 40G Fiber Interconnect (purple line) connects the 1/10G Network Switch in the SCC Campus to the 1/10G Network Switch in the MOX Campus. A legend at the bottom right identifies the connection types: orange for SAN Path, grey for LAN Path, and purple for 40G Fiber Interconnect.</p>		
7.4	Vendor shall demonstrate the feature of the backup software for Active Directory and Microsoft Exchange as per specification		
7.5	Vendor shall make complete documentation of the Project including installation and operation procedures		
7.6	Vendor shall demonstrate different restoration option on DR Server		
7.7	Vendor must demonstration the capability of the product for site acceptance with-in four weeks after delivery.		
7.8	After product site acceptance vendor needs to implementation the system and integration with operational network.		
8	Notes to the Vendor –		
8.1	Vendor qualification criteria – Vendors must note that, the agency meet the qualification criteria as set below for participating in the bid. If vendor is not able to meet the vendor qualification criteria, the offer will be rejected for further evaluation.		

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Spec Ref	Specifications	Compliance	Remarks
8.1.1	Vendor or OEM of the offered backup solution needs to provide customer references from Govt. or private corporate where the offered backup product has been used successfully for migration of exchange 2016 data to exchange 2019. Minimum ONE such successful reference with customer acknowledgment to be provided by the vendor along with the offer.		
8.1.2	Vendor or OEM of the offered backup solution needs to provide a reference from Microsoft Exchange official website that the offered backup software is compatible with Microsoft Exchange 2019 or Office 365. Vendor needs to provide this technical document along with the bid along with the reference of the URL.		
8.1.3	Vendor must have two or more purchase order as a reference worth value more than 5 Cr each in last two years on IT products in any Central Govt. Organization or Central PSUs. Reference of the orders to be attached along with the offer for verification.		
8.1.4	For all the offered products vendor shall submit following certifications from OEM on OEM's letter head for each OEM product -		
8.1.4.1	The vendor is authorized for participating in the bid. The bid number must be mentioned in the authorization letter.		
8.1.4.2	The offered product is not an obsolete product or platform		
8.1.4.3	The offered product shall be back-to-back supported by the OEM during the warranty period		
8.1.4.4	The failed media will not be returned during warranty period (For Server and Storage and Tape Media).		
8.5	Vendor shall note that the L1 will be arrived based on overall L1 computation as a turnkey solution. The order will not get split component wise. Hence vendor must ensure considering the BOM and target for overall L1.		
8.6	Vendor shall provide a complete solution architecture document explaining every component of the hardware and software and how the solution is designed. Vendor shall also highlight any assumptions and exclusions made during solution design to provide proper understanding.		
8.7	Vendor shall note that, the offer must clearly specify the implementation timeline. After implementation and acceptance only product warranty shall start. For example, if vendor needs one month to implement the solution after delivering the hardware and software elements, warranty of the product will start from date of product implementation and acceptance by ISTRAC.		
8.8	Vendor shall note that ISTRAC shall not make any payment against delivery. The payment will be made only against successful acceptance of the complete solution at ISTRAC. If any vendor request for payment against delivery, the offer will be considered not complied and shall be rejected for further evaluation.		
8.9	Vendor may note that any requirement vendor can quote for latest upgraded specification which is a better / improved version of the original product in specification or a internal component of the product. However, in such cases, vendor must verify one to one all specification of the offered product/component against the specification and only improved specification in all aspect must be offered. Vendor must offer comparison of the specification of the offer product as per RFP to give clarity on better or higher offer.		
8.10	For all items in the list of deliverables offered by the vendor, the manufacturer's part number should be clearly indicated. Offer of items without clear specification of part number is not acceptable.		

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Spec Ref	Specifications	Compliance	Remarks
8.11	Vendor should indicate the part nos. of the deliverable items clearly. The part numbers & description of the items in the offer should match the part numbers & description of the items mentioned in the manufacturer's spec sheets.		
8.12	The part numbers & description of the goods delivered should match the part numbers & description in the offer.		
8.13	Vendor should carefully consider all the clauses in the specifications and should ensure that their offer is complete in all respects at the time of submission. Complete technical documentation justifying the compliance should be enclosed along with their offer. Offer which are incomplete are liable to be considered non-compliant.		
8.14	Specifications of the major items have been provided in the enclosed document. In case any additional accessories/ software media/licenses are required to complete the configuration for full functionality and/or better manageability vendor should include such hardware accessories and related software elements or plug-ins to enterprise management software with licenses in their offer.		
8.15	Systems from the manufacturers who primarily assemble systems by getting components/ subsystems from different suppliers and who do not have direct control over the production process/ quality of the items so obtained, will not be acceptable.		
8.16	Vendor should provide technical brochure from manufacturer for all subsystems to verify the current status (i.e. when released, whether due for replacement /obsolescence) the specification of the subsystems. The technical brochure shall give the details not only for the main system but also for all the subsystems and accessories. Technical brochure shall include details of		
8.16.1	Functional specification.		
8.16.2	Hardware & software configuration.		
8.16.3	Configuration guide or user manual		
8.16.4	Electrical & environmental specification.		
8.16.5	Safety compliance details.		
8.17	The cost quoted by the vendor should be for delivery at ISTRAC Stores, Bangalore		
8.19	Vendor must submit a technical compliance report of this document which should be submitted along with Bid. Technical compliance report must of reference to BOM (Bill of Material), Technical data sheet and URL of Technical documents to Establish the compliance. Without complete TCR the offer will be not be considered for further evaluation.		