04 July 2025

SUPPLEMENTAL BID BULLETIN
ADDENDUM NO. **2025-24-02**

Subject: **Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement** *(Reference: PR No. 2024-11-0754 || IB 2025-24)*

This Bid Bulletin is being issued to all prospective bidders to clarify, amend and/or modify certain provisions in the Bidding Documents and to answer written queries and clarificatory questions during the pre-bid conference by prospective bidders, to wit:

Queries from: **AMTI TECHNOLOGY**

Queries	Answers
1. Please consider removing the requirement "11. Integration with data security software features to enhance data security by protecting data from accidental or malicious deletion" under Systems Architecture → Storage System Features. The requirement is vague and subjective, making it difficult to evaluate objectively. Its inclusion may unnecessarily limit vendor participation and exclude viable, innovative solutions	**The system must include robust data security software features designed to protect data from accidental loss or malicious deletion, thereby ensuring the integrity, confidentiality, and availability of critical information.**
2. Please consider removing the requirement "13. FIPS140-2 encryption" under Systems Architecture → Storage System Features. FIPS 140-2 encryption is only necessary for applications handling sensitive but unclassified data. Unless PAGASA has specific use cases requiring this level of security, the requirement should be removed, as it may negatively impact system performance and unnecessarily limit vendor participation.	With advanced data protection techniques such as erasure coding, replication, snapshots, and FIPS140 (1-4) encryption to ensure data integrity and security. The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
3. As required in the bidding documents under bid data sheet for the **Similar contracts** refer to any contract which involves Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. May we request to change it into a generic term "Supply, Delivery and Installation of Server and Storage or Supply, Delivery and Installation of ICT Equipment.	For this purpose, similar contracts shall refer to any contract that involves: a. Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. b. Supply, Delivery, Installation, Training, Testing and Commissioning of server and data storage systems. c. Supply, Delivery, Installation, Training, Testing and Commissioning of HCI/Hyperconverged Infrastructure with Integrated Storage
4. May we request to **extend the delivery period** from Ninety (90) Calendar days to One Hundred Twenty (120) calendar days.	In view of the urgency of the needs of the project the delivery period set in the bidding documents shall remain at **ninety (90) calendar days** from issuance of the Notice to Proceed.

Queries from: **<u>TEKZONE COMPUTER SALES AND SERVICES INC.</u>**

Queries	Answers
System Architecture – Storage System features	
1. We would like to request if this can be relaxed to "Files or data are distributed across multiple servers or nodes to provide data resiliency through disk or node-level distribution and must support replication technologies for site-to-site disaster recovery."	Files or data shall be distributed across multiple servers or nodes, which may optionally reside in different physical locations or data centers, to ensure data resiliency through disk- or node-level distribution. The system must also support replication technologies to enable seamless site-to-site disaster recovery.
2. We would like to request for this to be relaxed since "File fabric software" is a software produced by a specific vendor. We would like to ask if it can be relaxed to "The proposed file storage must be designed to provide scalable, high-performance file storage with features like data protection, erasure coding, and seamless integration with cloud services."	The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
3. Will PAGASA accept built in WORM capability?	
4. We would like to ask if PAGASA can consider other encryption protocol like AES encryption which are also compliant to FIPS140-2?	With advanced data protection techniques such as erasure coding, replication, snapshots, and FIPS140 (1-4) encryption to ensure data integrity and security. The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
5. We would like to ask if PAGASA can consider RESTful API also? *"Management GUI must be an intuitive self-management, with REST API or RESTful API for programmatic management, built-in real-time analytics for visibility and control, and directory-based capacity quotas."*	The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
6. Would like to request if PAGASA can also add a more generic term for LFF and SFF. LFF pertains to HDD or 3.5 inch disks and SFF pertains to SSD or 2.5 inch disks. The proposed storage can be configured with HDD and SSD. But SSD is used for cache to increase the performance.	
7. Request if this can be relaxed to accommodate other node configuration as this configurations are specific to a single manufacturer. Request if it can be changed to "With flexible drive bays to support up to 28 LFF with 4 NVMe-capable SFF, or 24 LFF with 12 NVMe capable SFF, or 60	

SFF/LFF hot-plug drive bays, or can support to 20 by 20TB per disk/node."	
8. We would like to ask for this to be relaxed. Since other vendors may have bigger rack unit size and can provide higher capacity per node. With bigger RU and higher capacity per node, other vendor can lessen the total number of nodes which can lower the datacenter footprint and also be more energy saving. Request if it could be relaxed to *"the proposed storage solution must allow easy serviceability with hot plug drives. All storage nodes, including storage switches, must be installed in a single 42U data cabinet."*	The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
9. According to the analysis by Microsoft and academics, the average packet length of DC services is about 850 bytes, and the line rate of 256 bytes or even 512 bytes is sufficient to meet the actual application requirements. 1.2 Bpps can support line rate of 188 bytes. Can we request changing to "5. Must deliver predictable and consistent throughput of at least 1.2 Bpps processing capacity regardless of the transfer packet size." To accommodate other similar or better solutions only 1 vendor can provide 3.0 Bpps and up for 1U switch. usually this kind of switch are 4U.	The switch must be a high port-density model in at least a 1U form factor, equipped with 48 SFP28 25GbE ports and a minimum of 6 QSFP28 100GbE ports, ensuring flexible and scalable connectivity options to support high-performance networking demands. The technical specifications stated herein represent the minimum requirements of the project. However, bidders may be allowed to propose alternative configurations, provided that such alternatives are fully compliant with and responsive to the specified criteria and do not compromise the performance, reliability, or objectives of the project.
10. Would like to request this to be relaxed since TOE is mostly used on the server side not on the switch side. Would like to request if it can be changed to this "Must support Remote Direct Memory Access (RDMA) or TCP Offload Engine (TOE) to improve transmission performance." Or delete TOE	The system must support Remote Direct Memory Access (RDMA) and/or TCP Offload Engine (TOE) technologies to optimize network transmission performance by reducing CPU overhead, lowering latency, and increasing data throughput.
11. We would like to ask if this can be relaxed to a generic requirement so other non-linux NOS can be proposed. *"Must be bundled with any Network Operating System (NOS) to simplify network management and provide robust performance."*	Must be bundled with any Linux or non-Linux Network Operating System (NOS) to simplify network management and provide robust performance.
12. We would like to ask if this can be relaxed to a generic requirement so other non-linux tools can be proposed. "*Must have system management features of in service software upgrades; native Linux management tools or similar management tools, automated install and provisioning; snapshot and rollback of the entire system to eliminate risk from system updates."*	The system must include comprehensive management features such as support for in-service software upgrades, native Linux or non-Linux management tools (or equivalent), automated installation and provisioning capabilities, as well as snapshot and rollback functionalities for the entire system to minimize risks associated with system updates and ensure operational continuity.

13. **Hardware Infrastructure – High Performance Storage Nodes** Would like to request PAGASA to relax this line item by removing the phrase "at least SIXTEEN (16) UNITS of 2U STORAGE NODES OR EQUIVALENT 1 U, 4 NODES DESIGN" since different vendors may have different ways to meet the 3PB usable capacity. Some may only need 4 x 4U chassis to meet the 3PB capacity and will be able to provide high performance also. Instead of total of 32U, other might be able to provide a similar solution with a lesser rack unit. Lesser nodes equate to lesser datacenter footprint and lesser power consumption. Line 4 and 6 also limits it to 24 drive bays. We would like to ask this to be removed since other vendors can provide chassis or nodes that can support more LFF disks or HDD. Request if this line item can be replaced with "the bidder must provide enough High Performance storage nodes that will be able to provide the following resources Total of 3000TB or 3PB usable capacity Total of 384 cpu cores Total of 2048GB memory Each nodes should have redundant hot swappable power supply. Each node should have at least 12 x 25GbE SFP28 ports".	The solution shall comprise a minimum of ten (10) to sixteen (16) units of storage nodes housed in 1U, 2U, 3U, or 4U chassis configurations. All storage nodes, including network switches, must be integrated within a single 42U data cabinet. The unified system shall deliver a minimum of 3 petabytes (PB) of usable storage capacity. The storage nodes must function as a single, cohesive data storage system across multiple servers, presenting a unified storage environment to both users and applications.
14. High Port Density Storage Switch: For Line G & H, we would like to request if it can be relaxed to accommodate other solutions that uses non-linux and non-nvidia based management platforms. Suggestions: g) Management software must be NVIDIA® Cumulus Linux® or similar network management software. h) Native Linux management tools or similar management tools like OpenSSH, SCP, and FTPS.	Please be advised that the technical specifications provided under line Items G and H represent the minimum requirements necessary to ensure compatibility, manageability, and performance consistency with the proposed system architecture. However, the term "or similar" was intentionally included to allow flexibility for equivalent solutions that can deliver comparable functionality, interoperability, security, and reliability, even if they are not Linux- or NVIDIA-based. Therefore, non-Linux and non-NVIDIA-based management platforms may be considered, provided that the proposed solution clearly demonstrates full compliance with the required management capabilities, such as secure remote access, automation support, configuration management, system monitoring, and file transfer protocols.
15. SLCC - Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement We would like to request if it can be relaxed to **ICT Equipment or Server/Storage Project.**	For this purpose, similar contracts shall refer to any contract that involves: a. Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. b. Supply, Delivery, Installation, Training, Testing and Commissioning of server and data storage systems. c. Supply, Delivery, Installation, Training, Testing and Commissioning of HCI/Hyperconverged Infrastructure with Integrated Storage

Queries from: **REMAX International, Inc.**

Queries	Answers
1. **Hardware Infrastructure – High Performance Storage Nodes** Constitute at least Sixteen (16) units of 2U Storage or equivalent Nodes design to……. We would like to inquire if the agency will accept **less than 16 units of 2U storage nodes or equivalent 1U, 4 nodes Design instead,** as long as it complies with the technical requirements stated in;	The solution shall comprise a minimum of ten (10) to sixteen (16) units of storage nodes housed in 1U, 2U, 3U, or 4U chassis configurations. All storage nodes, including network switches, must be integrated within a single 42U data cabinet. The unified system shall deliver a minimum of 3 petabytes (PB) of usable storage capacity. The storage nodes must function as a single, cohesive data storage system across multiple servers, presenting a unified storage environment to both users and applications.
2. System Architecture **a. Storage Features:** 2. With a minimum USABLE storage capacity of at least 3 Petabytes…. This clarification is a line with requirement; line item no. 23. With a serviceable 2U or 1U (4-node) **design to save data center space and allows for easy serviceability with hot-plug drive.** All storage nodes, including storage switches, must be installed in a single 42U data cabinet, and more advantageous to the agency. Should the agency accept fewer nodes requirement as long as it complies with 3PB USABLE storage capacity, it also affects other components stated in the terms of reference such as: Hardware Infrastructure A. High Performance Storage Nodes 6. Each node must support up to 24x 10TB SATA Large Form Factor (LFF) hard disk drives (HDDs) for data storage, with options for additional Small Form Factor (SFF) drives. **Can the bidder provide a higher capacity of drives, more than 10TB per node?** C. System Accessories 1. 25GE SFP28 SR 30m XCVR or equivalent (32 sets) **Can the bidder propose a lesser transceivers quantity that will still connect the nodes?** 2. Premier Flex LC/LC OM4 2f 15m or equivalent (36 sets) **Can the bidder propose a lesser cables quantity that will still connect the nodes?**	The End-user acknowledges the proposal to reduce the number of storage nodes, provided that the system still delivers the required minimum 3 Petabytes of usable storage capacity. The use of higher-capacity SATA LFF HDDs (greater than 10TB) may be allowed, provided that all other performance and compatibility specifications are met. Can the bidder propose a lesser transceiver quantity that will still connect the nodes? Proposals to reduce the number of 25GE SFP28 transceivers and Premier Flex OM4 cables may be considered if the bidder can demonstrate through network diagrams or technical documentation that: ● All required connections between nodes, switches, and supporting components are maintained. ● System throughput and bandwidth requirements are retained and not affected. ● No degradation in system redundancy or failover capacity will occur. The proposal must include One (1) Lot of System Accessories designed to ensure reliable, high-speed connectivity between nodes, thereby supporting the efficient performance and full functionality of the cluster

3. 10G SFF+ SR Transceiver or equivalent (4 sets) **May we confirm that the uplink going to the Core Switch is 10GB? Or may we get the details of the Core Switch for the proposed TOR Switches will be connected to?** **Does the core Switch/es still have an available of 4 Ports, we assuming 10GB transceivers that the TOR Switch uplink will be connected to?**	storage system. The following cable and connectivity components represent the minimum requirements necessary to establish complete inter-node communication: 1. 25GE SFP28 SR 30m Transceivers or equivalent – *Up to 32 sets (fewer may be accepted if technically justified)* 2. Premier Flex LC/LC OM4 2f 15m Fiber Optic Cables or equivalent – *Up to 36 sets (fewer may be accepted if technically justified)* 3. 10G SFP+ SR Transceivers or equivalent – *Up to 4 sets* 4. QSFP to SFP+ Adapter Kits or equivalent – *Up to 4 sets* 5. Other additional cables, transceivers, modules, or accessories required to achieve complete system integration and interconnectivity, as needed to ensure compatibility and optimum performance of the offered solution.
3. A. High-Performance Storage Nodes Redundant hot-swap power supply We would like to clarify if TWG can relax the requirement for better competition and allow ***Redundant hot-plug power supply*** in lieu of **hot-swap power supply** only, but the manufacturer assures that it has a basically the same functionality with <u>hot-swap power supply</u> wherein should a hardware failure occurs, we can still ***add and swap*** components without shutting down the nodes in an actual scenario.	The technical specifications outlined in the Terms of Reference (TOR) represent the minimum requirements of the Project. Accordingly, prospective bidders may propose alternative solutions in their respective proposals, provided that such alternatives are fully compliant and responsive to the specific project requirements and offer clear advantages to the government.
4. Bid Data Sheet ITB Clause 5.3 For this purpose, contract similar to the Project shall be: a. Similar contracts refer to any contract which involves Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. May we request to relax and accept contract similar to the Project shall be/or: a. Similar contracts refer to any contract which involves Supply, Delivery, Installation… Storage and Servers.	For this purpose, similar contracts shall refer to any contract that involves: a. Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. b. Supply, Delivery, Installation, Training, Testing and Commissioning of server and data storage systems. c. Supply, Delivery, Installation, Training, Testing and Commissioning of HCI/Hyperconverged Infrastructure with Integrated Storage

Queries from: <u>**MASSIVE INTEGRATED TECH SOLUTIONS INC.**</u>

Queries	Answers
1. **Professional Services** 3. A list of on-site local and warm-body technical support personnel to be deployed for the project, accompanied by *curriculum vitae, and proof of their competency, such as diplomas and certificates.* The	Yes, training certificates, vendor certifications, or proven experience in similar deployments will be accepted. The requirement to submit curriculum vitae (CVs), diplomas, and certifications of on-site technical support personnel was intended to verify the qualifications and competency of the team to be deployed for the

list of technical support personnel must include certified engineers/technicians who are highly knowledgeable about the proposed storage system. We would like to respectfully request clarification and consideration for the relaxation of the requirements related to the submission of **diploma credentials** for the on-site local technical support personnel to be deployed. We kindly request that alternative documentation – such as training certificates, vendor certifications, or proven experience in similar deployments - be accepted.	implementation, support, and maintenance of the proposed storage system. This ensures that personnel assigned to the project possess the necessary technical expertise and background aligned with the system's complexity. However, to promote wider competition and allow flexibility while still maintaining standards of competence, the End-user may consider relaxing the requirement for diploma submissions, provided that bidders submit equivalent documentation such as: ● Vendor or manufacturer certifications specific to the proposed solution ● Relevant training certificates ● Documented experience or track record in similar projects/deployments Such documents must clearly demonstrate the technical capability, familiarity with the proposed storage system, and suitability of the personnel for the role they will assume in the project.
Storage System Features: With a minimum USABLE storage capacity of at least 3 Petabytes This might be a typographical error that if you compute the hardware specification 24 x 10TB x 16 Nodes = 3.8PB RAW CAPACITY Some of the storage are different on their USABLE capacity.	The specification stating a minimum USABLE storage capacity of at least 3 Petabytes (PB) is intentional and not a typographical error. The requirement is based on usable capacity, which refers to the effective storage available to users after accounting for system overhead, redundancy, fault tolerance mechanisms and formatting losses. We acknowledge that different storage architectures and file systems yield varying usable capacities even when using similar raw hardware specifications. For this reason, bidders are expected to design and configure their proposed solution in a way that ensures the required 3PB USABLE capacity is achieved, regardless of the raw capacity.
Will the 16 nodes requirement be deployed on just a single location or multiple location?	Files or data are distributed across multiple servers or nodes, which can be optionally located in different physical locations or data centers, to provide data resiliency through disk or node-level distribution and must support replication technologies for site-to-site disaster recovery.
Which data security software is this so we can validate if our solution does support it?	Must have data security software features to enhance data security by protecting data from accidental or malicious deletion.
Eligible Bidders We respectfully seek clarification on whether the submission of aggregated similar contracts may be accepted in lieu of a SLCC, provided that the combined value of the contracts meets the required percentage of the ABC.	In accordance with Section 23.4.1.3 of the 2016 Revised Implementing Rules and Regulations (IRR) of R.A. 9184, for the procurement of goods, a bidder is required to submit a Single Largest Completed Contract (SLCC) similar to the project, with a value of at least fifty percent (50%) of the Approved Budget for the Contract (ABC).

We respectfully seek clarification on whether a HCI/Hyperconverged Infrastructure with Integrated Storage Project may be accepted or considered as a valid SLCC for this procurement, provided that it meets the required similarity in scope and value based on the bidding documents since storage is part of the new technology in HCI.	For this purpose, similar contracts shall refer to any contract that involves: a. Supply, Delivery, Installation, Training, Testing and Commissioning of Big Data Cluster Storage Enhancement. b. Supply, Delivery, Installation, Training, Testing and Commissioning of server and data storage systems. c. Supply, Delivery, Installation, Training, Testing and Commissioning of HCI/Hyperconverged Infrastructure with Integrated Storage

Queries from: **TECHSOLVE SYSTEMS SOLUTIONS INC**

Queries	Answers
1. Terms of Reference **Hardware Infrastructure** A) High Performance Storage Nodes Constitute at least SIXTEEN (16) UNITS OF 2U STORAGE NODES OR EQUIVALENT 1U, 4 NODES DESIGN. We would like to clarify if your agency will accept **less/fewer than** 16 UNITS of 2U STORAGE NODES OF EQUIVALENT 1U, 4 NODES DESIGN as long as it complies with the technical requirement stated in: 1. SYSTEM ARCHITECTURE - a) Storage system features: **2: with a minimum USABLE Storage capacity of at least 3 Petabytes** Should the agency accept fewer nodes requirement as long as it complies with 3 Petabytes USABLE storage capacity, it also affects other components stated in the terms of reference such as:	The solution shall comprise a minimum of ten (10) to sixteen (16) units of storage nodes housed in 1U, 2U, or 4U chassis configurations. All storage nodes, including network switches, must be integrated within a single 42U data cabinet. The unified system shall deliver a minimum of 3 petabytes (PB) of usable storage capacity. The storage nodes must function as a single, cohesive data storage system across multiple servers, presenting a unified storage environment to both users and applications.
2. Hardware Infrastructure A) High Performance Storage Nodes 6. Each node must support up to 24x 10TB SATA Large Form Factor (LFF) hard disk drives (HDDs) for data storage, with options for additional Small Form Factor (SFF) drives. **Can we provide a higher capacity of drives, more than 10TB per node?**	The use of higher-capacity SATA LFF HDDs (greater than 10TB) may be allowed, provided that all other performance and compatibility specifications are met.
C) System Accessories 2. 25GE SFP28 SR 30m XCVR or equivalent (32 sets) **Can we propose a lesser transceivers quantity that will still connect the nodes?** 3. Premier Flex LC/LC OM4 2f 15m or equivalent (36 sets) **Can we propose a lesser cables quantity that will still connect the nodes?**	Proposals to reduce the number of 25GE SFP28 transceivers and Premier Flex OM4 cables may be considered if the bidder can demonstrate through network diagrams or technical documentation that: ● All required connections between nodes, switches, and supporting components are maintained;

4. 10G SFF+ SR Transceiver or equivalent (4 sets) Can we confirm that the uplink going to the Core Switch is 10GB? Or can we get the details of the Core Switch that the proposed TOR Switches will be connected to? Does the core Switch/es still have an available of 4 Ports, we assuming 10GB transceivers that the TOR Switch uplink will be connected to?	● System throughput and bandwidth requirements are not affected; ● No degradation in system redundancy or failover capacity will occur.
2. A. High-Performance Storage Nodes **Redundant hot-swap power supply** We would like to clarify if you can relax the requirement for better competition and allow ***Redundant hot-plug power supply*** in lieu of **hot-swap power supply**, because the datasheet stated in the brand that we will offer specifically states hot-plug power supply only but the manufacturer assures that it has basically the same functionality with hot-swap power supply wherein should a hardware failure occurs, we can ***add and swap*** **components** without shutting down the nodes in an actual scenario.	The technical specifications indicated in the TOR represent the minimum requirements of the Project. Thus, prospective bidder/s may present equivalent/better solutions in their respective proposal/s, provided that the same is compliant and responsive to the project's specific requirements and is economically advantageous on the part of the government. Yes. Hot-Swap and Hot-Plug are synonymous A. High-Performance Storage Nodes Redundant hot-swap or Hot-Plug power supply
Additionally, in item 1. **System Architecture – 11. Integration with data security software features to enhance data security by protecting data from accidental or malicious deletion.** We would like to clarify if the "data security software" is an existing software within the agency where we will integrate the storage server solution that we will propose or a proprietary "data security software" integrated within the storage server solution.	11. Must have data security software features to enhance data security by protecting data from accidental or malicious deletion. Must be included or bundled with data security features.

Queries from: **A.G. DATACOM PHILS., Inc.**

Queries	Answers
1. TOR – System Architecture **b) Storage switch features:** 3. Must provide ultra-low latency of under 425 ns port-to-port. The specified ultra-low latency of under 425 ns appears to be unique to a particular brand due to proprietary embedded chipsets. We respectfully request for this to be relaxed to under 847 ns to allow for broader competition and accommodate other brands.	The technical specifications indicated in the TOR represent the minimum requirements of the Project. Thus, prospective bidder/s may present equivalent/better solutions in their respective proposal/s, provided that the same is compliant and responsive to the project's specific requirements and is economically advantageous on the part of the government.
4. Capable of forwarding 100% capacity wire-rate performance with zero packet loss across all ports concurrently at 25GbE and 100GbE speeds while transferring data across both Layer 2 and Layer 3 networks. We would like to request the removal of the "zero packet loss" requirement, as this cannot be	Capable of forwarding 100% capacity wire-rate performance with almost zero packet loss, across all ports concurrently at 25GbE and 100GbE speeds while transferring data across both Layer 2 and Layer 3 networks.

guaranteed across all brands despite meeting other performance standards.	
Hardware Infrastructure A) High Performance Storage Nodes Constitute at least SIXTEEN (16) UNITS of 2U STORAGE NODES OR EQUIVALENT 1 U, 4 NODES DESIGN to form a unified data storage system across multiple servers appearing as a single entity to users and applications. We respectfully seek confirmation for an alternative design of at least 10 UNITS STORAGE NODE ON A SET OF 1U OR 2U, OR 4U CHASSIS WITH 4 NODES DESIGN PER CHASSIS	- The solution shall comprise a minimum of ten (10) to sixteen (16) units of storage nodes housed in 1U, 2U, or 4U chassis configurations. All storage nodes, including network switches, must be integrated within a single 42U data cabinet. The unified system shall deliver a minimum of 3 petabytes (PB) of usable storage capacity. The storage nodes must function as a single, cohesive data storage system across multiple servers, presenting a unified storage environment to both users and applications.
1. 2 x Intel Xeon 4310 (2.1GHz/12C/120W) processors or better We request flexibility in the processor specification—such as allowing a single Intel 3408U (1.8GHz, 8C, 125W)—as long as the proposed solution can deliver up to 4 Petabytes raw storage capacity.	The technical specifications indicated in the TOR represent the minimum requirements of the Project. Thus, prospective bidder/s may present equivalent /better solutions in their respective proposal/s, provided that the same is compliant and responsive to the project's specific requirements and is economically advantageous on the part of the government.
2. 128GB DDR4 Smart Memory or equivalent We request that the minimum requirement of 128GB DDR4 memory be relaxed to 96GB DDR5, to leverage the higher performance of newer memory technologies.	
B. HIGH PORT DENSITY STORAGE SWITCH: h) Native Linux management tools like OpenSSH, SCP, and FTPS. We request that the requirement for native Linux tools be revised or relax from "OpenSSH, SCP, and FTPS" to SSH, SCP, FTP, and Zero Touch Provisioning (ZTP), in order to avoid limiting compatibility to a specific brand.	Rephrased: h) Native Linux management tools like OpenSSH, SCP, and FTPS or SSH, FTP, or Zero Touch Provisioning (ZTP).

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<td>c) SYSTEM ACCESSORIES

Must include ONE LOT of SYSTEM ACCESSORIES to provide a reliable connection between nodes for the efficient performance of cluster storage. Below cable accessories are the minimum requirements for connectivity between nodes:
1. 25GE SFP28 SR 30m XCVR or equivalent (32 sets)
2. Premier Flex LC/LC OM4 2f 15m or equivalent (36 sets)
3. 10G SFF+ SR Transceiver or equivalent (4 sets)
4. QSFP/SFP+ Adaptor Kit or equivalent (4 sets)

We request flexibility regarding the word “set” in describing the accessories. May we propose quantities based on the actual requirements of the proposed design solution, while still ensuring full functionality and interconnectivity?</td>
<td>The proposal must include One (1) Lot of System Accessories designed to ensure reliable, high-speed connectivity between nodes, thereby supporting the efficient performance and full functionality of the cluster storage system. The following cable and connectivity components represent the minimum requirements necessary to establish complete inter-node communication:

1. 25GE SFP28 SR 30m Transceivers or equivalent – Up to 32 sets (fewer may be accepted if technically justified)
2. Premier Flex LC/LC OM4 2f 15m Fiber Optic Cables or equivalent – Up to 36 sets (fewer may be accepted if technically justified)
3. 10G SFP+ SR Transceivers or equivalent – Up to 4 sets
4. QSFP to SFP+ Adapter Kits or equivalent – Up to 4 sets
5. Other additional cables, transceivers, modules, or accessories required to achieve complete system integration and interconnectivity, as needed to ensure compatibility and optimum performance of the offered solution.</td>
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<td>5. Other needed cables, transceiver modules, and accessories

We would like to respectfully inquire whether the procuring entity requires an end-to-end solution from a single proprietary brand, provided that the complete system meets all functional and performance requirements.</td>
<td rowspan="3">The technical specifications indicated in the TOR represent the minimum requirements of the Project. Thus, prospective bidder/s may present equivalent/better solutions in their respective proposal/s, provided that the same is compliant and responsive to the project’s specific requirements and is economically advantageous on the part of the government.</td>
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<td>Is inline deduplication and inline compression required in the solution to help improve storage efficiency and reduce the overall data footprint without affecting system performance?</td>
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<td>Is the implementation of an auto-tiering policy required, wherein the solution supports automated data tiering that enables the dynamic movement of data between different storage classes based on access patterns and performance requirements?</td>
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This shall form an integral part of the Bid Documents.

For guidance and information of all participating bidders.

sgd
SHIRLEY J. DAVID
Chairperson, PAGASA-BAC