



Simplifying Trade Processes for Kenya's Competitiveness
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TENDER REF NO: KTNA/OT/06/2020-2021

TENDER NAME: - TENDER FOR THE PROVISION OF THE PRIMARY AND SECONDARY HOSTING ENVIRONMENT FOR THE TRADE FACILITATION PLATFORM (TFP)

ADDENDUM No. I

Arising from queries raised by prospective bidders during the bidders' virtual conference held on Monday, October 19, 2020, and through various email communications, KENTRADE issues the following clarifications and responses –

SNO	BIDDER QUERY	KENTRADE RESPONSE
I	Performance & capacity specifications for Tier I, DC Firewalls- This should be clarified for primary and the secondary data center.	
Ia	1.Firewall throughput 2.Next Generation Firewall Throughput 3.IPS throughput memory/RAM IPS throughput 4.concurrent connections connections per second 5.No of interfaces required – 1G copper, 10G SFP+ 6.Power supply requirement – dual or single SSD or HDD 7.Is OEM training a requirement? If yes, which modules would they require training for? And how many candidates	<p><u>Hardware Specifications</u> Minimum 32Gb RAM Minimum Dual 256Gb SSD Storage Supports Minimum of Qty 4 10GbE and Quantity 4 10G SFP+ High Availability Cluster configuration Dual Power supply</p> <p><u>Performance Specs</u> L3 Forwarding: Minimum 16 Gbps Support for IPV6, NAT, BGP Concurrent Sessions (TCP) In High Availability minimum 5 Million New Sessions/Second (TCP) In High Availability minimum 200,000 NGFW Throughput In High Availability Minimum of 14Gbps</p> <p><u>Application Awareness</u> Next Generation Firewall must be able to identify, allow, block or limit applications regardless of port, protocol etc.</p>

		<p><u>Identity Awareness</u> a. Next generation firewalls supports Identity awareness for granular control of applications by specific users, group of users and machines that the users are using.</p> <p>b. Next generation firewall device must also support all major authentication protocols such as LDAP/AD, RADIUS, Kerberos and Local Auth.</p> <p><u>State-full Inspection</u> Next-generation firewall (NGFW) should be able to track the connections from layer 2 to layer 7 (Including layer 8 due to identity awareness)</p> <p><u>Deep Packet Inspection (DPI)</u> a. The Next Generation Firewall should ensure the various pieces of each packet are thoroughly examined to identify malformed packets, errors, known attacks and any other anomalies.</p> <p>b. DPI must rapidly identify and then block Trojans, viruses, spam, intrusion attempts and any other violations of normal protocol communications.</p> <p><u>Integrated Intrusion Prevention System (IPS)</u> a. Next-generation firewall (NGFW), the appliance must ensure that IPS and IDS application is fully integrated.</p> <p>b. IPS should be able to be activated and de-activated as and when required.</p> <p><u>Ability to monitor SSL or other encrypted traffic</u> a. The next-generation firewall (NGFW) must be able to monitor SSL and Http tunneled traffic flows as well.</p> <p>b. To secure encrypted traffic the Next generation Firewall must support all inbound and outbound SSL decryption capabilities.</p> <p><u>Integration with other security solutions</u> The next-generation firewall (NGFW) should be capable with integrating with other security solutions such as SIEM tools, reporting tool, two factor authentication systems etc. with little or no modifications.</p> <p><u>Inbuilt Antivirus and Anti-Bot solution</u> a. Next-generation firewall (NGFW) must have inbuilt antivirus engine and be able to inspect https traffic on the fly for any infected file.</p> <p>b. Protection should be available for protocols like HTTP, HTTPS, FTP, POP3, SMTP, SMB etc.</p> <p>c. Next Generation Firewall must also be capable of identifying malware coming from incoming file and malwares downloaded from internet</p>
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		<p><u>Ipssec protocol</u></p> <p>a. The Next Generation Firewall must allow any IP traffic to be transported in Ipssec VPNs regardless of which higher-level protocol the traffic uses on top of the IP protocol.</p>
		<p>b. Hosts should be able to communicate through the Ipssec VPN using both the Ipv4 and Ipv6 standards.</p>
2	<p>The Tier I and DC firewalls are missing Central management for Logs/reports. This should be clarified for primary and the secondary data center</p>	
2a	<p>We highly recommend a central management from each OEM for Tier I and DC firewalls Will the central management be a Hardware appliance or Virtual appliance? What is the Storage capacity RAM (memory) Logs per second GB of logs per day</p>	<p><u>Centralized Management, Administration, Logging and Reporting</u></p> <p>a. Next Generation Firewall must have a management solution for management, logging and reporting.</p>
		<p>b. This tool should be able to export firewall rules set and configuration</p>
		<p>c. Centralized management should provide administrator with security health dashboard to view the happenings and traffic patterns and associated risks in network in real time.</p>
		<p>d. Central management should also provide the ability to automate routine tasks, reuse elements and employ shortcuts and drill-downs to produce maximum efficiency with minimal effort.</p>
		<p>e. Based on the NGFW performance requirements the Bidder to illustrate Logs per Second and How much Storage it can handle per day</p>
3	<p>Web Application Firewall & Load Balancer. This should be clarified for primary and the secondary data center.</p>	
3a	<p>1.Expected throughput. 1, 3, 5 or 10Gig? 2.Is OEM training a requirement? If yes, which modules would they require training for? And how many candidates?</p>	<p>Refer to tender documents and 1 above for WAF specifications. Load balancers are expected to be virtual appliances as specified in the in the tender documents (Under Load Balancers and WAF). OEM Training for 7 KenTrade Staff for each of Server/Storage/Virtualization (3 staff) Network (3 staff) & Security (2 staff) solutions proposed. Refer to updated price schedule</p>
4	<p>Link Aggregation Switch & Core Switch. This should be clarified for primary and the secondary data center.</p>	

4a	<p>1.Link aggregation is 40/100G SFP+. This is too high for aggregating Tier1 Firewalls and ISP connections.</p> <p>2.We just need a 1/10G Switch Link Aggregation capacity is 3.2 Tbps whereas the core switch is 1.28 Tbps. We expect the core switch to have a higher capacity than link aggregation switch</p> <p>3.Confirm the Core switch is also the TOR switch and will provide L3 for servers</p>	<p>1. The TFP platform is expected to serve thousands of external users connecting from across the world. The capacities provided are expected to serve current and future requirements.</p> <p>2. Refer to provided tender requirements specifications under Switches. This are our minimum requirements.</p> <p>3. This is the among the expected capabilities of the Corporate SDN fabric. Refer to tender specifications.</p>
5	Storage Software Defined Storage (SDN) Fabric. This should be clarified for primary and the secondary data center.	
5a	This switch should be a fiber channel switch with 16 Gig SFP to support the servers which require fiber channel switch	The proposed SDN fabric technology should meet the requirements in the tender. Proposed switches should adhere to port speeds and port configuration as in the tender documents whether FC or other proposed technologies.
6	REPLICATION & BACKUP AS A SERVICE. This should be clarified for primary and the secondary data center.	
6a	Since the solution will largely use Storage replication, the virtual machines will not be readable and hence the backup appliance has to be positioned in the primary site. Kindly clarify if the appliance will be placed at the primary site?	Backup appliance can be based on the primary or DR site. Bidders to clearly demonstrate their business continuity solutions; Primary to DR site replication and Backup as a service
6b	Please specify the number of Virtual machines and total capacity for the virtual machines to be protected	A minimum is 20 virtual machines running different workloads is expected. Further details to be provided during implementation
6c	What is the total backup front end capacity required for the environment?	Total backup size is estimated 50TB
6d	Please specify the retention periods for daily weekly, monthly and yearly?	Daily Incremental backups with Monthly retention period
7	STORAGE SERVER SYSTEM	
7a	Please specify the useable capacity on NVMe and SSD?	Refer to capacities and disk types provided in the tender documents under Compliance to Technical Specifications Clause 7 -Storage Systems
7b	Does the 1.39 TB of total cache comprise of 256 GB of DRAM and 1.2 TB of Fast Cache?	Total Cache is amended to minimum of 1.45 TBs = 256GB DRAM + 1.2TB Fast (or equivalent) cache

7c	Since the drives are requested are for an all flash platform adding HDD support would slow the system. KenTrade is requesting for a system that must support HDD (Storage Type). Please clarify for this the primary and secondary requirements?	HDD support is required for future archival storage.
7d	Can one offer the same raw capacity using NVMe only drives?	Refer to capacities and disk types provided in the tender documents. Under Compliance to Technical Specifications Clause 7 -Storage server Systems
7e	For RAID can one use modern RAID solutions such as Dynamic RAID to configure the capacity request in place of legacy (raid 1/raid 10/raid 5/raid 6)?	Refer to RAID requirements provided in the tender documents. Under Compliance to Technical Specifications Clause 7 -Storage Systems -RAID
7f	Please specify the Number of of ports required for the storage "10GbE BaseT, 16Gb FC, 25GbE Opt, 10GbE Opt, SAS BE	Bidders are required to propose storage appliances that will meet the Software Defined Storage requirements in the RFP. Each proposed SDS solution must clearly show which Fabric technology will be used, Number of ports on the storage to connect to the storage fabric, Storage operating system etc.
8	WEB and APPLICATION SERVERS	
8a	There is no specific form factor specified. Blade servers typically have more physical density than traditional rack servers, especially beneficial for collocation use-cases where there is a charge per RU used. Can we propose blade servers that meet the requirements while providing maximum density?	Proposed Database, Web and application servers MUST meet all the tender specifications. Further, Database servers specs must adhere to Oracle hard partitioning requirements. Bidders can propose their desired form factors which meets the performance specifications in the tender documents. The physical number of nodes, memory, processors, I/O ports must follow the requirements in the Tender Document Under Compliance to Technical Specifications – Servers
8b	Please clarify the number of interface(ports) required for 25 Gbe and 16 Gb FC?	Compute LAN I/O Modules MUST support 2 x 25G SFP28. Storage connectivity MUST support 2 x 16Gbps minimum.
9	Database SERVERS	
9a	There is no specific form factor specified. Blade servers typically have more physical density than traditional rack servers, especially beneficial for collocation use-cases where there is a charge per RU used. Can we propose blade servers that meet the requirements while providing maximum density? Can this part of same blade chassis as the application server?	Proposed Database, Web and application servers MUST meet all the tender specifications. Further, Database servers specs must adhere to Oracle hard partitioning requirements. Bidders can propose their desired form factors which meets the performance specifications in the tender documents. The physical number of nodes, memory, processors, I/O ports must follow the requirements in the Tender Document
9b	Please clarify the number of interface(ports) required for 25 Gbe and 16 Gb FC?	- 2 x Compute LAN I/O Modules MUST support 25G SFP28. - Storage connectivity MUST support a minimum 2 x 16Gbps
10	Migration	

10a	Please clarify on the Migrations of the existing services from the current infrastructure to the new Infrastructure. Is it just virtual machines or does it include databases as well? If databases are included, please mention the no. of instance and the database sizes, current operating system platform	Since this is a new installation, Migration of existing services is limited. However, the bidder should plan for - at least 20 virtual machines in heterogenous platforms hosting different applications and at least 5 productions databases in both physical and virtual environments. Winning bidder will be expected to work with the application vendor during the migration. Majorly it is the Database that will be migrated.
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QUERRIES RAISED VIA EMAIL

No	Page number	Sub-title	Clause no	Description	BIDDER QUERY	KENTRADE RESPONSE
1	Page 26 & 20	STORAGE SERVER SYSTEM	Storage type	Up to 1.39 TBs Unified SAN XT Hybrid, -Storage connectivity MUST support 16Gbps minimum.	The Best practices for Storage to Server connection is through Fiber plus SAN Switch. The tender is asking for 16GBPS Fibre port. But SAN switch is missing in the specifications. Kindly provide the required SAN Switch specifications	The Tender Document states, "Must support 16Gbps Minimum" And does not mention a fiber ports. The port speeds are minimum and bidders can propose higher throughputs that their technologies can support. Bidders are to adhere to the minimum requirements and propose how their solution meet the requirements.
2	Page 26	STORAGE SERVER SYSTEM	Max FAST Cache	Up to 1.2 TBs or higher.	FAST Cache is a proprietary, rather an OEM specific terminology. This technology is not available with all the OEMs as it is Secondary Cache and not primary one. This technology is offered by one specific OEM only. By standards, the controllers of the storage comes with controller cache, which is the primary cache. This controller cache method, which is primary cache method is the best and faster than FAST Cache method. This is the usual method with all the OEMs in common. Therefore	Bidders may propose an equivalent Technology that meets the total cache requirement as per this addendum i.e. 1.45TBs Total Cache Total Cache is amended to minimum of 1.45 TBs = 256GB DRAM + 1.2TB Fast (or equivalent) cache

					we request you to quantify the Primary Cache, which is usually a part of Storage Specifications.	
3	Page 26	STORAGE SERVER SYSTEM	Total Cache	Up to 1.39 TBs or above.	FAST Cache is a proprietary, rather an OEM specific terminology. This technology is not available with all the OEMS as it is Secondary Cache and not primary one. This technology is offered by one specific OEM only. By standards, the controllers of the storage comes with controller cache, which is the primary cache. This controller cache method, which is primary cache method is the best and faster than FAST Cache method. This is the usual method with all the OEMs in common. Therefore, we request you to quantify the Primary Cache, which is usually a part of Storage Specifications.	<p>Bidders may propose equivalent technology that meet the total cache requirement as per this addendum i.e. 1.45TBs Total Cache.</p> <p>Total Cache is amended to minimum of 1.45 TBs = 256GB DRAM + 1.2TB Fast (or equivalent) cache</p>
4	Page 26	STORAGE SERVER SYSTEM	CPU per Array	2 x dual-socket Intel CPUs, 32 cores per Array, 3.0 GHz.	<p>INTEL processors are standards for Servers only globally and not for Storages.</p> <p>The performance of Storages are usually described in terms of IOPS and LATENCY and not Processor type/speed. The tender does not have mention of these two (IOPS & LATENCY) important parameters. Very few Storage vendors only offer INTEL processors based Storages. By mentioning INTEL processors, it</p>	<p>This is incorrect. Current installed Storages have INTEL processors. The Agency's workloads are standardized on Intel processors for Storage and Servers.</p> <p>Refer to tender documents on disk types (i.e SSD and NVMe SSDs) which define expected IOPs and Latencies</p>

					deprives of the healthy competition and level playing field.	
5	Page 35	REPLICATION & BACKUP AS A SERVICE	Location	The Backup infrastructure should be located in the DR site datacentre for ease of Data transfer between backup and DR/PR environments. Backups shall be performed in the following order: Primary > DR > Backup	When Back-up system is deployed in DR, the VM (Virtual Machines) of DR cannot be backed-up. Similarly, restoring back from Back-up will be big challenge as it is to be first restored to DR before doing reverse replication to PR. The whole idea of reducing RESTORATION LATENCY , which is mentioned in tender as a requirement, will be spoiled by the approach of keeping Back-up at the DR .	Backup appliance can be based on either the primary or DR site. Bidders to clearly demonstrate their business continuity solutions; Primary to DR site replication and Backup as a service

Implementation & Migration Services At least 20 virtual machines in heterogenous platforms hosting different applications and at least 5 productions databases in both physical and virtual environments.	1	1								
Training for KenTrade Staff (Server/Storage/Virtualization)	3									
Training for KenTrade Staff (Networking)	3									
Training for KenTrade Staff (Security)	2									
Annual Service level agreement to support ALL components for Primary & DR for 6Years	6	6								
Sub Totals										
TOTAL SOLUTION COST (FOR THE SIX YEAR PERIOD)										

The above addendum forms part of the bidding document and is binding on all bidders.

CHIEF EXECUTIVE OFFICER