TERMS OF REFERENCE

The Ministry of the Attorney General and Legal Affairs

Information and Communications Technology Unit

AGLA Tower, Level 13

Government Campus Plaza

Corner of London & Richmond Streets, Port of Spain

Engagement of a Qualified Vendor for the Supply, Installation, Configuration, Testing and Implementation of Hyper-Converged Infrastructure (HCI) Solution

Confidentiality Statement

The vendor, its employees, agents or subcontractors shall not disclose, publish or authorize others to publish any confidential information obtained from the records of the Ministry of the Attorney General and Legal Affairs. The vendor warrants that it will not sell, loan, share, or otherwise use any of AGLA's data with any third party whatsoever.

04th July 2019

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1.0 Introduction

The Ministry of the Attorney General and Legal Affairs ("AGLA") invites proposals from a qualified, competent, knowledgeable, and experienced proponent that will supply, install, configure, test and implement a turnkey Hyper-Converged Infrastructure ("HCI") solution that will provide greater efficiency and agility to our ICT Infrastructure while reducing server, storage and virtualization complexity. Proponents submitting proposals must be prepared to immediately enter into a contractual agreement ("Agreement") for the supply, installation, configuration, testing and implementation of a turnkey Hyper-Converged Infrastructure solution as set forth in this RFP. AGLA intends to select the proponent that provides the best solution for the Ministry's needs.

2.0 Objectives

In 2015, the Ministry of the Attorney General and the Ministry of Legal Affairs merged to become the current Ministry of the Attorney General and Legal Affairs (AGLA). With this merger, the server architecture at the Ministry of Legal Affairs included mostly obsolete equipment, whereas, the Ministry of the Attorney General's server architecture consisted of several hardware servers (newer) configured in a Microsoft virtualized environment with an EMC Clarion Storage Area Network. The Ministry is interested in changing its existing server architecture. The main objectives of this change is to:

- Facilitate the migration of ag.gov.tt and gov.tt networks to agla.gov.tt,
- Replace Servers that have reached end of life,
- Simplify the deployment, management and scaling of IT resources,
- Improve efficiency of daily IT operations,
- Provide the Ministry with the ability to enhance data protection/reliability,
- Bring an affordable economic model to the IT Unit (Procurement, Maintenance and Support),
- Produce a system capable of surviving failure – highly reliable and redundant,
- Achieve significant improvements in the scalability of the server and storage systems,
- Maintain and improve application response rates to the end users.

3.0 Current Environment

Currently the Ministry has two (2) separate networks with the intention of merging in the near future. The AGLA network server infrastructure is located at the Ministry's Head Office in Port of Spain, which currently has fifteen (15) servers with a SAN while the Legal Affairs network has six (6) servers in addition to application servers (not listed in this RFP) and Network Attached Storage (NAS). Most of the servers have reached its end of life and with the network integration, it is envisioned that the existing server architectures be merged into one Hyper-Converged Infrastructure solution.

ICT's, including computers and various application, are used daily by 96% of staff in the execution of their duties, including the servicing of the public. The need for additional storage and processing power will therefore increase in the future as the Ministry grows and continues growing and improving its ICT services to staff and public users.

AGLA Server environment.

COMPUTING SYSTEMS	DESCRIPTION
Server Operating Systems	Windows Server 2003 to 2016
Hypervisor	Microsoft HYPERV and VMWare
AUTHENTICATION	**PREFERENCE**
Network Authentication	MS Active Directory
NETWORK	**PREFERENCE**
Network Infrastructure	10 Gig Ethernet Backbone
Network Services	Printing, File Sharing, DHCP, DNS, Key Management Server (KMS) and End Point Protection.
APPLICATION SERVICES	Mail Server, SharePoint, WSUS, Print Management Services, Helpdesk, Document Digitization and SQL Server.

The table below identifies the current number of servers.

Attorney General

No.	Server Type	Current Server Type	Disk Size	Memory Required
1	Domain Controller	VM	500 GB	4 GB
2	Domain Controller	VM	500 GB	4 GB
3	Exchange	PHYSICAL	6 TB	24 GB
4	File Server	VM	3 TB	4 GB
5	File Server	PHYSICAL	700 GB	4 GB
6	Case Management System	PHYSICAL	3 TB	16 GB
7	AntiVirus - Endpoint Manager	VM	500 GB	6 GB
8	Print Server	VM	500 GB	4 GB
9	Print Server	VM	500 GB	4 GB
10	IT Workflow Management Server	PHYSICAL	500 GB	16 GB
11	File Server	VM	1 TB	4 GB
12	Microsoft SharePoint	VM	500 GB	4 GB
13	Microsoft SQL Server	VM	500 GB	4 GB
14	Network Monitoring	VM	400 GB	8 GB
15	Windows Services Update Server	VM	500 GB	4 GB

Legal Affairs

No.	Server Name	Current Server Type	Disk Size	Memory Required
1	Domain Controller/ DHCP	PHYSICAL	500 GB	4 GB
2	Windows Services Update Server	PHYSICAL	1 TB	4 GB
3	Antivirus - Endpoint Manager	PHYSICAL	1 TB	16GB
4	File Server	PHYSICAL	1 TB	8GB
5	Microsoft Exchange Server	PHYSICAL	1TB	16GB
6	Database Server	PHYSICAL	500	4GB

4.0 Scope of Services

AGLA seeks to engage a qualified proponent for the supply, installation, configuration, testing and implementation of hardware and software to facilitate the desired server architecture. The AGLA expects the Proponent to provide a Hyper Converged Infrastructure solution. Installation will be deemed complete when technical staff agrees the system is fully functional to defined configurations. Scope includes:

i. Supply, installation of a Hyper Converged Infrastructure inclusive of platform software and licenses;
ii. Configuration and Implementation of the HCI;
iii. Procurement, installation and labelling of all cables, rail and mounting accessories;
iv. Onsite delivery and installation of all supplied equipment for the proposed solution;
v. Installation and configuration of platform software;
vi. Overall Testing and acceptance;
vii. Training for the ICT equipment platform software;
viii. Post Implementation maintenance and support, and
ix. Documented architecture and configuration
x. Proponent is required to meet all deliverables as outlined in the implementation plan.

5.0 Design Concept

The Ministry is seeking a HCI Solution that will facilitate easy migration from the existing architecture to the proposed solution, is easily scalable, provides a secure environment, has the ability to satisfy growing future Ministry's workloads and reduces administrative overhead. The proposed solution should seamlessly combine computer, network and storage, and eliminate the need for a SAN. The Ministry requires that the solution encompass high availability, redundancy, replication, deduplication and compression.

6.0 Technical and Functional Specifications

The requirements set out in this section are minimum requirements and are by no means wholly inclusive. These requirements are intended to be a guide in setting the direction and expectations for the Hyper Converged Infrastructure Solution and it is expected that it be exceeded by the solution ultimately implemented. The solution proposed should meet or exceed the specifications in this RFP.

The proposed solution should include the necessary licensing module that will adequately cover the number of proposed components in the solution. The successful proponent will be responsible for the design and configuration of the entire solution.

6.1 Functional Requirements

PRIORITY DEFINITIONS FOR REQUIREMENTS

M	**Must Have** This is a key element and is considered **REQUIRED**. This element is critical to solution success and must be delivered. To be considered compliant, the proponent must meet the mandatory requirements.
O	**Optional** This requirement is **NOT REQUIRED**, however, proponents that match or exceed this requirement will be scored higher. This element is not important to solution success but are not strictly necessary. If an Optional item is not addressed the solution may incur a pain point, but is still viable.
I	**Information** This requirement is **NOT REQUIRED** for the proponent to be compliant. It is meant for the proponent to describe attributes of the components.

	REQUIREMENTS	MANDATORY(M) /OPTIONAL (O)	PROPONENT SPECIFICATION	COMPLIANT (Y/N)
1	Scalable storage without need for changing of base equipment included.	M		
2	Platform software includes Distributed Data Maintenance Service.	M		
3	Provides ability to expose storage resources through, direct attached SSD and HDD on the same host as the guest virtual machines making requests	O		
4	Automated tiering (including RAM cache, flash read/write, HDD read/write).	O		

	REQUIREMENTS	MANDATORY(M) /OPTIONAL (O)	PROPONENT SPECIFICATION	COMPLIANT (Y/N)
5	Tiering occurs in real-time and elevates data into the flash and RAM tier based on access patterns.	O		
6	Thin provisioning of both storage containers and virtual machine hard disks;	M		
7	Rapid virtual machine cloning	M		
8	Native storage level snapshots with no impact to guest performance.	M		
9	Deduplication spanning all storage including RAM, flash and HDD.	O		
10	Data redundancy policies that provide options for single host failure and simultaneous host failure with no impact to data availability included.	M		
11	VM Level site-to-site replication.	M		
12	Support for automated upgrades of storage controllers through management GUI with no downtime to virtual machines.	O		
13	Provide storage and compute metrics at per VM level as well as health and monitoring of entire platform.	M		
14	Support a centralized management console	M		

	REQUIREMENTS	MANDATORY(M) /OPTIONAL (O)	PROPONENT SPECIFICATION	COMPLIANT (Y/N)
15	Management console to allow for viewing and administration of multiple configured sites and clusters for a single console with single sign-on (SSO)	M		
16	Management Console to allow access to clustered equipment.	M		
17	Platform to provide connectivity for centralized monitoring via SNMPv3 and email alerting via SMTP.	O		
18	Allow for data distribution across all nodes and disks so disks in each storage tier fill at approximately the same rate and handle equal amounts of I/O.	O		
19	Ability to add additional compute and storage components without disrupting operation.	O		
20	Equipment allows for swappable storage and compute, to scale performance and capacity on demand.	M		
21	Capable of creating snapshots of virtual machines and maintaining multiple copies of snapshots.	M		
22	Equipment provided configured to be high available.	M		
23	Automatic load balancing.	O		
24	Includes automatic hardware failover.	M		
25	Power Redundancy. Equipment should include a minimum of two (2) redundant hot-swappable power supplies.	M		

	REQUIREMENTS	MANDATORY(M) /OPTIONAL (O)	PROPONENT SPECIFICATION	COMPLIANT (Y/N)
26	24x7x365 infrastructure maintenance and support for all hardware and components included.	M		
27	Includes software maintenance and support for all software components of the proposed solution, including updates and patches as well as technical support available via telephone, email, and web during all hours (24 hours per day, 365 days per year).	M		

Other Requirements

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent Specification	COMPLIANT (Y/N)
1	Life Cycle Support	M	Products included in the solution have a minimum three (3) years of support from time of delivery, with the option to renew for minimum two (2) years		
2	Upgrades	M	Product upgrades do not require service engagements. As-in, product upgrades must be able to be performed by AGLA.		
3		I	Describe which components and/or features are upgradable.		
4		M	Component and feature upgrades must be non-disruptive (Do not interrupt actively running workloads).		
5		M	Component and feature upgrades must not require service engagements. As-in, component and feature upgrades must be able to be performed by AGLA.		

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent **Specification**	COMPLIANT (Y/N)
6	Implementation Services	**I**	Describe the implementation services provided or recommended.		
7	Scalability	**M**	The solution supports the ability for additional hosts with storage and compute resources to be added seamlessly–with no downtime–to linearly and simultaneously scale performance, compute and storage, on demand. This capability must be present in a GUI Console.		
8		**M**	Compute and storage are scalable independently of other resources i.e. storage must be scalable without adding compute and compute must be scalable without adding storage.		
9	Training	**O**	Describe any training provided with the solution or recommended.		

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent **Specification**	COMPLIANT (Y/N)
10	Management	**M**	Secure, single unified management console/portal for management of all HCI components.		
11	Network	**M**	Uplink interfaces from the cluster and/or chassis support 10GbE.		
12		**M**	Multiple uplink interfaces from the cluster and/or chassis included, with a minimum of four (4) interfaces available.		
13	Performance and Efficiency	**M**	Virtualized workload migration and/or scaling are compatible with multiple cloud service providers (CSPs).		
14		**M**	Data Locality i.e. VMs read and write to disks on local host node		
15		**O**	Support for data deduplication and compression by Software Engine included.		

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent **Specification**	COMPLIANT (Y/N)
16	Storage	**M**	Support for Hybrid and All Flash Configurations included.		
17		**M**	Storage solution supports NFS, SMBv3 and iSCSI.		
18		**M**	Supports multiple hypervisors.		
19		**O**	Has a mix of HDD and flash.		
20		**M**	Each node possesses storage capacity to ensure no loss of service in the event of the failure of any single node.		
21	General Requirements	**M**	Manageable from a secure GUI interface.		
22		**M**	Provides detailed reporting on current and historical utilization.		

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent **Specification**	COMPLIANT (Y/N)
23		**O**	Includes comprehensive remote monitoring abilities without third-party hardware or software.		
24		**O**	Generates email alerts / SNMP monitoring for any critical hardware or software events that may occur.		
25		**O**	Includes out-of-band management for the entire system.		
26		**O**	All equipment is manufacturer homogenous.		
27	Memory	**M**	Each node possesses capacity for memory growth.		
28	Virtualisation Features	**M**	Solution comes with built in hypervisor.		
29		**M**	Virtual network management included.		
30		**M**	VM high availability included.		

	Requirements	MANDATORY(M)/ OPTIONAL(O) /INFORMATION (I)	Details	Proponent **Specification**	COMPLIANT (Y/N)
31		**M**	Virtual Machine mobility included.		
32	Management	**M**	Virtual storage management included.		
33		**M**	Native backup/and restores operations included.		
34		**M**	Native snapshot management included.		
35		**M**	Supports online cluster management.		
36	Other	**O**	Component and feature upgrades are non-disruptive. Meaning they must not interrupt actively running workloads.		

7.0 Equipment Specifications

COMPONENT	DESCRIPTION	SPECIFICATION	COMPLIANT (Y/N)
	Nodes	Minimum 3 nodes	
HCI			
	Processor	Multi - processor	
		Minimum 8 cores (per processor)	
	Memory	Minimum of 128 GB per node	
	Storage	55TB minimum usable capacity (4:1)	
		Drives must be hybrid HDD and SSD	
	Network - High Available network connectivity	Minimum - 2 X 10GB SFP+ Fibre	

8.0 Configuration

All nodes are to be managed from a central management console. A proposed infrastructure must allow the integrated technologies to be managed as a single system through a common tool set.

Configuration of Hyper Converged infrastructure to include:

Automated provisioning

The ability to automate the rapid creation and destruction of virtual machines (VMs) on a virtualised services platform or hypervisor cluster. This will require:

i. A self-service hypervisor portal for VM management, an API for VM management and provisioning ability to provision new virtual servers on demand and have them operational in under 10 minutes
ii. Ability for clients to provision or remove virtual servers

Configurable networking

The ability to manage internal networks and routing, allowing low-level network segregation of virtual machines and groups thereof through use of VLANs or similar technology. We require the ability to automate the management of such networks. This will require both:

i. A self-service hypervisor portal for network management of an API for network management ability for network
ii. Configuration to be modified by client independent of the hosting provider

Configurable VM Specification

The ability to select and modify the specification of individual VMs using a management console. Specifically:

i. number of vCPUs (up to at least two per machine)
ii. amount of RAM (from 4GB to 32GB per machine)
iii. storage (up to at least 300GB volumes)

Failover

The Proponent must have failover arrangements to relocate services to failover nodes in the event of an outage in the primary nodes. Any VM and associated network configuration, data & shared storage must be able to be migrated or started from a near-live replica in the failover nodes, even in the event of complete network outage at the primary. It must be possible to run in an "active/active" configuration. This should be possible with future upgrades.

High Availability

The failure of any individual hypervisor node must not affect the availability of any guest VMs. Protective monitoring systems must ensure that affected VMs are moved to or started on another node.

Monitoring

The Proponent must provide at least a basic protective monitoring system which will alert support staff on hypervisor outage. In addition, we would require weekly/On demand performance and networking reports on a per-VM granularity.

VM Templates

The platform software must be configured to have the ability to manage and upload virtual machine templates for use when provisioning VMs.

9.0 Testing and Acceptance

Testing and acceptance shall be conducted by the AGLA IT technical team. The following criteria must be met for acceptance of the solution:

i. All hardware is delivered and mounted.
ii. All hardware and cables are labelled.
iii. All configurations are completed.

10. Implementation Plan

The Proponent is expected to include an implementation plan for the delivery, mounting and installation of the hardware and related operational software. This plan must include timelines for:

I. Mounting of delivered equipment between 1 - 4 weeks after delivery of equipment
II. Installation and configuring of platform software between 1 - 4 weeks after delivery of equipment
III. Labelling all hardware and cabling between 1 – 4 weeks after delivery of equipment

11. Training

Proponents shall include training for five (5) technical personnel from the AGLA technical department. This training component shall include:

	ITEM	COMPLIANT (Y/N)	SUPPLIER SPECIFICATION
1	Platform administration		
2	System Administration		
3	VM template creation		
4	VM creation		
5	VM Management		
6	Snapshot generation		
7	System backup and restore procedures		

12. Documentation

Proponent is required to present documentation for the equipment provided. This includes:

i. Installed architecture
ii. Technical configurations

13. Equipment

	COMPONENT	COMPLIANT (Y/N)	SUPPLIER SPECIFICATION
1	Local support for maintenance and replacement of parts as per the maintenance and support agreement included		
2	Supplier will unbox, rack and cable all delivered equipment		
3	Installation and configuring of platform software included		

14. Maintenance and Support

The hardware and related software must include the following maintenance and support components

	ITEM	COMPLIANT (Y/N)	SUPPLIER SPECIFICATION
1	Minimum 36 months support on 24 X 7 basis from the date of acceptance of entire hardware		
2	Tiers of Service		
3	Issue resolution – level 1 / Onsite Visits - 4 hrs.		
4	Issue resolution – level 2 / Onsite Visits - 8 hrs.		
5	Issue resolution – level 3 / Onsite Visits - 24hrs		
6	Help Desk Hours and Policy		
7	Tier level service included		
8	Part replacement and timelines included under Tier Level Service		

	ITEM	COMPLIANT (Y/N)	SUPPLIER SPECIFICATION
9	Patch update and major / minor software version updates available		
10	Onsite hardware and software support included		
11	Direct Remote Support: Ability for technical support staff to directly access device to provide remediation included		

15. Project Costs and Schedule

The Proponent must provide a detailed cost breakdown showing all components and materials to be used. Proposals must be submitted in Trinidad and Tobago dollars (TT$). A project schedule detailing all tasks, sub tasks and the timeframe for implementation must also be provided.

16. Evaluations and Submissions

Proponents shall be evaluated on the under-mentioned criteria and points shall be awarded as follows:

Item	Criteria	Max. Score
1	Experience of the Service Provider with the proposed solution.	15
2	Maturity (length of time on the market) of the proposed solution manufacturer (length of time on the market)	15
3	Technical and Functional Requirements - Equipment Specifications	30
4	Methodology and Delivery Schedule	10
5	SLA, Maintenance and Support - Training	30
	Total	**100**

The prospective Proponent requiring any clarification of the RFP Documents shall contact the AGLA in writing (email is acceptable) at the AGLA's address**.** The contact is Roger Sealy and his email is icttenders@ag.gov.tt . The Ministry will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of proposals. The Ministry shall forward copies of its response to all those who have acquired the RFP Documents directly from it, including a description of the inquiry but without identifying its source.

17. Statutory Requirements

Proponents shall provide proof of being a registered company, VAT registration Certificate, TAX compliance Certificate and NIS compliance within last six months. These requirements shall be mandatory to qualify.

18. Special Terms and Conditions

1. Equipment offered **must be new**, unused, current models (having the latest model launched by the manufacture, to be identified).

2. The Proponent must include their 36-month Service Level Agreement (SLA) for solution when responding to this RFP.

3. Proposal is to include the final cost inclusive of VAT 12.5%.

4. The bid must have a 120 days validity period.

5. The Proponent must quote in Trinidad and Tobago currency.

19. Respondents Qualifications

AGLA will only consider proposals from Proponents that:

1. Can demonstrate a proven track records of successfully and reliably providing similar IT solutions to Government entities, public and private entities.
2. Can demonstrate full compliance with this Request.
3. A representative listing of references (minimum of three (3) references) that AGLA can contact. Please include references where the company has performed and completed engagements similar to this RFP, and a brief description of the service/device provided. Include the length of the relationship you have had with each client you use as a reference. Please include contact name, telephone and email address information for each contact.

20. Submission Deadline

Issue Date: July 04, 2019

RFP Title: Turnkey Hyper-Converged Infrastructure Solution

Issuing Department: Information and Communications Technology Unit
Ministry of the Attorney General and Legal Affairs

Contact: Mr. Roger Sealy
ICT Director
Ministry of the Attorney General and Legal Affairs
Government of the Republic of Trinidad and Tobago
Level 13, Government Campus Plaza
Corner of London and Richmond Streets
Port-of-Spain, Trinidad, W.I.
Email: icttenders@ag.gov.tt

BID PACKAGE LABEL:
Proposals will be accepted until **2:00pm on Monday July 29th, 2019**, and each package must be submitted in a sealed envelope plainly marked on the outside **"SEALED BID FOR Turnkey Hyper-Converged Infrastructure Solution"** to:

INFORMATION AND COMMUNICATIONS TECHNOLOGY UNIT
Ministry of the Attorney General and Legal Affairs
Government of the Republic of Trinidad and Tobago
Level 13, Government Campus Plaza
Corner of London and Richmond Streets
Port-of-Spain, Trinidad, W.I.

Sealed bids must include three (3) copies and are due by 2:00pm on Monday July 29th, 2019. Facsimiles or e-mailed proposals will NOT be accepted. Proposals not received by the specific date and time will be rejected.

THE MINISTRY OF THE ATTORNEY GENERAL AND LEGAL AFFAIRS RESERVES THE RIGHT TO AMEND THIS RFP, REJECT ANY AND ALL PROPOSALS FOR ANY REASON, RESERVES THE RIGHT TO WAIVE ANY IRREGULARITIES OR INFORMALITIES IF SUCH ACTION IS DEEMED TO BE IN THE BEST INTEREST OF AGLA, AND TO REQUEST ADDITIONAL INFORMATION FROM ANY PROPONENT.