ELCOT Adding Value through IT	**Electronics Corporation of Tamil Nadu Limited**
Rate Contract Tender	**Supply of SAN & NAS Storage Devices** Tender Ref. **ELCOT/Proc/OT/33265/SAN & NAS/RC/2019-20**
	Corrigendum No. 2 to the Tender Document

CORRIGENDUM TO THE TENDER DOCUMENT

The following Corrigendum to the Tender Document is hereby issued:-

S.N	Title of the clause (in the revised tender document)	Existing	To be read as
1	Page No. 13- Clause No. 3.8- Dispute and Jurisdiction	"Any dispute or difference, whatsoever, arising between the parties to this contract, arising out of or in relation to this contract shall be resolved by the parties through mutual consultation, in good faith and using their best endeavours. To this end, the parties agree to provide frank, candid and timely disclosure of all relevant facts, information and documents to facilitate discussions between them / their representatives or officers". "Except as otherwise provided elsewhere in the Contract, if any dispute, difference, question or disagreement arises between the parties hereto or their respective representatives or assignees, at any time in connection with construction, meaning, operation, effect, interpretation or out of the contract or breach thereof, the parties in the contract shall approach the Courts in Chennai alone which shall have jurisdiction in this matter."	"Any dispute or difference, whatsoever, arising between the parties to this contract arising out of or in relation to the terms of this contract shall be resolved by the parties mutually by acting in good faith towards fulfilling the contract and for this purpose the parties mutually agree to furnish or exchange all relevant documents, information and any other material within their special knowledge and thereby conclude their discussions between them/ their representatives or officers within a period of time as may be mutually agreed to say the time of commencement of the move to resolve the dispute. In case, there is a failure in resolving the dispute within the time agreed and in the manner stated supra, the parties shall be at liberty to approach only the Courts in Chennai City which has jurisdiction in the matter."
2	Page No. 50- Clause No. 8.12 – Liquidated damages (LD)	Liquidated damage will be levied at the rate of 0.5% per week on the un-delivered portion of the material, if the delivery has not been completed in full within the stipulated period. The delivery period	Liquidated damage will be levied at the rate of 0.5% per day on the un-delivered portion of the material, if the delivery has not been completed in full within the stipulated period. **The delivery period will effect**

		will effect from the date of receipt of confirmed purchaser address.	**from the next date of receipt of Purchaser Order.**
3	Page No. 55-Clause No. 9.7 – Supply & Installation-a) delivery schedule	a) **Delivery Schedule**: In general the delivery schedule is taken from the date of purchase order and on specific instructions from ELCOT, the delivery schedule is taken from the date of LOA or any Written instruction through email or Fax etc	a) **Delivery Schedule**: In general the delivery schedule is taken **from the next date of purchase order** and on specific instructions from ELCOT the delivery schedule is taken from the date of LOA or any written instruction through email or Fax etc.
4	Page No.31-Clause No. 5 – Specification-Item code – 33265 - 019	Hyper-Converged Solution	Removed
5	Page No.31-Clause No. 5 – Specification		**New items added** **33265- 019a - HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 1** **33265- 019b- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 2** **Specifications attached in Annexure 1**
6	Page no. 127-Annexure 2-PRICE BID – SAN & NAS Storage devices with 3 years Warranty – 33265-085	Hyper-Converged Solution - Cost of one node	Removed.
7	Page no. 127-Annexure 2-PRICE BID – SAN & NAS Storage devices with 3 years Warranty		**New Add on items added** **33265-085- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 1 without TOR Switches & fiber optics** **33265-086- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 1 with TOR Switches & fiber optics**

			33265-087- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 2 without TOR Switches & fiber optics
			33265-088- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 2 with TOR Switches & fiber optics
			33265-089- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 1 - Cost of One Node
			33265-090- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 2 - Cost of One Node

Note: The above corrigendum is applicable to all other clauses, which contain the respective terms in the tender document.

Managing Director
(SD/-)

	33265-019a- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 1	
S.NO	**PARAMETER**	**SPECIFICATION**
1	Hyper Converged Appliance	Proposed solution must be based on converged IT infrastructure platform that integrates storage, compute, networking, hypervisor, real-time deduplication, compression and optimization along with powerful data management, data protection and disaster recovery capabilities in a standard x86 server building block.
		The storage solution with the HCI should have in-built software defined storage capability integrated within the Hypervisor kernel itself (pre-page overhead included in sizing) or should be using virtual storage controller architecture. OEM should provide atleast 15% additional compute resources in case of Virtual Storage controller architecture.
		Appliance/Technology should NOT have any hardware dependency to enable Hyper Converged Solution.
		Virtualization software shall provide a virtualization layer that sits directly on the bare metal server hardware with no dependence on a general purpose OS for greater reliability and security
		Solution should also have capability to use Software Defined Networking
2	Nodes	Minimum 3 nodes
		Proposed solution must be able to support all hardware multiple points of failure with no loss of function or data.
		During a single component failure (of any type), production services should not get affected / degraded in anyway.
		Must be able to sustain single node failure in the cluster without affecting the performance of cluster. Additional compute & storage resources should be provided to maintain performance.
		The solution shall provide scale-out (by adding nodes) architecture with no disruption to the workloads already running on the platform.
		Intermixing of hardware includes different CPU type, Different NIC card / port count per node, Different no of CPU / core per node, HDD count different per node.
3	Processor (Each Node)	2 x Intel Xeon Silver 4210 Processor (10 cores) or above
4	Physical Cores	Total 60 Cores (minimum)
5	Total Physical RAM (Each Node)	Min. 128 GB DDR4 ECC RAM

6	Hard disk drives (Each Node)	2 x 400 GB (SSD) or 1 x 800 GB (SSD). Node should have separate HDD/SSD for OS (Esxi) installation & SSDs for usable capacity.
7	Total Usable Storage	20 TB of usable space without considering any data reduction features like deduplication & compression. Should use less than 4 TB of Enterprise SSD drives for all purpose. Capacity should be sized using considering FTT=1, Erasure coding
		Must be able to sustain minimum of simultaneous 2-HDDs failures across cluster without data loss. Also node should not go down.
8	Network Throughput (Each Node)	Should have minimum 4 ports each of 10G SFP+ either all on-board OR should have 2 cards having dual ports.
		Must be able to sustain 2 NIC port failure per node.
		Should have dedicated management port.
9	Power Supply (Each node)	Should have dedicated non-shared dual-PSU's and should be able to sustain single power supply failure.
10	Redundancy & Business Continuity	No Single Point of Failure with complete redundancy at all levels. Nodes should be configured to have atleast one copy of data available in cluster, in order to support data & cluster availability in event of One Node Failure
		Proposed solution should support synchronous and asynchronous, local and remote replication to any x86 platform as long as hypervisor is same. Proposed solution also should support hypervisor based replication.
11	Storage Feature	Proposed hardware must be capable to deduplicate, compress & optimize ALL data inline, in real-time, across all storage tiers.
		Storage policies should be enforced directly from hypervisor and managed directly from hypervisor.
12	Manageability	Single window to manage entire HCI solution deployed on all sites.
		The solution support performance policies like IOPS, Availability, Cache Reservation at individual VM level WITHOUT need of restarting VM.
		Programmatic interface to enable automated tasks like failover / failback.
		Single button non-disruptive rolling upgrades of Hyper converged system software and hardware firmware from the same management GUI console.
		The ability for a single administrator to manage all aspects of the Hyper-convergence from within the Virtualization Manager for all sites.
13	Scalability	The Hyper-converged appliance should be able to scale on demand to at least 6 times the current deployment in a seamless and non-disruptive manner
		Proposed solution should be based on modular scalable architecture having the ability to add auto-discoverable Nodes. Node addition should be non-disruptive & seamless; and should allow simple ONE node scaling.

		The solution should support non-disruptive Scale-Up (Upgrade by inserting additional drives in existing empty drive-slots & increasing the RAM) whenever required without any additional licensing cost and Scale-Out (Upgrade by adding nodes) upgrades to grow capacity and/or performance with no disruption to the workloads already running on the platform
		Proposed solution must support automated cluster deployment, configuration and non-disruptive updates and migration
14	Licenses	All necessary licenses should be included in BOM. License should be of enterprise class & for 100% capacity. Future Scale-up should not require any additional licenses.
		The proposed HCI solution should have tight and seamless integration with VMware vSphere.
		Dedupe, compression and optimization and guaranteed CPU and RAM available to user applications.
		The solution should provide network traffic management controls to allow flexible partitioning of physical NIC bandwidth different network types and allow user defined network resource pools.
		The solution should provide explanations, recommended solutions to performance, capacity & configuration problems. It should also associate workflows with alerts to automatically initiate corrective measures at critical thresholds.
		The solution should provide prebuilt & customizable operations dashboards & reports to provide real time insight into infrastructure behaviour, upcoming problems & opportunities for efficiency improvements.
		The solution should provide a log analytical tool which will collect data from various data center components and show all the logs available in one single management window to make troubleshooting easier.
		The solution should monitor traffic flow & audit trails should be able to generate access information with all source information.
		The solution should provide a tool based physical to virtual conversion to migrate existing physical workload with minimal disruption.
		Ability to move specific VMs between datacenters & clusters.
		Cloning and snapshot of VMs. Cloning & snap should be a feature of HCI solution. Solution should support 1024 snaps of single VM at a time.
		All-Inclusive software licensing for the proposed features as per RFP. All type of licenses should be UNLIMITED.
15	Data Protection	Replication across separate datacenter as a feature instead of a separate server / software license.
		Solution should support sync & async replication.
		Replication across separate datacenters should be optimized with minimum additional overheads.
		The ability to carry simultaneous out bi-directional replication between two data centers.

		The solution should support policy & group based replication upto VM & datastore level granularity. If license separately, OEM needs to provide unlimited license to deploy more VDI, RDSH & VMs which needs to be replicated to other sites.
		The ability to replicate bi-directional data center deployment of more than 2 DC's
16	Disaster Recovery	Proposed solution must able to achieve <= 15 mins RPO & RTO.
		HCI solution should use VM and datastore based replication to asynchronously replicate VMs or datastores across hyper converged systems in different sites based on configurable schedules of up to 5-15 minutes RPO.
		The solution must provide a simple failover operation.
		The solution must allow creation of a Runbook to automate recovery of Virtual Servers.
		The solution must allow changing of IP address of recovered Virtual Servers to match target datacenter.
		The solution should allow changing Virtual Server settings (example vCPU, vRAM, VMSwitch) if required.
		The solution must allow the option to test DR failover to separate network with no impact to production workloads.
		The solution should have feature to assist in failback process to Primary datacenter.
17	Form factor	Proposed appliance should be rack mountable and all accessories needed should be provided from OEM/bidder.
18	OS Support	Windows 2012 and 2016 Standard/Data Center, SUSE Enterprise Linux, Red hat Enterprise Linux . All latest flavors of Linux and Windows) in the Virtual Machines
19	OS / Virtualization Cloud	The Hypervisors are to be preinstalled in the nodes along with Cloud / Virtualization Management. The management node (if not virtual) requirements, if any should be included by default.
20	Encryption	Proposed solution should be capable of encrypting data-at-rest at SDS/Hard disk level
		Third Party Key Management solution, if needed, should be provisioned from Day 1
21	TOR Switches & fiber optics (Optional)	Should provide 2 number of ToR switches with minimum 24 port 10G SFP+ each. ToR switches should have all active ports from day 1. Switch should be of datacenter grade without stacking. Should have minimum 2 uplink fiber port of 40G speed (negotiable with 10G port) to be configured in High Availability (HA). If 40G uplink port cannot negotiate with 10G port, OEM should provide additional hardware, cables & any other component required. Switch should be rack mountable. Switch should have dual power source.
22	Technical Support	24 X 7, 4 Hrs onsite fulfilled directly by OEM of appliance. Single OEM should provide support for complete solution which includes hardware & software components of solution.

		33265- 019b- HYPER CONVERGED SOLUTION (3 Nodes or higher) - Model 2
S.NO	**PARAMETER**	**SPECIFICATION**
1	Hyper Converged Appliance	Proposed solution must be based on converged IT infrastructure platform that integrates storage, compute, networking, hypervisor, real-time deduplication, compression and optimization along with powerful data management, data protection and disaster recovery capabilities in a standard x86 server building block.
		The storage solution with the HCI should have in-built software defined storage capability integrated within the Hypervisor kernel itself (pre-page overhead included in sizing) or should be using virtual storage controller architecture. OEM should provide atleast 15% additional compute resources in case of Virtual Storage controller architecture.
		Appliance/Technology should NOT have any hardware dependency to enable Hyper Converged Solution.
		Virtualization software shall provide a virtualization layer that sits directly on the bare metal server hardware with no dependence on a general purpose OS for greater reliability and security
		Solution should also have capability to use Software Defined Networking
2	Nodes	Minimum 3 nodes
		Proposed solution must be able to support all hardware multiple points of failure with no loss of function or data.
		During a single component failure (of any type), production services shoud not get affected / degraded in anyway.
		Must be able to sustain single node failure in the cluster without affecting the performance of cluster. Additional compute & storage resources should be provided to maintain performance.
		The solution shall provide scale-out (by adding nodes) architecture with no disruption to the workloads already running on the platform.
		Intermixing of hardware includes different CPU type, Different NIC card / port count per node, Different no of CPU / core per node, HDD count different per node.
3	Processor (Each Node)	2 x Intel Xeon Silver 4210 Processor (10 cores) or above
4	Physical Cores	Total 60 Cores (minimum)
5	Total Physical RAM (Each Node)	Min. 128 GB DDR4 ECC RAM
6	Hard disk drives (Each Node)	2 x 400 GB (SSD) or 1 x 800 GB (SSD). Node should have separate HDD/SSD for OS (Esxi) installation & SSDs for usable capacity.

7	Total Usable Storage	20 TB of usable space without considering any data reduction features like deduplication & compression. Should use less than 4 TB of Enterprise SSD drives for all purpose. Capacity should be sized using considering FTT=1, Erasure coding
		Must be able to sustain minimum of simultaneous 1-HDD failure across cluster without data loss. Also node should not go down.
8	Network Throughput (Each Node)	Should have minimum 4 ports each of 10G SFP+ either all on-board OR should have 2 cards having dual ports.
		Must be able to sustain 2 NIC port failure per node.
		Should have dedicated management port.
9	Power Supply (Each node)	Each block/node should have dual-PSU's and should be able to sustain single power supply failure.
10	Redundancy & Business Continuity	No Single Point of Failure with complete redundancy at all levels. Nodes should be configured to have atleast one copy of data available in cluster, in order to support data & cluster availability in event of One Node Failure
		Proposed solution should support synchronous and asynchronous, local and remote replication to any x86 platform as long as hypervisor is same. Proposed solution also should support hypervisor based replication.
11	Storage Feature	Proposed hardware must be capable to deduplicate, compress & optimize ALL data inline, in real-time, across all storage tiers.
		Storage policies should be enforced directly from hypervisor/HCI console and managed directly from hypervisor/HCI Console
12	Manageability	Single window to manage entire HCI solution deployed on all sites.
		The solution support performance policies like IOPS, Availability at individual VM level/storage container level
		Programmatic interface to enable automated tasks like failover / failback.
		Single button non-disruptive rolling upgrades of Hyper converged system software and hardware firmware from the same management GUI console.
		The ability for a single administrator to manage all aspects of the Hyper-convergence from within the single console for all sites.
13	Scalability	The Hyper-converged appliance should be able to scale on demand to at least 6 times the current deployment in a seamless and non-disruptive manner
		Proposed solution should be based on modular scalable architecture having the ability to add auto-discoverable Nodes. Node addition should be non-disruptive & seamless; and should allow simple ONE node scaling.

		The solution should support non-disruptive Scale-Up (Upgrade by inserting additional drives in existing empty drive-slots & increasing the RAM) whenever required without any additional licensing cost and Scale-Out (Upgrade by adding nodes) upgrades to grow capacity and/or performance with no disruption to the workloads already running on the platform
		Proposed solution must support automated cluster deployment, configuration and non-disruptive updates and migration
14	Licenses	All necessary licenses should be included in BOM. License should be of enterprise class & for 100% capacity. Future Scale-up should not require any additional licenses.
		Dedupe, compression and optimization and guaranteed CPU and RAM available to user applications.
		The solution should provide explanations, recommended solutions to performance, capacity & configuration problems. It should also associate workflows with alerts to automatically initiate corrective measures at critical thresholds.
		The solution should provide prebuilt & customizable operations dashboards & reports to provide real time insight into infrastructure behaviour, upcoming problems & opportunities for efficiency improvements.
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		The ability to replicate bi-directional data center deployment of more than 2 DC's
16	Disaster Recovery	Proposed solution must able to achieve <= 15 mins RPO & RTO.
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		The solution must provide a simple failover operation.
		The solution must allow creation of a Runbook to automate recovery of Virtual Servers.
		The solution must allow changing of IP address of recovered Virtual Servers to match target datacenter.
		The solution should allow changing Virtual Server settings (example vCPU, vRAM, VMSwitch) if required.
		The solution must allow the option to test DR failover to separate network with no impact to production workloads.
		The solution should have feature to assist in failback process to Primary datacenter.
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22	Technical Support	24 X 7, 4 Hrs onsite fulfilled directly by OEM of appliance. Single OEM should provide support for complete solution which includes hardware & software components of solution.