



TERMS OF REFERENCE FOR THE SUPPLY, DELIVERY, INSTALLATION, INTEGRATION, TESTING AND COMMISSIONING OF PAGASA METEOROLOGICAL INFORMATION SYSTEM (PAGASA-MIS) APPLICATION PERFORMANCE MANAGEMENT WITH SECURE EDGE CONNECTIVITY

I. OVERVIEW

A bulk of PAGASA's day-to-day operation relies on a number of ICT-related systems, which include its official website, the PAGASA-Meteorological Information System (PAGASA-MIS), mobile application, and e-Library, among others. This means that PAGASA, in accordance to Republic Act No. 10175 also known as the "Cybercrime Prevention Act of 2012", needs proper protection, monitoring, and safeguarding of its network to avoid illegal access to its cyber domain, prevent cyber-attacks, and ensure the integrity of its products and services being provided.

In 2017, a secondary site (disaster recovery site) was established in Cebu to store and backup all meteorological, climatological, and hydrological information that are being used for operation and research, and has been operational since then. Preserving the content of the primary data storage site (located at the PAGASA Central Office) and the earlier mentioned secondary site, which are connected logically, is therefore of utmost importance.

To maintain the integrity of the information and ensure the flexibility of data exchange across networks being used by PAGASA, an Application Performance Management (APM) software is needed. APM monitors information leaks, network congestions, application performance, and eventually enhances cybersecurity. It also provides real time scoring and overall system health-check to cater user experience information that can help improve and optimize systems' reliability and availability. These make APM to be categorized as a mandatory requirement in the application infrastructure and listed as one of the core IT infrastructures in the Climate Database Management System (CDMS) specified by the World Meteorological Organization.

II. APPROVED BUDGET FOR THE CONTRACT (ABC)

The approved budget for the project amounts to **Sixty-Six Million Seven hundred Thousand Pesos (PhP 66,700,000.00)** inclusive of VAT and all applicable government taxes.

III. QUALIFICATIONS OF THE BIDDER

(Please refer to Section II. Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility and Technical Requirements of the Bidding Documents)

IV. DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall deliver all hardware and software components including the delivery of the system but not limited to installation and configuration within the period of **nine (9) months** at the PAGASA Central Office located at PAGASA Science Garden Complex, BIR Road, Diliman Quezon City, and / or the proposed offsite data center.

V. BID PROPOSAL CONTENTS

The prospective bidder is expected to comply and respond in accordance with the specific instructions to bidders and submit all the documentary requirements under the Checklist of Eligibility, Technical and Financial Requirements. The submission of documentary requirements must be properly arranged in order and with label.

The prospective bidder shall respond paragraph by paragraph and shall clearly indicate compliance to all the required specifications (*Please see Section VI. TECHNICAL SPECIFICATIONS*) and shall specify the number of days or schedules within which to complete the delivery of all the goods required (*Please see Section VII. SCOPE OF WORK*).

The prospective bidder shall be required also to include in this proposal, original descriptive literatures and unamended brochures of all equipment/materials to be supplied. If applicable, plans, drawings and diagrams/configurations must likewise be provided.

These details will allow the **PAGASA-Bids and Awards Committee** to fully evaluate and determine compliance from the prospective bidders.

The following are additional requirements which will be part of the technical bid documents:

- Prospective bidders shall include certificates of experience within the five (5) year period in the installation, configuration, troubleshooting and other technical support services of the software, hardware and the application system they are offering.
- Prospective bidder must submit certificate of partnership with the application system developers of PAGASA-MIS in conjunction to the existing support and warranty until December, 2020.
- Prospective bidders shall submit their proposed network and system diagram.
- Prospective bidders shall submit a Gantt chart showing the proposed schedule for the project.
- Prospective bidders must provide a list of their on-site local and warm body technical support to be deployed for the project accompanied by curriculum vitae and proof of their competency such as, but not limited to diplomas and certificates.
- Proposed Service Level Agreement which clearly indicates that technical support shall be provided no longer than four (4) hours on the time of the call, 24 x 7.

VI. TECHNICAL SPECIFICATIONS

The winning bidder shall supply, deliver, install, integrate, test, and commission the PAGASA Meteorological Information System (PAGASA-MIS) Application Performance Management with Secure Edge Connectivity with the following minimum specifications:

I. SOLUTION ARCHITECTURE

Specification	
Provide Cloud Based Application Performance Management (APM) for operational/non-operational applications, as listed below, for at least 3 years. <ul style="list-style-type: none"> • PAGASA-MIS • Meteo-Pilipinas • PAGASA Website • Budget Section MIS • Google Alert • 5 x Mobile Apps • PAGASA NMS • PAGASA eLibrary • HR MIS • MDRIMS • FAST • ICT TOOL 	
Provide Cloud Based Web Application Firewall for public facing applications for at least 3 years	
Provide site and/or user VPN Connectivity to remote users for at least 3 years	
Provide Cloud Based Network Flow Logs and Security Log Analysis for public facing applications for at least 3 years	
Provide Network Performance Monitoring for PAGASA-MIS for at least 3 years	
Provide networking and computer system apparatus and troubleshooting tools.	

II. INFRASTRUCTURE

Specification	
General	
2 x Rack mount servers	
1 x Rack mount storage server	
Cloud service subscription for at least 3 years for cloud components	
Application Server Specifications	
Intel Xeon Platinum 2.1Ghz minimum	

Specification	
24 cores per socket	
24 cores per server (1 socket occupied)	
128 GB RAM minimum, expandable to 3TB	
Minimum 2 x hard drive, 1.2TB storage minimum (raw) total	
1 x Raid Controller	
1 x Single Port 16Gb Fibre Channel HBA	
1 x Dual Port 10Gb + Dual Port 1Gb Network Card	
Redundant Power Supply	
Storage Server specification	
2 x 1.7Ghz 6 Core Xeon E5-2603V4 Dual Capable	
Chipset/FSB: Intel C612 Express	
4 x 16GB DDR4 2400 ECC Reg in 16DIMMs	
Dual 10Gbase-T LAN with Intel X540 onboard	
Dual Gigabit LAN Card	
Dual 10GB SFP+ LAN Card	
VGA onboard graphics controller	
SAS3 via LSI 3108 SAS/SATA RAID Controller HW	
RAID 0,1,5,6,10,50,60	
2 x 64GB SATADOM	
2 x 480GB SATA SSD	
12 x 12TB SATA Enterprise 7200 RPM 3.5"	
12 x 3.5" Hot-Swap SAS/SATA drive bays	
Rear Hot-Swap drive bay 2 x 2.5" drive	
920W Platinum-Level Redundant power supply	
3 x 8cm heavy duty fans	
2U rackmount form factor	
Additional Requirements for Infrastructure	
Cables, screws, railings, etc. that are not explicitly specified but are required for proper functionality of the infrastructure	

III. SOFTWARE

Software modules for Primary Site	
Application Performance Management (APM)	
Provide Response Time, Throughput and Error Rates	
Provide Database Monitoring	
Provide Error Traces and Analytics	
Provide Transaction Metric Traces	
Provide weekly reports	
Web Application Firewall (WAF)	

Provides real-time metrics and captures raw requests that include details about IP addresses, geo locations, URIs, User-Agent and Referers	
Provides protection against SQL Injection and Cross-site scripting	
Provides granular controls and extensive logging and reporting with stateful traffic inspection and Layer-7 application control	
Virtual Private Network (VPN) Connectivity	
Provide secure VPN clients for 100 users, compatible with PAGASA's existing VPN Servers	
Network Flow Logs for Public Facing Applications	
Provides intelligent threat detection for cloud hosted public facing websites	
Provides continuous monitoring of account and workload event data in audit trails and network flow logs	
Provides advanced detections using machine learning and anomaly detection	
Provides three severity levels (Low, Medium, and High)	
Network Performance Monitoring (NPM)	
Provides capability to detect, diagnose, and resolve multi-vendor network performance issues	
Provides visual representation of the health and performance of critical network components	
Provides contextual view and graphical portrayals of an entity and its physical and logical relationships with auto-updating maps	
Provides dependency and topology-aware network alerts	
Software modules for DR Site	
All components indicated in the primary will be provided for the DR site, unless otherwise specified	
Additional software modules for primary site	
PAGASA-MIS modules for APM/NPM Agents (if required)	
Software licenses and components that are not explicitly specified but are required for proper functionality of the software solution	

III. WORKSTATIONS

Desktop Computer	
Must provide five (5) workstations with LED monitor with the following specification or better	
Must be at least Intec core i7 processor, Quad core or better	
Must have at least 8GB DDR4 memory or better	
Must have at least 1 Terabyte of storage	
Must have a mini tower form factor	
Must have at least 23" inches LED display	
Must have a keyboard and mouse	
Must have a UPS of 750VA	
Must have a Windows 10 OS	
Must have a warranty of 3 years on parts and labor, On-site	

IV. TOOLS AND EQUIPMENTS

Network Troubleshooting Tools and Equipment	
2 x Digital Cable Wire Tone Tracer	
2 x Digital Network and Communication Cable Tester	
2 x Network Modular Crimper with 300 pcs RJ45 connectors	
2 x Network repair tool kit	
2 x Cable labeler (Wire Marker)	
Computer Troubleshooting Tools and Equipment	
2 x 4 Bay USB 3.0 SATA Hard Drive Docking Station/Duplicator for 2.5 inch & 3.5 inch HDD	
2 x Set Computer repair tool kit	

IV. SCOPE OF WORK

The scope of work covers the supply, delivery, integration, installation, testing, training and commissioning of PAGASA Meteorological Information System (PAGASA-MIS) APM/NPM Modules. The works and services to be performed under this contract shall essentially consist of, but not limited to, the following:

1. Installation: Hardware Components
2. Installation: Software and Network Components
3. Configuration: Software Components
<ul style="list-style-type: none"> Provide technical expertise and support in installation, configuration and testing of agents for monitoring and to integrate application performance management as listed at Section 4-l.
4. Installation of electrical requirements, wirings, cabling, etc.

<ul style="list-style-type: none"> • Must provide equipment configuration/layout including networking
5. Training and Testing
<ul style="list-style-type: none"> • On-site training for Hardware and Software configurations • On-site training and testing of tools and equipment • On-site training for two (2) weeks (Food to be provided to twenty (20) participants by the winning bidder)
6. System acceptance

GENERAL NOTES:

Prior to the undertaking of the project, **the winning bidder** should submit, provide and comply with the following:

1. Kick-off meeting must be conducted in coordination with the end-user in which the details of the project will be discussed. The schedule and venue will be advised by the end-user.
2. List of personnel that will undertake the project (programmer, supervisor, project manager, etc).
3. Proposed technical plans, network diagrams, manuals and configuration scripts, datasheets, brochures and other documents essential to the project. Two (2) hard copies, book bind, presentable and soft copies.

V. WARRANTIES

1. Three (3) years warranty on all hardware and software.
2. Availability of technical support on 24/7 via email, phone, or SMS during the warranty period.
3. For severe or critical issues on the Security Module, Database and/ or, an SLA of 4 hours response time in 3 years term should be available.
4. Proof of Product: Datasheets/Brochures with indications of certified Standards.
5. The winning bidder shall neither assign, transfer, pledge nor subcontract any part or interest therein.

VI. TRAINING OF PERSONNEL

Agency Personnel should be provided with trainings to operate all proposed hardware and software. They should also be able to perform first (1st) level trouble shooting and problem identification with documented guide books and references.