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STATE LOAD DESPATCH CENTRE

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CIN: U40102OR2004SGC007553

CORRIGENDUM – IV to TENDER NOTICE NO. SLDC-01/2023-24

TENDER NOTICE NO. SLDC-01/2023-24

“Design, Development, Supply, Installation, Testing & Commissioning of SAMAST Software Scheme with Data Centre & Disaster Recovery Centre Set up and Comprehensive AMC”

(A) The following modifications/revisions have been made in respect of the CORRIGENDUM-II to Tender Notice No. SLDC-01/2023-24.

CORRIGENDUM-II, Page No. 3, Point No. 1.16

Specification as per Corrigendum-II	Revised Specification
RDBMS Software (robust RDBMS with configuration and development cost), Enterprise edition.	Robust RDBMS Software (Enterprise edition) viz. Oracle/MS Server/equivalent Enterprise Editions/ equivalent Enterprise Version of Open Source RDBMS

CORRIGENDUM-II, Revised Technical Specifications (Part-I, Section-V) to Tender Notice No. SLDC-01/2023-24

1.0 CHAPTER 1: Software and Hardware Standards & Requirements

1.1 Software Details

The Supplier will adopt the following preferred software platform / environment for developing the solution:

Bidder to establish different environment setup for development, production, testing and Training as per the directions of Engineer in charge of SLDC for SAMAST project.

Table 1 Platform/ Environment for Development of Solution.

Development Platform	Angular, React, Dot.net, MVC , PHP, Java, Node.JS, Python
Architectural Approach	N Tier
Web Server	IIS, Apache, Apache Tomcat, JBoss, Node
Application Server Operating System	Linux/Windows
Web Server Operating System	Linux/Windows
Database Server Operating System	Linux/Windows
Database (Enterprise version)	Robust RDBMS Software (Enterprise edition) viz. Oracle/MS Server/equivalent

	Enterprise Editions/ equivalent Enterprise Version of Open Source RDBMS
Security Technologies	SSL, Data Encryption
Application Communication technologies	http, https, xml, SOAP, WSDL, UDDI

Reputed RDMS software database viz. Oracle/MS Server/equivalent Enterprise Editions/ equivalent Enterprise Version of Open Source RDBMS as being utilized in RLDC/SLDC/NLDC.

2.0 Chapter 2: Hardware Architecture for Data Centre and DR

i. Typical hardware requirements for a centralized data center (DC) are as under:

d) For storage of complete database of the system, SAN Storage system is to be provided (storage sizing to be done for availability of usable storage capacity for 7 years data storage). SAN shall connect with database servers over Fiber Channel using redundant SAN Switch. SAN Storage system shall store the complete database using RAID configuration. Database of the system on SAN shall contain all the data of ABT, Reports, Open Access, Automated Meter Reading and other software system in any one of the provided Industry Standard robust RDBMS Software (Enterprise edition) viz. Oracle/MS Server/equivalent Enterprise Editions/ equivalent Enterprise Version of Open Source RDBMS.

2.6 SAN (Storage Area Network)

A SAN (Storage Area Network) based storage shall be provided for minimum 7 Years Data storage & shall be sized adequately for storage capacity. SAN storage capability shall be scalable up to 100% of the delivered SAN. The SAN should have replication feature for replication of data to disaster recovery site. This shall be of reputed make like HP, Dell, Fujitsu, IBM or equivalent.

The following are various storage requirements for SAN box:

- i. Various Applications and Databases hosted in the servers
- ii. Development/testing databases
- iii. Any others backup required for the Systems.

Minimum requirement of SAN configuration is mentioned below:

Table 6 SAN (Storage Area Network)

Sl. No.	Item	Characteristic/Features
1	Feature	Dual controller with dual 230 V AC Input Power Supply. The storage should support connectivity with current latest version of windows/Linux/VMware etc.

2	Storage Capacity	Minimum 15 TB usable capacity in RAID with Hot pluggable redundant SAS SSD disks
3	Spare HDD	1 Disk should be configured for hot spare
4	Expandability	50% spare slots required
5	RAID	Capable for RAID 0,1,5,6,10 configuration
6	SAN Type and Interface ports	Fiber channel - Minimum 4 x 16 Gbps Fiber channel Ports per controller should be available for connecting with Data base (host) servers.
7	Snapshot feature	Snapshot feature enabled with required licenses for whole capacity
8	Replication	Optional Storage to Storage Replication feature
9	Thin provisioning	Thin provisioning capacity enabled with required license for whole capacity
10	Hard Drives	SAS SSD
11	Back Up Agent	Should be compatible with supplied backup agent/software for image/incremental back up.
12	Management	The storage will support CLI, Web and rest API based management
13	Preferred Manufacturer	Leader's quadrant of Latest Gartner's Magic quadrant Report
14	Number of Controllers	2 Minimum
15	Controller Cache	Min 12GB per controller
16	Availability	There must not be any single point of failure in entire storage solution. Storage solution must have minimum dual active controllers
17	Warranty and Support	Five years on-site comprehensive OEM Warranty Support with 24x7 coverage and access to OEM TAC/support

5.0 Chapter 5: Detail architecture of development, testing & production phase of software modules:

Deployment Architecture:

Figure 9 IT Infrastructure for Control Centre

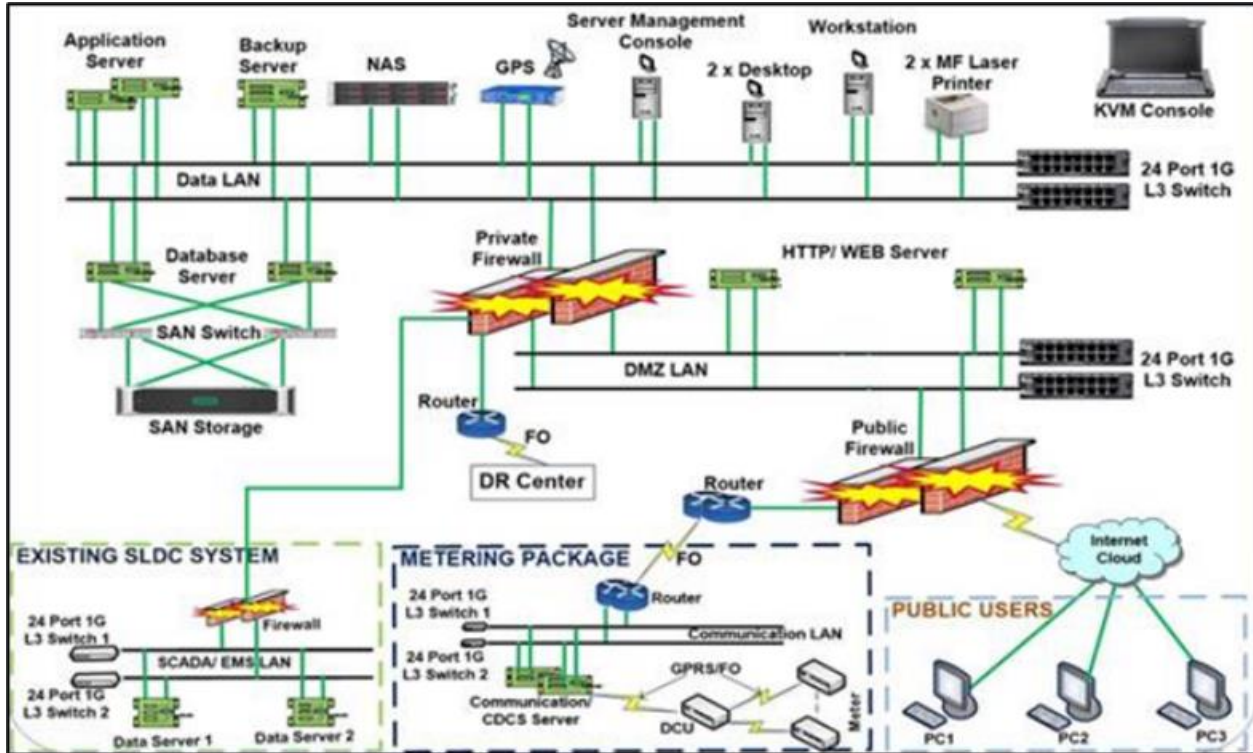


Figure 10 IT Infrastructure for Disaster Recovery System

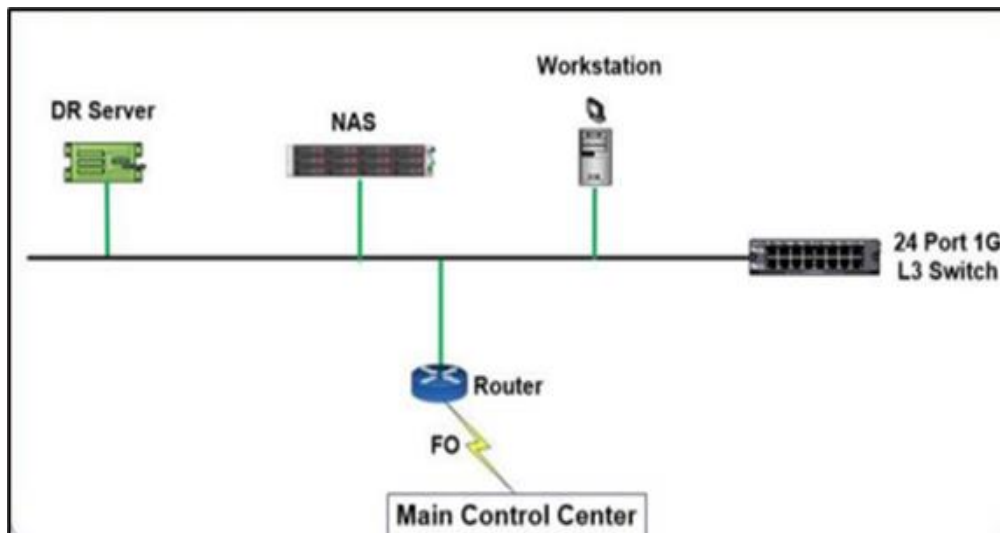
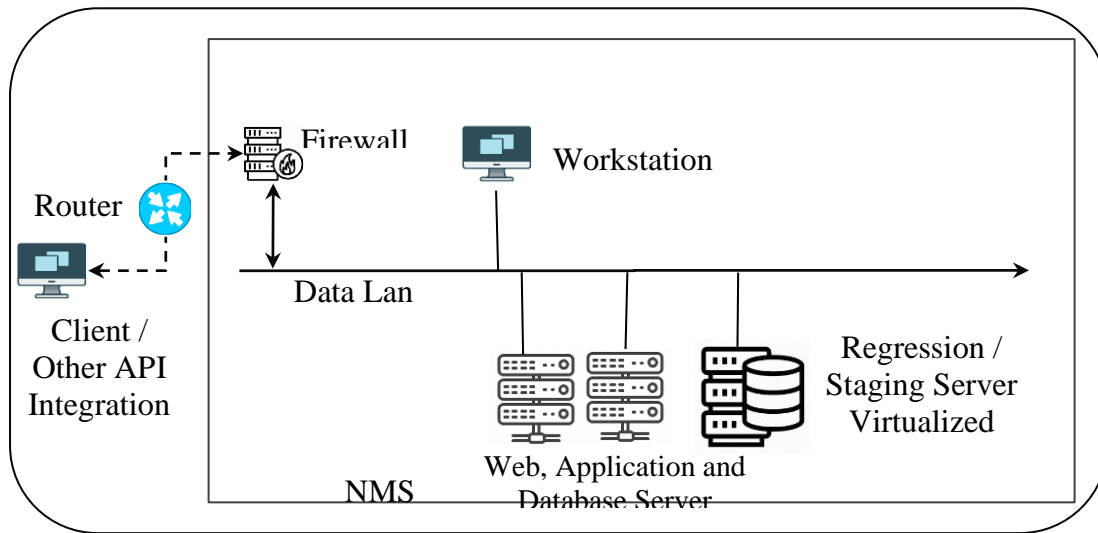


Figure 11 IT Infrastructure for Regression and Deployment (Staging)



Network Diagram

The major components that are considered in the system architecture proposal are Web server, Application server, Database Server, Backup Server, SAN, NAS, Firewall and other network components.

The Development and Staging/ Testing environment will be established by creating virtual machines that can be used to host corresponding application/web/Database applications curved from any of the available servers in Data LAN. These VMs will be installed on the existing deployment servers which are running in the Active and Backup server configuration in one of the servers. The position of the development and testing environment can be decided at the time of detailed engineering based on the load and size constraints.

The application server shall host the Web Interface, Backend Business Logics, and APIs to interact with the other software modules. A file system shall be created in this server to store and manage all the images / files that shall be captured during the image collection process & scrutiny process. The database server shall be used to host the robust RDBMS Software (Enterprise edition) viz. Oracle/MS Server/equivalent Enterprise Editions/ equivalent Enterprise Version of Open Source RDBMS which shall predominantly manage the datasets of the entire project during its lifecycle.

The system shall include redundant Application, Database, Web & AMR (MDAS) servers. They shall work on a 100% load sharing basis. In case of failure of one server, the other should take over the load of it.

Table 24 Server functions

S. No.	Server	Purpose
1	Application Servers	For Installation of all Applications of SAMAST IT Solutions
2	Database Servers	Management of complete database of System
3	Web Servers	For installing HTTP Server Software which acts as a web Server that is used for serving HTTP requests
4	AMR (MDAS) Servers	For ABT Meters data availability & communication of meters Data to Applications/Database Server of SAMAST Data Center

(B) Reply of SLDC to the additional queries raised by bidders w.r.t. to Tender Notice No. SLDC-01/2023-24:

Sl. No	Clause no & Page no	Tender Specification	Bidder's queries	SLDC reply
1	Revised Technical Specifications (Part-I, Section-V) of the Corrigendum-II to Tender Notice No. SLDC-01/2023-24 Table-6 SAN (Storage Area Network), Point No. 13	Preferred Manufacturer - Leader's quadrant of Latest Gartner's Magic quadrant Report	Kindly give us an understanding for this point, here it is mentioned preferred manufacturer only, so does it implies can we go with other manufacturers as well? We humbly suggest that it should not be any particular brand specific, kindly please clarify or confirm for this point as well in upcoming corrigendum	This is preferred. Granter quadrant evaluates every OEM with many parameters which includes market share and support. However, product of other OEM's are not barred from participation in tender.
2	CORRIGENDUM – I, Page No. 77, Sr. No. 17	Min 2 sockets should be populated and should have provision for additional 2 sockets.	The two sockets containing processors should adequately support the proposed SAMAST applications. Nevertheless, if there is a need for servers with four sockets and two populated processors, we request you to please specify this requirement explicitly in the corrigendum.	Either can provide server with 4 socket provision or provide the additional sever based on the performance requirement. However the additional expenses beyond the BoQ shall be borne by SLDC.
3	CORRIGENDUM – I, Page No. 79, Sr. No. 6	Either can provide server with 4 socket provision or provide the additional sever based on the performance requirement		

4	CORRIGENDUM – II, Page No. 25, Point No. 2.4.1	COMMON SPECIFICATION FOR DATABASE/ APPLICATION/ WEB/AMR (MDAS) SERVERS	The Common specifications for the database, application, web, and AMR (MDAS) servers can be found in Corrigendum-II. However, there seems to be a discrepancy between the initial tender specifications in sections 2.4.2, 2.4.3, and 2.4.4, which request different specifications. Could you please clarify whether we should use the common specifications outlined in Corrigendum – II, Page No. 25, Point No. 2.4.1 for DATABASE/APPLICATION/ WEB/ AMR (MDAS) SERVERS in place of the initial tender specification’s sections 2.4.2, 2.4.3, and 2.4.4?	The specifications outlined as per the CORRIGENDUM – II, Page No. 25, Point No. 2.4.1 are to be considered for bidding. However the CORRIGENDUM-II should be read along with CORRIGENDUM-III and CORRIGENDUM-IV.
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(C) The revised Technical Specifications (Part-I, Section-V) of the Corrigendum-II to Tender Notice No. SLDC-01/2023-24 should be read along with the Corrigendum-III and Corrigendum-IV to Tender Notice No. SLDC-01/2023-24. The bidders are hereby requested to go through them before submitting the bid.

All other specifications and clauses of Corrigendum-II and Corrigendum-III to Tender Notice No. SLDC-01/2023-24 remain unaltered.

Sd/-

Director (SLDC)