Note: All tenders and quotations are done via our eProcurement system.

The information given below is an extract of the scope of work. **To access/open the full set of tender documentation, you must be registered on CSD.**

If you have a MAAA CSD registration number and receiving email notifications from PetroSA Procurement you are already registered, please login as indicated below:

Username: MAAA...
User Code: MAAA...
Password: newuser

Contact the call center on **012 663 8815** or email: **support@intenda.net** if you are having problems with your login.

If **you do not have a MAAA** CSD registration number, please click on **"Not Registered Yet"** and register. Click on the link below to download a "how to" guide to assist you.

http://www.procurement.petrosa.com/Downloads/Documents/SupplierSelfRegistration.pdf

ENTERPRISE STORAGE SYSTEM

CTT0000026005
Scope of Work / Specifications

1. Introduction

PetroSA invites proposals for an enterprise-grade, on-premises storage system. The purpose of this Request for Tender (RFT) is to solicit proposals from various candidate organizations, conduct a fair evaluation, and select the organization that best aligns with the requirements.

2. Background

PetroSA requires a robust, secure, and scalable storage system capable of managing a diverse range of file types including databases, flat files, and multimedia. The total requirement is **400 TB**, but we wish to start with an initial capacity of **100 TB**, with the capability to expand in increments of **50 TB** as per the Storage on Demand model.

3. Current storage installation

PetroSA has the following technology in its environment and capacity:

Make	Model	Total Capacity	Connectivity
DELL-EMC	VNX 5600	~750TB	Fibre-Channel
DELL-EMC	CX4-240	~450TB	Fibre-Channel

SCOPE OF WORK:

This Tender consists of Scope 1, which is *compulsory* and Scope 2, which is *optional*. Tenderers can tender for *only* one or both scopes (Scope 1 and/or Scope 2), which must be clearly marked on all correspondence in its Tender Documents and Proposal/s.

Scope 1: Compulsory

Scope 2: Optional

4. SCOPE 1 - *Compulsory*

4.1 Storage System

Supply and installation of an all-flash storage system with an initial capacity of 100 TB, scalable in increments of 50 TB up to 400 TB. The Service Provider should provide a detailed implementation plan, including timelines, resources required, and any potential impact on PetroSA operations during the installation process.

The required storage system should be capable of managing a diverse range of file types, including databases, flat files, and multimedia. The Service Provider should provide information on how the system manages different file types, including the specific features or technologies used.

The system should have built-in redundancy to maintain the data availability and integrity. The Service Provider should provide details on the redundancy mechanisms used, including any failover processes, RAID configurations, and error-correction techniques. The system should implement standard enterprise-class security features to protect the data from unauthorized access and potential threats.

The Service Provider should provide details on the security features of the system, including data encryption, user access controls, audit logs, and other security measures.

The system should comply with the General Data Protection Regulation (GDPR) and Protection of Personal Information Act (POPIA). The Service Provider should provide evidence of compliance, including any certifications and details on how the system supports compliance, such as data anonymization, right to erasure, and data portability features.

Tenderers should provide detailed technical specifications of the proposed system, including, but not limited to, the architecture, performance metrics (IOPS, throughput, latency), data protection and redundancy mechanisms, and scalability features. This should be provided in a clear and understandable format, avoiding unnecessary jargon.

4.2 **Connectivity Options**

The Service Provider should provide detailed information regarding the connectivity options supported by the storage system. This should include, but are not limited to, the types of network interfaces (e.g., Ethernet, Fibre Channel), supported network protocols (e.g., iSCSI, NFS, SMB), and proprietary connectivity technologies. The Service Provider should also provide information on the maximum bandwidth supported by these interfaces and any features to optimize network performance.

The Service Provider should also provide information on the system's compatibility with the existing network infrastructure and any requirements or recommendations for network upgrades to ensure optimal performance. This should include any specific network hardware requirements, recommended network configurations, and potential impacts on network performance.

The Service Provider should provide information on how the system can be integrated with the existing IT infrastructure, including any specific hardware, software, or middleware requirements.

This should include details on any APIs or SDKs provided for integration, compatibility with virtualization platforms, and support for common operating systems and database systems.

4.3 Storage on Demand Model

The Service Provider should propose a storage-on-demand model that allows for flexible growth of storage capacity in line with PetroSA's needs. This should include details on how additional capacity can be added, any lead times required, the pricing structure for additional capacity, and any potential impact on performance or availability during capacity upgrades.

5. SCOPE 2 - *Optional*

5.1 Connectivity

The storage area network (SAN) consists of the Fibre Channel or Network switches that interconnect the hosts and storage devices. The Service Provider should propose either a Fibre Channel or Ethernet fabric solution that meets the following requirements:

Switch Requirements

- Scalability: The proposed switches should be capable of scaling to support the current and future connectivity requirements of the SAN. This includes the number of ports (24 or 48 port), throughput, and overall fabric capacity.
- Performance: The switches should support the latest SAN speeds (e.g., 16Gbps or higher) to ensure high-performance data transfers between hosts and storage devices.
- Redundancy: For high availability, the fabric should be designed with redundant paths and switches. The Service Provider should propose a redundant fabric architecture with no single point of failure.
- Zoning: The switches should support zoning to logically segment the fabric and control access between hosts and storage devices. This enhances security and simplifies management.

- Management: The switches should provide a centralized management interface for configuring, monitoring, and troubleshooting the fabric. Integration with existing management tools is preferred.
- Security: The switches should support features like port security, VSAN, and HTTPS/SSH for secure access to the fabric. Encryption of SAN traffic is also recommended for sensitive data.
- Interoperability: The proposed switches should be compatible with the existing SAN infrastructure, including hosts (e.g. Physical Servers, VMWare, etc.) storage devices (VNX, CX4), and management software. The Service Provider should provide a list of supported and certified devices.
- Maintenance: The switches should have hot-swappable components (e.g., power supplies, fans) for easy maintenance without disrupting the fabric. Firmware upgrades should be non-disruptive.

The Service Provider should provide detailed specifications of the proposed SAN switches, including the model, port count, supported speeds, redundancy features, and management capabilities. A diagram illustrating the recommended fabric architecture would also be helpful.

6. ALL SCOPES (applicable to Scope 1 and Scope 2)

6.1 Service Level Agreement (SLA)

The Service Provider should provide the proposed service-level agreement/s or uptime guarantees for the storage system. It would be beneficial to include SLA requirements, such as:

- Minimum uptime guarantee (e.g. 99.9% availability)
- Response and resolution times for different severity incidents
- Proposed penalties for not meeting SLA targets

6.2 Warranty and Support

The Service Provider should provide details on the warranty period and support services. The following should be included:

- Length of warranty period for hardware and software components
- Scope of warranty coverage (e.g. parts, labour, on-site support)
- Support services included (e.g. 24/7 technical support, software updates)
- Escalation procedures and contact information

6.3 **Knowledge Transfer**

The Service Provider should provide comprehensive knowledge transfer to the in-house team to manage the storage system and perform daily tasks. This should include training materials, sessions, and ongoing support, as needed. The Service Provider should provide a detailed training plan, including the topics covered, format and duration of the training sessions, and any prerequisites for training.

7. ENQUIRIES

Any enquiries regarding this tender should be addressed to **Caroline Widmer** in the Tender Office at the e-mail address caroline.widmer@petrosa.co.za.

8. Questions & Answers

The following questions and answers were published with the previous tender and is supplied for information purposes ONLY.

Note: Some details in the Q&A may differ from the current Tender!!

Term

1. Q: What is the envisaged term for the Storage as a Service requirement?
   A: At least 3 years

2. Q: Can a forecast be provided on when upgrades will take place during the term (yearly, every 8 months, etc.)?
   A: This would depend on the rate of migration of workloads from the existing storage systems

3. Q: Does PetroSA envisage retaining the storage after the term or will it be returned to the Service Provider?
   A: Depending on the refresh requirements, yes

Capacity

4. Q: Is the 00 TB startup capacity the physical usable capacity or effective capacity after deduplication and compression?
   A: This is an estimate for comparison purposes. Assume it is usable capacity

5. Q: What are the current deduplication/compression ratios achieved on the PetroSA dataset?
   A: Current compression ratios vary greatly dependent on workload. A safe assumption would be an average compression ratio of 20%, but we will work with the Service Provider to develop effective workload migration strategies

Performance

6. Q: Should the performance be based purely on all-flash storage?
   A: Ideally, yes

7. Q: What specific performance metrics are required?
   A: Please advise the typical performance improvements that can be expected when compared to the VNX

Connectivity

8. Q: What are the connectivity requirements for SAN, iSCSI, and other mechanisms?
   A: The Service Provider should provide detailed information regarding the supported connectivity options, including network interfaces, protocols, bandwidth, and compatibility with the existing infrastructure

Data Migrations

9. Q: Will data/capacities from the existing VNX and CX4-240 arrays be consolidated into the new all-flash array, requiring data migration?
   A: Yes, there will be an element of data migration. Please quote for these services separately.

Training

10. Q: How many people need to be considered for the formal training?
    A: 6 - 8 people will require formal training provided by the Service Provider's education services, consisting of either 3- or 5-day sessions via Instructor Led Training, either physical or virtual.

Pricing and Commercial Terms

11. Q: Can additions be made to the CBA to properly illustrate the pricing, including one-time costs for education, ramp-up, data migration, and subsequent 100TB increments?
    A: Yes, please update the CBA with an additional sheet, leaving the 1st sheet as submitted with the Tender. Ensure a comprehensive proposal and pricing breakdown is attached