

Ministry of Education, Science and Technology

BIDDING DOCUMENT (Two Envelope Bidding Method)

Procurement of a service of a System Integrator (SI) to revamp the Lanka Government Cloud (LGC) with Required Hardware and Software.

IFB No: MoT/DEV/PRO/LGC/Vol/i

Clarifications to the queries received until Mid-Night of 6th Nov 2024 from the pre-bid (28th Oct 2024). (ITB Section 10)

#	Bidder	Query raised by bidders	Clarification from MOT
01	KBSL IT- e-mail received on 06th Nov 2024	<p>1 . Annex 3 – Compute Servers, Page – 126, 25 - The Proposed servers and Block storages should be from same brand</p> <p>Clarification</p> <p>The RFP's requirement for same-brand storage and servers restricts options to a limited number of brands, reducing Competition and potentially increasing costs. Allowing flexibility to choose from any Gartner leader-rated storage solutions would enable better product selection, foster competitive pricing, and benefit ICTA through broader vendor participation and cost-effectiveness. We request revising the RFP to permit pairing servers with any Gartner leader storage brand for enhanced flexibility and value.</p> <p>2. RFP Clause: 3.3.2. Technical marks assigned for each category</p> <p>"According to the RFP clause, 'Proposed Solution - Hybrid Cloud Readiness,' is there an expectation or roadmap to manage and monitor multiple public clouds, such as AWS, Azure, and GCP?"</p> <p>3. RFP Clause: Annex 1 – _Hypervisor & Cloud management</p> <p>The solution shall provide a purpose-built hypervisor to virtualize Compute/Storage/Network with minimal footprint that installs directly on the bare metal x86 server hardware with no dependence on a general-purpose OS for greater reliability and security. This hypervisor should have inbuilt</p>	<p>1. This should be from the same brand (proposed compute and Storage) , as per the market research we did there are many gartner leader products which manufacture both server and storage. Further we need to keep different hardware brands to minimal level since we need less complexity and increase efficiency in operations.</p> <p>As the Government of Sri Lanka (GoSL) moves towards a more strategic roadmap for public cloud</p>

		<p>support for software defined storage and software defined network capabilities.</p> <p>Clarification "Please provide more details on the requirements above. While Software Defined Storage (SDS) capability is specified, no storage capacity requirement is mentioned. If SDS is needed, could you specify the required capacity, as it depends on the licensing Also, should we provide extra disks for the new servers to meet the SDS requirement?"</p> <p>1. The solution shall provide a purpose-built hypervisor to virtualize Compute/Storage/Network with minimal footprint that installs directly on the bare metal x86 server hardware with no dependence on a general-purpose OS for greater reliability and security. This hypervisor should have inbuilt support for software defined storage and software defined network capabilities.</p> <p>Clarification "Please provide more details on the requirements above. While Software Defined Storage (SDS) capability is Specified, no storage capacity requirement is mentioned. If SDS is needed, could you specify the required capacity, as it depends on the licensing Also, should we provide extra disks for the new servers to meet the SDS requirement?"</p>	<p>services, the initiative begins with a fully-fledged private cloud, with plans to expand to public cloud platforms. Ideally, the solution we prefer should provide management and monitoring capabilities for leading public clouds, such as AWS, Azure, and Google Cloud.</p> <p>3. We are planning to implement SDS layer on existing DELL R740 server once the migration is completed, hence bidder should only provide required licenses for 140 TB (raw) SDS capacity.</p>
02	INOVA , e-mail on 6th	<p>a).Page 64 - Clouse 3.5 Staff Deployment Plan -Ref 4.5.2 – The reference is missing or not defined. Are you expecting a project related responsibility assignment to individuals or teams?</p> <p>b).Page 120 - Clouse 2 : Can the term be relaxed to include AMD processors as they compete (powerful, faster, efficient, cooler and less-expensive than intel in some cases) and complement intel processors in relevant processors categories and is coming from the same type of origin countries and geo-regions.</p> <p>c).Page 120 - Clouse 3 : Can we deliver a block storage with related to workloads and provide a separate NAS if it is needed in the solution? Would you mind sharing the specifications for a NAS in that case?</p>	<p>a) No requirement to assign project responsibilities to individual</p> <p>b) Since our current architecture is based on Intel processors, we need to maintain consistency with the existing setup.</p> <p>c) No, we are expecting NAS and block storage features from the same enterprise class storage</p>

		<p>d).Page 120 - Clouse 6.5: Can we propose a model which connects to Virtualized nodes via a SAN switch instead of connecting all Hosts to directly to the storage, when the number of hosts being increased the scalability would be better in this case while some high-end storages only have necessary NPIV enabled interfaces (support some advance scenarios in FC communication such as LUN zoning and LUN masking to be used to restrict access to specific data) to connect to NPIV supported SAN switches.</p>	<p>platform with single unified management</p> <p>d) We have mentioned that the connectivity to storage from hosts will be through SAN SW, for which existing SAN SW will be used, these information are given on the Section VI</p>
03	VSIS e-mail on 5 th Nov 2024	<p>1).Page 96 - 3.1.5 Table Row 1 On what basis the minimum quantity of Cloud Virtualization and cloud management platform is defined as 2?</p> <p>Different solutions might require different minimum quantities and platform capabilities to achieve the requirements listed in "VI - Schedule of Requirements" Some platforms might include these capabilities such as CMP natively, hence no requirements to quote them separately.</p> <p>2). Page 96 - 3.1.5 Table Row 2 On what basis the minimum quantity of Kubernetes Platform is defined as 2?</p> <p>Different solutions might require different minimum quantities and platform capabilities to achieve the requirements listed in "VI - Schedule of Requirements", Some platforms might include these capabilities such as Kubernetes natively, hence no requirements to quote them separately.</p> <p>3.Page 121 - Clouse 09 – The proposed computer server & storage from the same OEM. At more economical costs, some OEMs manufacture only computer servers specifically for large clouds, such as hyperscale's. Can the above compliance change so that independent server storage certified for integrations can be considered for LGC revamp?</p> <p>4.Page 117 - Clouse 106 - The SDN solution should support multi-site network and security for virtual workloads.</p> <p>Could you explain more about this requirement? Since tender requests for two sites (Site 1- Primary and Site 2 - Disaster Recovery), is it safe to assume the requested Software Defined Network should support connectivity and security for these two sites, allowing VM workloads to either be moved or replicated across these two sites?</p>	<ol style="list-style-type: none"> 1. Please consider site 1 and 2 as separate regions, for which you provide a separate management for each site for complete region failures. 2. Please refer above explanation 1 3. This should be from the same brand (proposed compute and Storage), as per the market research we did there are many gartner leader products which manufacture both server and storage. Further we need to keep different hardware brands to minimal level since we need less complexity and increase efficiency in operations. 4. Multi-site requirements considered with the

		<p>5. Page 130 - Clause 106 - Is "The RPO must be less than 5 Seconds" has a typo, seconds and minutes both used when defining RPO in the document.</p> <p>6. Page 60 "Minimum Qualification of the Proposed Implementation Team" During the pre-bid meeting, it was mentioned the minimum qualification will be reduced. Could you share that?</p>	<p>current disaster recovery use case, but the feature is expected to support with the future expansion/enhancements of LGC with active – active site.</p> <p>5. According to page number 130 clause 35, our requirement is 5 second RPO for 250 VMs.</p> <p>According to page number 110 clause 25, our requirement is to have the hypervisor capability of providing 5 minute RPO for less critical VMs.</p> <p>Also prefer addendum 01-item no 01 for better clarity.</p>
04	Dialog –email on 6 th Nov 2024	<p>1. Qualifications The RFP sets exceptionally high qualifications that exclude many local bidders, leading to:</p> <ul style="list-style-type: none"> • Reduced Competition: Excluding qualified local bidders limits competition, which is essential for promoting innovation and cost-effective solutions. • Limited Access to Local Innovation: This restriction prevents the government from leveraging the unique capabilities and innovations of local suppliers, which could otherwise support more effective, locally tailored solutions. <p>2. Lack of Openness The RFP’s lack of openness restricts creativity and innovative solutions by:</p> <ul style="list-style-type: none"> • Restrictive Technical Requirements: The RFP’s highly specific technical requirements limit flexibility, making it harder to adapt to new advancements or offer diverse solutions. • Overlooked Business Models: Alternative models, like Build-Operate-Transfer (BoT) or partnerships with local cloud providers, are not considered, missing opportunities to improve project delivery. 	<ol style="list-style-type: none"> 1. Not relevant to the bid document 2. Not relevant to the bid document 3. Not relevant to the bid document 4. Not relevant to the bid document 5. Not relevant to the bid document 6. Not relevant to the bid document 7. The total number of virtual machines (VMs) is approximately 2,000. These VMs will include a mix of Windows and Linux / Unix

	<ul style="list-style-type: none"> • Narrow Focus: The RFP focuses only on local capabilities, ignoring successful regional practices and best practices that could enhance outcomes. • Stringent Compliance Constraints: Strict country-specific compliance rules exclude many global players, reducing the range of expertise and limiting the potential for innovative solutions from regional suppliers. <p>3. Dependency on the Existing System The RFP’s reliance on the current system raises concerns:</p> <ul style="list-style-type: none"> • Outdated Justifications: The existing system, now over three years old, has not been effective in terms of technology, operations, or cost, yet it’s used to justify current requirements. This outdated framework risks slowing down progress. • Urgency and Inflexibility: The RFP cites urgency to reinforce commitment to this outdated system. However, viable alternatives—such as transferring workloads to local cloud providers (Lift and Shift) or extending the system's lifespan by six months—could ensure continuity without locking into an ineffective architecture. <p>4. Misalignment with Cloud Policy and Its Impact The current RFP does not align with government cloud policy, which aims to:</p> <ul style="list-style-type: none"> • Promote Optimal Cloud Use: The policy supports broad cloud service use to boost efficiency. The RFP’s restrictions, however, limit diverse supplier participation, restricting these gains. • Encourage Emerging Technologies: The government seeks innovative technology for digital transformation. By limiting vendor options, the RFP misses opportunities for cutting-edge solutions. • Minimize Costs: The policy aims for cost-effective solutions. A more open RFP would encourage competitive pricing, benefiting taxpayers. • Increase Responsiveness: Diverse suppliers improve service delivery. Restricting suppliers hinders the government’s ability to effectively respond to citizen needs. <p>5. Negative Effects on Stakeholders</p> <ul style="list-style-type: none"> • ICTA/Ministry: Limited competition raises costs and reduces innovation, resulting in fewer choices and potentially suboptimal outcomes. • Government: Relying on a narrow vendor pool weakens negotiating power, leading to higher costs and lower service quality. Restricting diversity stifles 	<p>operating systems, encompassing various versions released over the past 10 years. This variety of OS versions needs to be supported to ensure compatibility and functionality across our environment</p> <p>8. not accepted</p> <p>9. An extension will be granted till 26th November 2024 on or before 3 PM, Please refer addendum 1 – Item no 8.</p>
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05	Dialog-E-mail on 4th Nov 2024	<p>We have gone through the tender document and hereby request you <i>to kindly grant an extension of 2 week from the bid closing date (until 4th Dec. 2024)</i> to provide you with a comprehensive solution as per the tender document. This request is made considering the upcoming election holidays and to comply the tender conditions as well. We appreciate your response and confirmation on or before 6th Nov 2024 Kindly submit your feedback to the undersigned via below communication mode</p>	

06	Softlogic Information Technologies (Pvt) Ltd on 6th Nov 2024	<ol style="list-style-type: none"> 1. For the Disaster Recovery (DR) site, are firewalls and core switches required? This isn't mentioned in the document. 2. If they are required, does each device need High Availability (HA), or can we propose a design with a single firewall and a single core switch? 3. If each device requires HA, should all devices be placed in a single rack, or should they be distributed across two racks? 4. On page 98, regarding the additional SFP for the S4148 (Service Tag - CJ9GPK2 / JG9GPK2), will these two switches be removed from the Data Center (DC) and relocated to the DR site? 	<ol style="list-style-type: none"> 1. Not required 2. N/A 3. N/A 4. Yes
07	MIT –two e-mails (1-3) & 4 on 6th Nov 2024	<ol style="list-style-type: none"> 1. Can we achieve the same functionality on the points below through a third-party application? <i>Ref : Annex 1 – Hypervisor & Cloud management Point No: 05 Page No : 109</i> <ol style="list-style-type: none"> a. Virtualization software should have the capability to distribute compute resources evenly across hosts, this to ensure that the workloads are evenly distributed to avoid imbalance of host utilization and avoid stress on few hardware resources. <i>Ref : Annex 1 – Hypervisor & Cloud management Point No: 19 Page No : 110</i> b. Should support features like Dynamic Resource Management and provides workload balancing. <i>Ref : Annex 1 – Hypervisor & Cloud management Point No: 24 Page No : 110</i> c. The hypervisor shall have the ability to provide a zero downtime and zero data loss for the business-critical applications running in virtual machines in the event of physical host failure, without any additional cost and Hardware complexity within private cloud infrastructure. 2. Is this feature required from the hypervisor level, or can it be achieved through third party software integration? <i>Ref : Annex 1 – Hypervisor & Cloud management Point No: 26 Page No : 111</i> 	<ol style="list-style-type: none"> 1. Yes , but proposed solution should be certified with proposed cloud platform and proven (necessary proof should be provided) to match our requirement 2. Yes , but proposed solution should be certified with proposed cloud platform and proven (necessary proof should be provided) to match our requirement 3. No- As the Government of Sri Lanka (GoSL) moves towards a more strategic roadmap for public cloud services, the initiative begins with a fully-fledged private cloud, with plans to expand to public cloud platforms. Ideally, the solution we prefer should

		<p>a. Proactive High availability capability that utilizes server health information and migrates VMs from degraded hosts before a problem occurs.</p> <p>3. Since the current deployment does not have any integration with the public cloud can we remove the below point?</p> <p><i>Ref : Annex 1 – Hypervisor & Cloud management Point No: 39 Page No : 112</i></p> <p>a. The management software must have the feasibility to be deployed on public cloud and support management of workloads both on-premises and on public cloud.</p> <p>4. Can we have more clarity on the existing virtual machine network mapping, Ex : Internal to public / Internal to private / private to private ?</p>	<p>provide management and monitoring capabilities for leading public clouds, such as AWS, Azure, and Google Cloud.</p> <p>4. In our current openstack platform , a internal network is used to communicate at tenant level, to publish service to internet a public floating IP will be mapped and to publish services to enterprise network (LGN) a private floating IP will be mapped. For Some VM, both private and public IPs (floating) are assigned.</p>
08	MIT email 6 th Nov 2024	Could you let us know if manufacture authorization letters are needed for quoted products?	Yes, use the 4.7.2 specimen format of the section iv
09	N-able e-mail 6 th Nov 2024	<p>VI - Schedule of Requirements- (Hypervisor and Cloud Managemnt),Page no 110, Clause 24</p> <p>Kindly rephrase this clause as follows for making it more inclusive. "The proposed solution shall have the ability to provide a near zero downtime and zero data loss for the business critical applications running in virtual machines in the event of physical host failure"</p>	No change in this requirement.
10		<p>VI - Schedule of Requirements- (Network routing and switching),page 117, clause 96</p> <p>Kindly rephrase this clause as follows for making it more inclusive. "The solution must enable Layer 2/Layer 3 overlay network across a routed fabric within and across data center boundaries and support overlay protocols."</p>	No change in this requirement.
		VI - Schedule of Requirements- (Network - Core Function),page 117,clause 106	This requirement is expected to provide

		<p>This is a vendor specific requirement of multi-site network for replication. The replication between sites does not always require a network extension. Hence, kindly request you to remove this clause.</p>	<p>smooth movements to virtual workloads while ensuring the security as the secure government cloud during disaster scenarios. You may propose equivalent solution options with your proposal.</p>
		<p>VI - Schedule of Requirements- (Network - Core Function), page 118, clause 110</p> <p>Kindly rephrase this clause as follows for making it more inclusive. "The solution should provide a converged view of virtual network, provide end to end topological view of path between two virtual machines."</p>	<p>No change in this requirement, The requirement of graphical representation of the network topology to verifying the network configuration or troubleshooting errors in the cloud infrastructure.</p>
		<p>III- Evaluation and Qualification Criteria (3.3.2. Technical marks assigned for each category), page 53, Clause 5</p> <p>Kindly rephrase this clause as follows for making it more inclusive. "The Chargeback and Showback feature is required to provide detailed and transparent tracking of service usage and associated costs within an organization. This feature enables organizations to monitor, allocate, and report expenses effectively, ensuring financial accountability and better budget management across different departments or business units."</p>	<p>Accepted, please refer the addendum 01 item number 5</p>
		<p>III- Evaluation and Qualification Criteria (3.3.2. Technical marks assigned for each category), page 51, clause 1</p> <p>Kindly rephrase this clause as follows for making it more inclusive "Support for multi-hypervisor environment like vSphere, Hyper-V, RHEV and XEN"</p>	<p>You can propose supported hypervisor environments and marks will be allocated accordingly.</p>
		<p>VI – Schedule of Requirements- (Hypervisor Availability) ,page 110, Clause 25</p> <p>Kindly rephrase this clause as follows for making it more inclusive " The solution shall support in-built replication capability</p>	<p>Our requirement is have this requirement on hypervisor itself without any additional licenses, however if you propose an alternative for this, the</p>

		<p>which will enable efficient array-agnostic replication of virtual machine data over the LAN or WAN. This feature shall enable replication at the virtual machine level and enable recovery point objects of as low as 5 minutes. "</p>	<p>provided solution should be certified with hypervisor and proven (required document evidences should provide) without any additional licenses irrespective of VM count.</p>
		<p>VI – Schedule of Requirements- (Disaster Recovery Capabilities) ,page 130, clause 35</p> <p>Kindly rephrase this clause as follows as it seems a typo and conflicting with other clause number 25. "The Proposed solution should support Continuous replication at VM level. The RPO must be less than 5 minutes and it must deliver Application consistency. "</p>	<p>No change in this requirement.</p> <p>According to page number 130 clause 35, our requirement is 5 second RPO for 250 VMs.</p> <p>According to page number 110 clause 25, our requirement is to have the hypervisor capability of providing 5 minute RPO for less critical VMs.</p> <p>Also prefer addendum 01-item 01 for better clarity.</p>
		<p>III – Evaluation and Qualification Criteria (3.3.2. Technical marks assigned for each category),page 51, clause1</p> <p>According to the RFP clause, 'Proposed Solution - Hybrid Cloud Readiness,' is there an expectation or roadmap to manage and monitor multiple public clouds, such as AWS, Azure, and GCP?</p>	<p>As the Government of Sri Lanka (GoSL) moves towards a more strategic roadmap for public cloud services, the initiative begins with a fully-fledged private cloud, with plans to expand to public cloud platforms. Ideally, the solution we prefer should provide management and monitoring capabilities for leading public clouds, such as AWS, Azure, and Google Cloud.</p>
		<p>III – Evaluation and Qualification Criteria (3.3.2. Technical marks assigned for each category),page 54,Clause 7</p>	<p>No change in this requirement.</p>

		<p>Kindly rephrase this clause as follows as it seems a typo and conflicting with other clause number 25. "The replication software must support VM-level replication with or without backup at the source site, including failover and failback capabilities, and automatic network address acquisition at the destination site. It should enable continuous replication at the VM level with an RPO of less than 5 minutes, ensuring application consistency. The solution should support replication across dissimilar systems, such as from standalone servers to HCI Infrastructure, to create a disaster recovery environment."</p>	<p>According to page number 130 clause 35, our requirement is 5 second RPO for 250 VMs.</p> <p>According to page number 110 clause 25, our requirement is to have the hypervisor capability of providing 5 minute RPO for less critical VMs.</p> <p>Also prefer addendum 01 - item number 01 for better clarity.</p>
		<p>VI – Schedule of Requirements, page 98, Clause 3.3,7.6</p> <p>Kindly rephrase this clause as follows as it seems a typo and conflicting with other clause number 25. "To host Tier 1 Applications: These are typically requiring the highest possible Recovery Point Objective (RPO) or Recovery Time Objective (RTO) i.e. typically the requirement will be 5 minutes RPO with proposed replication method. These VMs should be able to recover from the DR site through a GUI interface /web console provided with replication solution"</p>	<p>No change in this requirement. As mentioned in the RFP, bidder should provide licenses for 250 VM (Tier 1 applications) with minimum RPO 5 seconds.</p>
		<p>VI - Schedule of Requirements- (IaaS - Capacity Planning , Alerting , Monitoring and Troubleshooting),page 114, clause 75</p> <p>Kindly rephrase this clause as follows for making it more inclusive "The solution shall provide capacity analytics by recommending right sizing VMs to reclaim idle resources which allow administrators to optimize VM density, identify capacity shortfalls before they affect end users and have efficient use of virtualized resources."</p>	<p>Accepted , please refer addendum 01 item number 6.</p>
		<p>VI - Schedule of Requirements- (IaaS - Billing and Show back),page 115, clause 84</p> <p>Kindly rephrase this clause as follows for making it more inclusive "The solution shall provide cost drivers (servers, storage, network) that contribute to the expenses of</p>	<p>This is one of the key business requirements to meet the business operations within the government cloud, you may propose your</p>

		your business operations. Cost drivers provide a link between a pool of costs"	solution with the detail description
		<p>VI - Schedule of Requirements- (The Life Cycle Management solution),page 116, clause 89</p> <p>Kindly rephrase this clause as follows for making it more inclusive "The solution shall provide high-level administrative view for Manager in the form of widgets. There are widgets for Solutions; Cluster; Host Types and Usage; ; CPU, Memory, Storage Usage; and Recent Tasks."</p>	No change in this requirement.
		<p>Kindly clarify the details of quantity 2 in the SoR please, in UoM (Unit of measurement) of "number of BM servers/ Sockets/ cores"?</p> <p>Kindly clarify the details of quantity 2 in the SoR please, in UoM (Unit of measurement) of "number of BM servers/ Sockets/ cores"?</p>	<p>Number of Platforms</p> <p>we expect bidder provide independent CMP for site 1 and site 2. (two regions)</p>
		<p>VI - Schedule of Requirements, page 109,Annex 1 - Hypervisor and Cloud Management</p> <p>Please provide more details on the requirements above. While Software Defined Storage (SDS) capability is specified, no storage capacity requirement is mentioned. If SDS is needed, could you specify the required capacity, as it depends on the licensing Also, should we provide extra disks for the new servers to meet the SDS requirement?</p>	We are planning to implement SDS layer on existing DELL R740 server once the migration is completed, hence bidder should only provide required licenses for 140 TB (raw) SDS capacity.
11	KBSL 2 nd request for clarification, 6th Nov 2024	<p>RFP Clause: Annex 2, Block Storage</p> <p>5.0 Shall support Dual Active - Active controllers which allows LUN's to be distributed across both controllers for load balancing. Should not be an architecture based on Active Passive (Standby) controllers.</p> <p>Clarification</p> <p>1. Need more details on above point. Is this only relevant for dual active controllers or symmetric LUN access also require for block workloads?</p> <p>5.9 Shall support Raid 5, 6 and 10</p> <p>Clarification</p>	<p>1. The requirement is to have the dual Active-Active controllers to distribute the workload evenly. Symmetric and asymmetric LUN access methods will be allowed.</p> <p>2. Yes</p>

		2. Do both SAN and NAS workloads need to support the above RAID levels?	
		<p>RFP Clause: Annex 2, Backup Solution</p> <p>14 The storage shall consist of dual Active – Active controllers</p> <p>Clarification</p> <p>1. Same as above 5.0 point mentioned in block storage section. Is this only relevant for dual active controllers or symmetric LUN access also require for block workloads?</p> <p>13.0 Proposed storage IP Port modules shall support both iSCSI connectivity, CIFS, NFS and remote IP based replication.</p> <p>Clarification</p> <p>2. In section 8.0 “Should be a Mid-Range / Entry Level Block Storage or better” Can we propose block only storage?</p> <p>20.0 The storage should support RAID 0/1/5/6/10</p> <p>3. Do need to support for all above RAID levels?</p>	<p>1. The requirement is to have the dual Active-Active controllers to distribute the workload evenly. Symmetric and asymmetric LUN access methods will be allowed.</p> <p>2. It can be a block storage. But it should support FC/iSCSI connectivity. Replication capability and licenses should be bundled.</p> <p>3. RAID levels 5/6/10 will be allowed.</p>

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