

Section VII. Technical Specifications

Bidders shall state in the Statement of Compliance below, either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" shall be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1a(ii) and/or GCC Clause 2.1(a)(ii).

ITEM	SPECIFICATION	STATEMENT OF COMPLIANCE
1. HARDWARE AND SOFTWARE RESOURCES FOR THE SSS DATA CENTER PRODUCTION AND DISASTER RECOVERY SITES		
1.1	Servers and Storage Systems for data center production and disaster recovery sites	
	1.1.1 SERVERS 1.1.1.1 APPLICATION SERVER Minimum of two (2) Servers per site with the following minimum specifications for each server:	
	Architecture	RISC based
	Operating System	64-bit Architecture Unix OS, with unlimited systems user license. The OS must be able to support binary compatibility across versions to support SSS existing application systems. Must also include necessary virtualization licenses. <i>Refer to "Annex A" for List of Application Systems and Volume of Transactions</i>
	Processor:	a) At least 96 Cores (scalable to at least 256 Cores) b) At least 5.0 Ghz
	Memory	At least 1.5 TB (scalable to at least 4 TB)
	Redundancy	Must be configured with full hardware redundancy
	Connectivity for Infiniband	Must have redundant connectivity of at least 40Gbps with corresponding pluggable transceivers for each server
	Connectivity for Top-of-Rack	Must have at least 12 x 10GbE Network Ports
	Connectivity for SAN Switch	Must have at least 2 x 16Gb Fiber Channel Ports for each server

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ITEM	SPECIFICATION		STATEMENT OF COMPLIANCE
Cluster Configuration	Clustered configuration		
Compute Power Capability	Must be able to accommodate concurrent on-line transaction processing with at least 8,000 Internal users and 230,000 External users (SSS Members/Employers) <i>Refer to "Annex A" for List of Application Systems and Volume of Transactions</i>		
Oracle Processor Core Licensing Factor	The Oracle Core Conversion Factor (CCF) must be 0.5 since SSS will be using its existing Oracle Licenses.		
1.1.1.2 DATABASE SERVER			
Minimum of one (1) Converged infrastructure server per site with the following specifications:			
1.1.1.2.1. Minimum of one (1) compute server per site with the following minimum specifications:			
Architecture	Converged Infrastructure, Clustered		
Operating System	64-bit Architecture Unix OS, with unlimited systems user license. Must also include necessary virtualization licenses. <i>Refer to "Annex A" for List of Application Systems and Volume of Transactions</i>		
Processor:	a) At least 96 Cores (scalable to at least 384 Cores in a single rack) b) At least 2.4 Ghz		
Memory	At least 1.5 TB (scalable to at least 12 TB)		
Redundancy	Must be configured with full hardware redundancy		
Connectivity for Infiniband	Must have redundant connectivity of at least 40Gbps with corresponding pluggable transceivers for each server		
Connectivity for Top-of-Rack	Must have at least 12 x 10GbE Network Ports		
Cluster Configuration	Clustered configuration		
Database Capability	Must be able to offload query to the storage		
Compute Power Capability	Must be able to accommodate concurrent on-line transaction processing with at least 8,000 Internal users and 230,000 External users (SSS Members/Employers) <i>Refer to "Annex A" for List of Application Systems and Volume of Transactions</i>		

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Oracle Processor Core Licensing Factor		The Oracle Core Conversion Factor (CCF) must be 0.5 since SSS will be using its existing Oracle Licenses.	
1.1.1.2.2 Minimum of three (3) STORAGE Servers for DB per site with the following minimum Specifications for each STORAGE Server:			
Processor		At least 2 x 16-core x86 processor for SQL Processing per storage subsystem	
Memory		At least 192GB	
Total Storage Capacity		a) At least 51TB Flash Storage per Server (Raw) b) At least 8 x 6.4TB Flash Cache	
Connectivity for Infiniband		Must have redundant connectivity of at least 40Gbps with corresponding pluggable transceivers for each server	
Volume Management		Must be configured to use Automatic Storage Management (ASM)	
Data Protection		Must implement triple RAID	
Oracle Processor Core Licensing Factor		The Oracle Core Conversion Factor (CCF) must be 0.5 since SSS will be using its existing Oracle Licenses.	
1.1.2 Minimum of Three (3) Servers per site for a) WEB SERVER (OHS Internal/External) b) DIRECTORY SERVER (OUD, OIM, OAM) c) VIRTUAL DIRECTORY SERVER (OVD) With the following minimum specifications for each server:			
Architecture		RISC-based	
Operating System		64-bit Architecture Unix OS, with unlimited systems user license. The OS must be able to support binary compatibility across versions to support SSS existing application systems. Must also include necessary virtualization licenses.	
Processor:		a) At least 32 Cores (scalable to at least 256 Cores) b) At least 5.0 Ghz c) Must have built-in cryptographic cores	
Memory		At least 256 GB (scalable to at least 1 TB) for each server	
Storage		At least 6 x 1.2TB 10K RPM SAS Drives for each server	
Connectivity for Top-of-Rack		Must have at least 2 x 10GbE Network Ports and 2 x 16Gb Fiber Channel Ports for each server	
Virtualization		Must have built-in virtualization capability with corresponding application licenses, if any.	
Remote Management		Must have the capability to be remotely managed without interfering with any system activities.	

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Directory Server	Must support the existing Oracle Identity Manager in both the primary production and DR servers.		
Oracle Processor Core Licensing Factor	The Oracle Core Conversion Factor (CCF) must be 0.5 since SSS will be using its existing Oracle Licenses.		
1.1.3 Minimum of one (1) MANAGEMENT SERVER per site with the following minimum specifications for each server:			
Processor:	At least 16 Cores		
Memory	At least 128 GB		
Connectivity	Must be solution-based with corresponding pluggable transceivers		
Console	Must have graphics-capable system console, with at least 17" viewable flat colored LED monitor		
Other Requirements	With supplied keyboard and mouse		
1.1.4 Minimum of one (1) SHARED STORAGE per site with the following minimum technical specifications for each shared storage:			
Processor	At least 4 x (18-core) x86 processor or IOPS capability of at least 30,000		
Memory	At least 1TB per controller		
Total Storage Capacity	At least 100Tb usable capacity using Raid 10 and 3.2Tb read flash accelerator		
Connectivity for Infiniband and SAN	Must have redundant connectivity of at least 40Gbps and 16Gbps with corresponding pluggable transceivers		
Storage Workload	Must be capable to provide the following storage functionalities: a) Network Attached Storage b) Storage Area Network		
OS Support	Must be able to support the following OS: a) Solaris b) AIX c) Linux		
Data Protection	Must support RAID Level 10		
Cluster Capability	Must support Clustered file system configuration		
Storage Solution	Storage Solution capable of: a) Disk Backup b) 24x7 Operations c) Weekly Full Backup d) Daily Incremental Backup e) Built-in Replication		

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	1.1.5 Minimum of two (2) Load Balancers per site (Data Center Production and Disaster Recovery Site)	
Processor	At least eight (8) cores	
Memory	At least 16 GB, ECC type	
Storage	SSD	
Ethernet Interface	Minimum of five (5) 1 GB copper, and four (4) 1/10 GE fiber	
Application Throughput	a) Layer 4/7: minimum of 20 Gbps / 20 Gbps b) Layer 4 CPS: minimum of 450k c) Layer 4 HTTP RPS: minimum of 2 Million d) Layer 7 CPS (1:1): minimum of 150k e) SSL CPS: RSA 16k, ECDSA 8k f) Ddos Protection (SYN Flood) SYN/sec.: 4 Million g) Application Delivery Partition (ADP): 32	
	1.1.6 System Performance Requirements:	
	a. Must be able to handle 24x7 transaction processing and should maintain 3-second response time in 99% of all LAN online transactions during the 5-year period. If unable to maintain the 3-second throughput, bidder is obliged to install additional resources until requirement is satisfied at no additional cost to SSS	
	b. The proposed system must be able to seamlessly run SSS existing application systems	
	c. High Availability Features: No single point of failure for processor/memory, storage, network, and power subsystems	
	d. Supports different fail-over scenarios such as multi-node mutual takeover	
	e. Redundant and hot-swappable power supply, and internal cooling system	
	f. Must be able to provide the following Service Level Commitment: <ul style="list-style-type: none"> • LAN – 3 sec. response time • WAN – 10-sec response time 	
1.2	TWO (2) SETS OF NETWORK REQUIREMENTS FOR THE DATA CENTER PRODUCTION AND DISASTER RECOVERY SITES.	
	1.2.1 Minimum of two (2) INFINIBAND SWITCH per site with the following minimum technical specifications for each Infiniband Switch:	
	Must be capable of at least 40 Gbps per port	
	Number of ports:	

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	<ul style="list-style-type: none"> • Must be able to support the required ports of the proposed solution • Must have at least six (6) available spare ports (for future requirements) 	
	Embedded management module for Infiniband subnet management	
	Cable insertion detection capability	
	Redundant power supply units and cooling fans for High Availability capability	
	Must have dual Ethernet management ports connecting multiple switches	
	Two hot-swappable power supply units for power redundancy	
	1.2.2 Minimum of two (2) TOP OF RACK SWITCH per site with the following minimum technical specifications for each Top of Rack Switch:	
	Number of ports: Must be able to support the required number of ports of the proposed solution	
	Must have at least 12 available spare ports (for future requirements)	
	<i>Must be compatible with existing Cisco NEXUS 7009 Core Switch</i>	
	Must have at least two (2) x 40G uplinks to the existing Core Switch	
	The 40-Gbps transceiver must be a bidirectional (BiDi) transceiver which offers customers a solution that enables reuse of their existing 10 gigabit duplex MMF infrastructure for migration to 40 Gigabit Ethernet connectivity.	
	The uplinks must be capable to be configured to work as 40Gbps or 100Gbps ports	
	Must have hot-swappable power-supply units (PSUs) and fans with N+1 redundancy	
	Number of downlink ports to the servers can be configured to work as 1-, 10-, or 25-Gbps ports, offering deployment flexibility and	
	Must have hot-swappable power-supply units (PSUs) and fans with N+1 redundancy	
	1 rack-unit form factor	
	3.6 Tbps of bandwidth	
	2.8 billion packets per second (bps)	
	Quad-core CPU with 64-GB SSD drive and 24 GB of memory	
	Must have the following Layer 3 Features: <ul style="list-style-type: none"> • Full Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Virtual Extensible LAN (VxLAN) • Protocol Independent Multicast sparse mode (PIM-SM) • Source-Specific Multicast (SSM) • Multicast Source Discovery Protocol (MSDP) 	
	Must have the following Performance and Scalability: <ul style="list-style-type: none"> • Number of Routes: 896,000 • MAC Address Entries: 256,000 • Multicast routes: 32,000 • IGMP Snooping groups: 32,000 • ACL Entries: 8000 ingress, 4000 egress 	

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	<ul style="list-style-type: none"> • VLANs: 4096 • VRF Instances: 16000 • SPAN sessions: 4 • RPVST Instances: 4000 • HSRP groups: 490 	
	<p>Features</p> <ul style="list-style-type: none"> • The hardware must be ready to support an automated, policy-based, systems management approach • Must be capable of a technology which provides fabric extensibility with simplified/single management enabling the switching access layer to extend and expand all the way to the server hypervisor as the customer's business grows. 	
	<p>Others</p> <ul style="list-style-type: none"> • Patch Cables for Servers to TOR Switch Ports • Four (4) Pairs of 50 meters Fiber Patch Cables from TOR Switch to Core Switch secured with 2" IMC Conduit • Two (2) pairs of 50 Meters Fiber Patch Cables from TOR Switch to T5 DB Server secured with 2" IMC Conduit • One (1) Lot Patch Fiber/ Copper Cables for DR site TOR and Servers 	
	1.2.3 Minimum of two (2) SAN SWITCH per site with the following minimum technical specifications for each SAN Switch:	
	Number of ports: Must be able to support the required number of ports of the proposed solution	
	Must have at least six (6) available spare ports (for future requirements)	
	Must be capable of 16Gbps throughput per port scalable to 24 ports	
	Gen 5 Fiber Channel	
	Must support 2, 4, 8 or 16Gb/sec speed	
	Must include monitoring, management and diagnostic tools to simplify administration and increase uptime	
	Must include the necessary fiber channel cables	
	1.2.4 Minimum of two (2) MANAGEMENT SWITCH per site with the following minimum technical specifications for each Management Switch:	
	Must have 16 ports 1/10G copper ports	
	Must have 2 40GB QSFP uplink ports	
	Must support creation of VLANs	
	<p>Must have the following IPv4 features:</p> <ul style="list-style-type: none"> • Black hole routing • Directed broadcast forwarding • DNS Relay • Equal Cost Multi-Path (ECMP) Routing • Policy Based routing 	
	<p>Must have the following IPv6 features:</p> <ul style="list-style-type: none"> • DHCP v6 client and relay 	

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	<ul style="list-style-type: none"> • DNSv6 client and relay • IPv6 aware storm protection and QoS • Device Management over IPv6 networks and SNMPv6, Telnetv6 and SSHv6 	
	Must have console management port on the front panel for ease of access	
	Web based GUI	
	CLI with context-sensitive help	
	<p>Must have the following security features</p> <ul style="list-style-type: none"> • Auth fail and guest VLANs • Authentication, Authorisation and Accounting (AAA) • Bootloader can be password protected for device security • BPDU protection • DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI) • DoS attack blocking and virus throttling • Dynamic VLAN assignment • MAC address filtering and MAC address lock down • Network Access and Control (NAC) features manage endpoint security • Port-based learn limits (intrusion detection) • Private VLANs provide security and port isolation for multiple customers using the same VLAN • Secure Copy (SCP) • Secure File Transfer Protocol (SFTP) client • Strong password security and encryption • Tri-authentication: MAC-based, web-based and IEEE 802.1x • Web-based authentication 	
	1.2.5 Module upgrades of existing Core switch – Cisco Nexus 7009 at SSS Main Production Site:	
	Two (2) units Nexus 7000 F3-Series 12 Port 40GbE (QSFP)	
	Four (4) Units 40GBASE-SR4 QSFP Transceiver Modules, MPO Conn., Enterprise-Class	
	Two (2) units 40GBASE Active Optical QSFP to 4SFP breakout cable, 2m	
	1.2.6 Module upgrades of existing Core switch – Cisco Nexus 7700 at SSS DR Site:	
	One (1) unit 7700 F3-Series 24 Port 40GbE (QSFP)	
	Four (4) Units 40GBASE-SR4 QSFP Transceiver Modules, MPO Conn., Enterprise-Class	
	Two (2) units 40GBASE Active Optical QSFP to 4SFP breakout cable, 2m	
1.3	Compilers/Software Licenses	
	1.3.1 ANSI-85 Standard	
	1.3.2 Must be compatible with Pro* Oracle Compiler	
	1.3.3 COBOL Compiler	

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	1.3.4 All other compilers/software licenses, that are required to migrate all applications developed using the tools enumerated in Annex C, must be provided by the Winning Bidder.	
1.4	OTHER REQUIREMENTS	
	1.4.1. All other resources required in order to successfully implement the proposed solution, such as, but not limited to, devices, cables, connectors, switches, network equipment/devices, etc., must be provided by the winning bidder at no additional cost to SSS.	
	<p>1.4.2. Certification from the bidder stating that the proposed solution is certified to run SSS' existing oracle products</p> <ul style="list-style-type: none"> a. Oracle Database Enterprise Edition b. Real Application Cluster c. Identity Management (IDM) <ul style="list-style-type: none"> • Access Management Plus • Directory Services Plus • Identity Governance Plus • Management Pack Plus d. WebCenter Portal 12C <ul style="list-style-type: none"> • Management Pack for Webcenter Portal e. Weblogic Server <ul style="list-style-type: none"> • Management Pack for Weblogic Server f. Secure Common Services Platform <ul style="list-style-type: none"> • SOA Suite for Oracle Middleware • Weblogic Suite g. SOA Management Pack h. Server Management Pack g. Diagnostics Pack h. Performance tuning Pack 	
	1.4.3. For the major server components, bidder must submit certification of any of the following: Authorized Distributorship, Authorized Resellership, Partnership or equivalent/similar status.	
	1.4.4. Bidder must submit certificate from the Local Authorized Distributor of the products specifically proposed for this project	
	1.4.5. Bidder must submit Certificate from the Manufacturer or Local Authorized Distributor stating that the all equipment or hardware components (Servers, Storage, and Network) to be used are all brand new	
	1.4.6. List of support personnel, such as certified technicians and/or Engineers with detailed resume on experience and training under the Bidder's direct employment and supervision that the Bidder will utilize during the warranty period.	
	1.4.7. Must provide a Project Management Professional who will manage and oversee the implementation of the project. The PM must be directly employed with the company for at least six (6) months prior to submission of the bid. Detailed resume on experience and training must also be submitted	

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	1.4.8. A secured access to the customer portal where SSS can download firmware upgrades, fixes and patches	
	1.4.9. 24/7 technical support via web, email and telephone for all of SSS' designated IT staff	
2. DELIVERY OF SERVICES		
	<p>2.1 Project Management</p> <p>2.1.1 Development of Project Implementation Plan</p> <p>a) Conduct of Pre-Implementation Planning to formulate the Project Implementation Plan within 10 calendar days upon receipt of Notice to Proceed.</p> <p>b) Submission and approval of Project Implementation Plan Document within 30 calendar days upon receipt of Notice to Proceed</p> <p>2.1.2 Development of Migration Plan</p> <p>2.1.3 Development of Test Plan</p>	
	<p>2.2 Migration Services</p> <p>2.2.1 Migration of existing Applications Systems into the new Server and Storage environment.</p> <p>2.2.2 Migration Services must be completed within one hundred twenty (120) calendar days.</p> <p><i>Refer to "Annex A" for List of Application Systems</i></p>	
	<p>2.3 Training/Transfer of Technology</p> <p>2.3.1 Five (5) calendar days for System installation and maintenance on a networked set-up for twenty (20) participants</p> <p>2.3.2 Five (5) calendar days for Security and database administration for twenty (20) participants</p> <p>2.3.3 Five (5) calendar days for Java Programming for twenty (20) participants</p> <p>2.3.4 Five (5) calendar days for Building J2EE applications using Oracle 12c for twenty (20) participants</p> <p>2.3.5 Five (5) calendar days for Oracle 12c programming with PL/SQL for thirty (30) participants</p> <p>2.3.6 Five (5) calendar days for Oracle Developer 12c for thirty (30) participants</p> <p>2.3.7 Training/Transfer of Technology must be completed within 120 calendar days</p> <p><i>All pre-requisite trainings must also be provided by the winning bidder at no additional cost to SSS.</i></p>	
3. THREE (3) YEARS MAINTENANCE SERVICE		
	3.1 The winning vendor must provide maintenance support consisting of Preventive and Remedial services on the	

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	purchased product immediately upon request. Assistance with service requests must be available 24 hours per day, 7 days a week.	
	3.2 All maintenance and technical support must be available within Metro Manila and DR Site Location. Supplier must utilize experienced and certified technicians or engineers under its direct employment and supervision in rendering the required maintenance.	
	3.3 Hardware Preventive Maintenance: Where applicable, the preventive maintenance must include standard cleaning, lubrication, adjustment, alignment, inspection, and testing of each equipment to ensure that it is in optimum operating condition, as well as, to reduce the possibility of equipment failure.	
	3.4 System Health Checks: <ul style="list-style-type: none"> • Health checks and fine tuning • The frequency of health checks must be on a quarterly basis. 	
	3.5 Hardware Remedial Services / Service Level:	
	<p>3.5.1 Within two (2) hours upon receipt of notice, either through phone or in writing, the supplier must address the problem by making a phone call to the concerned unit.</p> <p>If the problem persists, the service contractor must address the problem onsite.</p> <p>3.5.2 The service contractor must be onsite within two (2) hours after problem was not resolved over the phone.</p> <p>3.5.3 Once on site, the service contractor must repair the malfunctioning equipment, provided equipment has been operated in normal conditions.</p> <p>3.5.4 If malfunctioning machine part / component is diagnosed to be beyond repair, the service contractor must replace said part / component. All replacement parts must be brand new and warranted as brand new and of equal quality and shall become the property of SSS. In the same manner, the parts replaced shall become the Contractor's property.</p> <p>3.5.5 The service contractor must at all times maintain a reasonable supply of replacement and spare parts to effect the remedial services required. The SSS may, at any time during the term of agreement, require the contractor to provide an inventory list of such supply of Replacement and Spare Parts.</p> <p>3.5.6 Reinstall corrupted software caused by hardware failure.</p>	

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	<p>3.5.7 If within 72 hours, upon arriving on site, the service contractor fails to restore / repair the malfunctioning part / component, the service contractor must supply and install a service unit within the next 48 hours. SSS use of said service unit must not exceed 30 calendar days. All shipment/delivery fees must be charged against the account of the service contractor.</p> <p>3.5.8 SSS Representative:</p> <p>A designated SSS representative shall always be present during the performance of the above-mentioned maintenance and remedial services to provide assistance especially in compliance with safety regulations. In the event that safety is compromised, the service contractor must terminate the on-going work and to resume the same only as soon as the danger to one's safety is eliminated.</p>	
	<p>3.6 Service Report Requirements:</p>	
	<p>3.6.1 Preventive Maintenance:</p> <p>For every completed quarterly maintenance, the supplier must provide the IT Resource Management Department (ITRMD) a copy of an accomplished service report, confirming the completed work.</p> <p>The report must be duly signed by the designated SSS representative, as described above, and by his/her immediate supervisor. The aforementioned service report must be accomplished in the Main Office.</p> <p>The service report must include the following information:</p> <ol style="list-style-type: none"> a. Name of Contractor's Service Crew/s b. Applicable Period of Software Health Check c. Time In and Out of Service Crew/s d. Description of the units serviced, to include follows: <ul style="list-style-type: none"> • Unit/Item Description; • Type; • Model; and, • Serial Number / Part Number. 	
	<p>3.7 Remedial Services:</p> <p>3.7.1 For each remedial service conducted, the supplier must provide the ITRMD a copy of an accomplished service report confirming the completed service. The report must be duly signed by a designated SSS representative and by his/her immediate supervisor.</p>	
	<p>3.7.2 The above mentioned service report must include the following information:</p> <ol style="list-style-type: none"> a) Problem Notification Details <ul style="list-style-type: none"> • Name of Notifying SSS Personnel • Date and Time of Notification; and 	

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	<ul style="list-style-type: none"> • Initially Reported Problem b) Supplier's Response Details <ul style="list-style-type: none"> • Date and Time of the Service Crew's arrival on-site • Diagnosed Problem • Cause of Problem • Resolution Made: Complete description of the effected resolution. • Supplier's recommendations, as to how the problem may be prevented in the future. • Date & Time the problem was resolved; • Description of work, to include Software Name and Version, Module Description, Solution Provided 	
	3.7.3 A secured access to the customer portal where SSS can download firmware upgrades, fixes and patches	
	3.7.4 Technical Support must be 24x7 via web, email and telephone for all of SSS' designated IT staff	
4. Documentation - One (1) hard copy and One (1) soft copy of the following:		
	<p>4.1 Technical Specifications of all hardware 4.2 User Manuals/Guides 4.3 Detailed System Diagram 4.4 Operations Manual 4.5 Source and Object codes of all customized software 4.6 Documentations must be delivered within one hundred twenty (120) calendar days.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> • All Items must be provided in Hard and Soft copies with the right to reproduce up to 10 copies • Hard copies for Item 4.2 must be original copy from the product manufacturer <p><i>Soft copies must be provided in PDF or HTML format and stored in either DVD or USB Thumbdrive</i></p>	
5	Submission of the Technical Diagram of the proposed solution (please attach document)	