BIDDING DOCUMENT

ADDENDUM NO. 1

National Competitive Bidding (NCB)

Procurement of Hardware items for Enhancement and Expansion of General Cluster Lanka Government Cloud (LGC 2.0)

[IFB No: ICTA/GOSL/GOODS/NCB/2020/01]

October 2020

Section IV. Bidding Forms

Table of Forms

2. Price Schedule

2. Price Schedule

2.1 Procurement of Hardware items for Enhancement and Expansion of General Cluster Lanka Government Cloud (LGC 2.0) [IFB No: ICTA/GOSL/GOODS/NCB/2020/01]

Item No (1)	Description of Goods or related services (2)	Qty. and unit (3)	Unit price for Excluding VAT LKR (4)	Total Price Excluding VAT LKR (5) = (3) x (4)	VAT LKR (6)	Total Price Including VAT LKR (7) = (5) +(6)
1.0	**Hardware items**					
1.1	Server Type I (Compute)	16				
1.2	SAN Storage	1				
1.3	SAN Switches	2				
1.4	Racks 42U	3				
1.5	Rack Switches (ToR Switches) Type I	2				
1.6	Rack Switches (ToR Switches) Type II	2				
1.7	Management Switches	2				
1.8	JBOD Enclosures	9				
1.9	SAS SSD Disks 2 x3.84TB	9				
1.10	NIC Dual-Port 10GbE SFP+	14				
1.11	DDR4 Memory Modules	Across 9 nodes				
1.12	SAN Switches to compatible with Dell SC9000	2				
1.13	Dual port 12Gbps SAS card	9				
1.14	Installation & Configurations (Including required CAT 6 and FC, SAS, Cables and SFP Modules)	1				
	Sub Total 1					
2.0	**Support and Maintenance**					
2.1	Support and Maintenance – Year 1	1				
2.2	Support and Maintenance – Year 2	1				
2.3	Support and Maintenance – Year 3	1				
	Sub Total 2					
	Total (Sub Total 1 + Sub Total 2)					

Note: Bidders are required to bid for the total quantity of each items. Partial bids shall be liable to be treated as "Non Responsive" and rejected.

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Signature and the Company Seal

Section V. Schedule of Requirements

2. Scope of Services and List of Related Services

3. Technical Specifications

   	Changes introduced by ICTA	**1.6,1.9,2.9,2.12,2.14,2.19,2.20,6.9,10.6**
   	Changes introduced after the pre-bid meeting	**2.3- Deliver & installation time 2.16,4.16,5.9**

2.3 List of Related Services

Item No	Description of Goods	Quantity Units	Final (Project Site) Destination as specified in BDS	Delivery and Installation	Related Services
1	Server Type I (Compute)	16	Lanka Government Cloud 2.0	Within 9 Weeks from the date of Contract	Supply, Delivery, Installation, Configurations, Support and Maintenance
2	SAN Storage	1			
3	SAN Switches	2			
4	Racks 42U	3			
5	Rack Switches (ToR Switches) Type I	2			
6	Rack Switches (ToR Switches) Type II	2			
7	Management Switches	2			
8	JBOD Enclosures	9			
9	SAS SSD Disks 2 x3.84TB	9			
10	NIC Dual-Port 10GbE SFP+	14			
11	DDR4 Memory Modules	Across 9 nodes			
12	SAN Switches to compatible with Dell SC9000	2			
13	Dual port 12Gbps SAS card	9			
14	Installation & Configurations (Including required CAT 6 and FC, SAS, Cables and SFP Modules)	As per Requirement			

3. Technical Specifications

Bidders are required to state their compliance to specifications/requirements against each and every criterion of the specification sheets. Incomplete / non-compliant specification sheets will strongly lead to disqualification of the bidder without getting any clarifications.

Item 1: Server Type I (Compute)

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
1.1	Brand	(Specify)			
1.2	Model	(Specify)			
1.3	Country of Origin	(Specify)			
1.4	Country of Manufacture	(Specify)			
1.5	Year of manufacture	(Specify)			
1.6	Processor	2 x Intel® Xeon® Gold 6248 2.4G, 20C/40T, 10.4GT/s, product family			
		20 cores, minimum 27MB/2.4 GHz cache/processor			
1.7	RAM	DDR4 RDIMM slots 576GB per server (Should be in 64GB DIMM size and Should be able to add more Modules when future required)			
1.8	Disk Drives	16 x Servers with 2 x 3.5" / 2.5" 450GB(RAID1), 15k Hot-pluggable SAS RAID 0, 1, 5, 10 Support			
1.9	Network Interfaces	Minimum 2 x dual-port 10GbE SFP+ VxLAN offload and PXE support			
		4 x 1Gbps NICs IPMIv2 Interface			
1.9	Fabric Interface	Minimum dual-port 16Gbps FC HBAs			
1.10	Power supply	Dual redundant power supplies			
		All the hard disks and power supplies to be hot-swappable.			
1.11	Support Hypervisors	Citrix® XenServer® VMware vSphere® ESXi, KVM, QEMU			
1.12	Special Notes	Should be certified for RHEL 7 and 8, and Redhat OpenStack 13 and 16 All servers to be connected to SAN and Ethernet with redundancy			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
1.13	Install and Configuration	The Technical team should install and configure as per the purchasers' request and to other systems simultaneously.			
1.14	User training	Required			
1.15	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
1.16	Product experience	Brand shall be produced under the same brand for at least for last 5 years.			
1.17	Warranty	3 years comprehensive on-site manufacturer authorized warranty, inclusive of replacement of all defective parts free of charge.			

Item 2: SAN Storage

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
2.1	Brand	(Specify)			
2.2	Model	(Specify)			
2.3	Country of Origin	(Specify)			
2.4	Country of Manufacture	(Specify)			
2.5	Year of manufacture	(Specify)			
2.6	Dual Active-Active Storage Controllers and upgraded to the latest firmware level 16 Gb FC Ports or higher on each controller.	(Specify)			
2.7	10/100Gbps FCoE/ iSCSI Host Ports or higher on each controller	(Specify)			
2.8	FC, FCoE, iSCSI Support within the same array Dual 6Gbps SAS Buses /FC-ALs	(Specify)			
2.9	Proposed storage IP Ports module should support both iSCSI connectivity, CIFS, NFS and remote IP based replication.	(Specify)			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
2.10	Automatic disk rebuild and Automatic disk failover Minimum 16GB Cache on Each Storage Controller or higher.	(Specify)			
2.11	Cache Upgradability 48GB or higher Ability to use Flash/SSD to improve the cache.	(Specify)			
2.12	Supported RAID Levels 0/1/5/6 SAS- 15k and SSD	(Specify)			
2.13	Minimum 20TB effective capacity (On RAID5)	(Specify)			
2.14	IOPS:- 12000(8k block and 80:20% (Read:Write)workloads	(Specify)			
2.15	Should support synchronous/asynchronous replication	(Specify)			
2.16	Support upto 100TB effective capacity (RAID5)	(Specify)			
2.17	Support SAS, NL-SAS, Solid State/Flash Drives.	(Specify)			
2.18	Install and Configuration	The Technical team should install and configure as per the purchasers' request and to other systems simultaneously.			
2.19	Reporting	Should have the ability provide comprehensive management, monitoring and reporting capability across proposed storage platform.			
2.20	Support and Certified	Should be certified and validated to support following OS and Hypervisor; VMware vSphere latest version MS Hyper-V Latest version OpenStack MS Windows Server Linux (Redhat, CentOS and SuSE)			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
2.21	User training	Required			
2.22	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
2.23	Product experience	Brand shall be produced under the same brand for at least for last 5 years.			
2.24	Warranty	3 years comprehensive on-site manufacturer authorized warranty, inclusive of replacement of all defective parts free of charge.			

Item 3: SAN Switches

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
3.1	Brand	(Specify)			
3.2	Model	(Specify)			
3.3	Country of Origin	(Specify)			
3.4	Country of Manufacture	(Specify)			
3.5	Year of manufacture	(Specify)			
3.6	Features	16Gbps, configured with full redundancy.(Switch redundancy)			
3.7	Special Notes	All 5 servers (Existing R730xd- Service tag of one server- 85X7HJ2)) to be connected to SAN with redundancy.			
3.8	Install and Configuration	The Technical team should install and configure as per the purchasers' request and to other systems simultaneously.			
3.9	User training	Required			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
3.10	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
3.11	Product experience	Brand shall be produced under the same brand for at least for last 5 years.			
3.12	Warranty	3 years comprehensive on-site manufacturer authorized warranty, inclusive of replacement of all defective parts free of charge.			

Item 4: Racks

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
4.1	Brand	(Specify)			
4.2	Model	(Specify)			
4.3	Country of Origin	(Specify)			
4.4	Country of Manufacture	(Specify)			
4.5	Year of manufacture	(Specify)			
4.6	Type	USB KVM Switches with LCD monitor			
4.7	Power Strip	Power panels and connectors should support dual source and power panels should includes power meters.			
4.8	Static / Stationary Weight Capacity	(specify)			
4.9	Rack Height	42U			
4.10	Accessories	All Rack Accessories with Hardware Kit			
		Server Rack Cabinet parts			
		Installation guide			
4.11	Operating temperature	(specify)			
4.12	Weight	(Specify)			
4.13	Power consumption	(Specify)			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
4.14	Install and Configuration	The bidder is technical team should be installed and configure the 42U Knock-Down Rack Enclosure Cabinet as per the purchaser request and other system with parley.			
4.15	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
4.16	Product experience	42U Rack with USB KVM Switches with LCD monitor shall be produced under the same brand for at least for last 5 years. (Minimum 24port KVM Switch)			
4.17	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 5: Rack Switches (ToR Switches) Type I

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
5.1	Brand	(Specify)			
5.2	Model	(Specify)			
5.3	Country of Origin	(Specify)			
5.4	Country of Manufacture	(Specify)			
5.5	Year of manufacture	(Specify)			
5.6	Type	Type I - ToR Switches L2, L3 Support Full IPv6 Support in Hardware Redundancy within the Rack. (Minimum 2 x ToR)			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
5.7	Features support	Support for OpenFlow 1.3 ToR switches to be stacked and servers connected with multi-chassis LAG support.			
		4096 VLANs, ACL's, Spanning tree and IEEE standards/protocols support.			
		Multicast, IGMP support.			
5.8	Switch management	SNMP v2 Support, CLI-based The management console, SSH v2 Support, Software Backup/Restore method			
5.9	Ports	10Gbps ports for servers, 40 Gbps uplinks to Aggregation/Core with QSFP+ Switches (Should compatibility with Dell S6010-ON Core switches). Minimum number of 10GbE ports – 48((QSFP+ and 24 SFP+ transceivers should be provided for each switch)			
5.10	Other features	ToR switches should be connected via Aggregation/Core redundant switch cluster (specify the brand, model, and the network layout to be used)			
5.11	Dimension of rack (W x H x D)	Width – (specify)			
		Height – (specify)			
		Depth – (specify)			
5.12	Operating temperature	(specify)			
5.13	Power supply	(Specify)			
5.14	Power consumption	(Specify)			
5.15	Install and Configuration	The Technical team should install and configure the Rack switches as per the purchasers' request and to other systems simultaneously.			
5.16	User training	Required			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
5.17	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
5.18	Product experience	Rack switches brand shall be produced under the same brand for at least for last 5 years.			
5.19	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 6: Rack Switches (ToR Switches) Type II (Connect Ceph Internal)

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
6.1	Brand	(Specify)			
6.2	Model	(Specify)			
6.3	Country of Origin	(Specify)			
6.4	Country of Manufacture	(Specify)			
6.5	Year of manufacture	(Specify)			
6.6	Type	L2, Support Full IPv6 Support in Hardware Redundancy within the Rack. (Minimum 2 x ToR)			
6.7	Features support	ToR switches to be stacked and servers connected with multi-chassis LAG support.			
		4096 VLANs, ACL's, Spanning tree and IEEE standards/protocols support			
		Multicast, IGMP support.			
6.8	Switch management Weight Capacity	SNMP v2 Support, CLI-based The management console, SSH v2 Support, Software Backup/Restore method			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
6.9	Ports	10Gbps ports for servers, 40 Gbps uplinks to Aggregation/Core Switches with QSFP+ .(Should compatibility with Dell S6010-ON Core switches). Minimum number of 10GbE ports - 48(QSFP+ and 24 SFP+ transceivers should be provided for each switch)			
6.10	Other features	ToR switches should be connected via Aggregation/Core redundant switch cluster (specify the brand, model, and the network layout to be used)			
6.11	Dimension of rack (W x H x D)	Width – (specify)			
		Height – (specify)			
		Depth – (specify)			
6.12	Operating temperature	(specify)			
6.13	Power supply	(Specify)			
6.14	Power consumption	(Specify)			
6.15	Install and Configuration	The Technical team should install and configure the Rack switches as per the purchasers' request and to other systems simultaneously.			
6.16	User training	Required			
6.17	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
6.18	Product experience	Rack switches brand shall be produced under the same brand for at least for last 5 years.			
6.19	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 7: Management Switches

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
7.1	Brand	(Specify)			
7.2	Model	(Specify)			
7.3	Country of Origin	(Specify)			
7.4	Country of Manufacture	(Specify)			
7.5	Year of manufacture	(Specify)			
7.6	Type	L2, L3 Support. Full IPv6 Support in Hardware			
7.7	Features support	4096 VLANs, ACL's, Spanning tree and IEEE standards/protocols support			
7.8	Ethernet Ports	1Gbps RJ-45 At least 2 x 1Gbps + IPMI interfaces to be connected. Rack interconnectivity can be via the Aggregation/ Core switches. Minimum ports 48			
7.9	Dimension of rack (W x H x D)	Width – (specify)			
		Height – (specify)			
		Depth – (specify)			
7.10	Operating temperature	(specify)			
7.11	Power supply	(Specify)			
7.12	Power consumption	(Specify)			
7.13	Install and Configuration	The Technical team should install and configure the management switches as per the purchasers' request and to other systems simultaneously.			
7.14	User training	Required			
7.15	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
7.16	Product experience	management switches brand shall be produced under the same brand for at least for last 5 years.			
7.17	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 8: JBOD Enclosures

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
8.1	Brand	(Specify)			
8.2	Model	(Specify)			
8.3	Country of Origin	(Specify)			
8.4	Country of Manufacture	(Specify)			
8.5	Year of manufacture	(Specify)			
8.6	Type / Features	Each JBOD enclosures should be compatible and should connect to existing 9 x Dell PowerEdge 730XD Servers (Service tag of one Server- 85X7HJ2) via 12Gbps SAS with redundantly. (Existing Dell 730XD currently populated with 10 x 2TB SATA HDD)			
		4 x 8TB (HDD (NLSAS/SATA)) (Openstack block storage)			
		4 x 8TB (HDD (NLSAS/SATA)) (Openstack Object storage)			
		4 x 3.84TB (SAS SSD) (Object storage)			
		Minimum 12 host-pluggable drive should support on each enclosure			
		Redundant enclosure management capabilities			
8.7	Power supply	Redundant Power supply			
		Expansion Capability			
8.8	Special Note	Each storage Enclouser to be connected to Storage server PowerEdge R730XD with redundancy			
8.9	Operating temperature	(specify)			
8.10	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
8.11	Product experience	The brand shall be produced under the same brand for at least for last 5 years.			
8.12	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 9: SAS SSD Disks – 3.84 TB

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
9.1	Brand	(Specify)			
9.2	Model	(Specify)			
9.3	Country of Origin	(Specify)			
9.4	Country of Manufacture	(Specify)			
9.5	Year of manufacture	(Specify)			
9.6	Type	SATA SSD Disks			
9.7	Capacity	2 x 3.84 TB x9 (Per node total required capacity with redundancy= 2 x 3.84TB SAS SSD) Across 9 nodes			
9.8	Type	SAS SSD			
9.9	Compatible	Compatible with Dell R730xd (Service tag of one device- 85X7HJ2) Per node total required capacity with redundancy= 2 x 3.84TB SAS SSD			
9.10	Product experience	The brand shall be produced under the same brand for at least for last 5 years.			
9.11	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 10: Dual-port 10GbE SFP+

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
10.1	Brand	(Specify)			
10.2	Model	(Specify)			
10.3	Country of Origin	(Specify)			
10.4	Country of Manufacture	(Specify)			
10.5	Year of manufacture	(Specify)			
10.6	Features support	Dual-port 10GbE SFP+ VxLAN offload and PXE support, Compatible with Dell R730xd (Service tag of one device – 85X7HJ2) x 14 (with Transceivers)			
10.7	Product experience	The brand shall be produced under the same brand for at least for last 5 years.			
10.8	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 11: DDR4 Memory Modules.
A memory upgrade to R730xd across 9 nodes

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
11.1	Brand	(Specify)			
11.2	Model	(Specify)			
11.3	Country of Origin	(Specify)			
11.4	Country of Manufacture	(Specify)			
11.5	Year of manufacture	(Specify)			
11.6	Type	DDR4 Memory Modules.			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
11.7	Features support	Memory Modules Should be Compatible with Dell R730xd (Service tag of one device- 85X7HJ2) Currently each server has 256GB Memory (32GB DIMMS x 8). Each server(node) should upgrade to 384GB of Memory			
11.8	Product experience	The brand shall be produced under the same brand for at least for last 5 years.			
11.9	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 12: SAN Switches to compatible with Dell SC9000

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
12.1	Brand	(Specify)			
12.2	Model	(Specify)			
12.3	Country of Origin	(Specify)			
12.4	Country of Manufacture	(Specify)			
12.5	Year of manufacture	(Specify)			
12.6	Type	SAN Switches to compatible with Dell SC9000			
12.7	Features support	48 ports SAN Switches with 32 licensees. (Should be compatible with Dell SC9000 Dell SC420 expansion and should be connected to 32 nodes via			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
		FC.) (Replace/tech refresh - BROCADE 6510 existing Switches Switches – B7YZS72, H7YZS72) with propose 48 ports switches			
12.8	Manufacturer authorization	Manufacturer authorization letter shall be provided.			
12.8	Product experience	The brand shall be produced under the same brand for at least for last 5 years.			
12.10	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			

Item 13: Dual port 12Gbps SAS card

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
13.1	Brand	(Specify)			
13.2	Model	(Specify)			
13.3	Country of Origin	(Specify)			
13.4	Country of Manufacture	(Specify)			
13.5	Year of manufacture	(Specify)			
13.6	Type	Dual port 12Gbps SAS card			
13.7	Features support	12Gbps SAS card to Should be installed on Dell R730xd (Service tag of one device-85X7HJ2) and connect JBOD enclosures redundantly. Compatible with Dell R730xd (Service tag of one device-85X7HJ2) x9			

Item No.	Minimum Specification		Bidder's Offer (Please specify details)	Compliance to the specification (Yes / No) If "No" bidder's response	Technical reference (Please specify the page number)
13.8	Product experience	management switches brand shall be produced under the same brand for at least for last 5 years.			
13.9	Warranty	3 years comprehensive on-site manufacturer authorized warranty for unit, inclusive of replacement of all defective parts free of charge.			