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1. Introduction

The Eskom's Multi-Service Access Protocol (MSAP) network is used for the provisioning of telecommunication for operational technologies (OT). It service transmission, part of distribution and part of independent power producers (IPP).

The network management system provisioned is for a network with 50 network elements while the network currently has 200 network elements and will grow to more than 300 network elements. In addition to this, the network management platform is deployed with no redundancy in place and the operators when using the platform to create circuits have experienced intermittent glitches.

A new version of the network management has been released, which addressed all technical glitches on the current version installed in the Network Management Centre (NMC). It is thus proposed that the network management system be upgraded to a new version and that above concern be addressed with this upgrade.

Virtual Machine (VM) resources are not available to host the upgrade and standalone servers must be used instead.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.1.3 Effective date

This document is effective from the authorisation date.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9001, Quality Management Systems

[2] 240-62939612, Multi Service Access Platform Phase 0 Design Standard

[3] 240-123281947, BME technology replacement, Technical Instruction

[4] 240-135089195, Generic Technical Requirements for Eskom Contracts

[5] 240-55410927, Cybersecurity standard for Operational technologies

[6] 240-84323647, Network management centre redundancy standard

[7] ETPN1263, Quality Acceptance of Projects

[8] ETFM 1144, Generic QA Tick Sheet For Projects

2.2.2 Informative

[9] 240-86458714, Generic requirements specification for a telecommunications network management solution

[10] 240-135089195, Generic Technical Requirements for Eskom Contracts

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2.3 Definitions

N/A

2.3.1 Document:

2.4 Abbreviations

Abbreviation	Explanation
DC	Data Centre
DR	Disaster Recovery
OTN	Optical Transport Network
MSAP	Multiservice Access Protocol
NMS	Network Management System
NPAE	National Planning and Application Engineering
REH	Regional Engineering Head
RTT	Round Trip Time
SDH	Synchronous Digital Hierarchy
TDRT	Telecommunications Design Review Team

2.5 Roles and Responsibilities

Suppliers are responsible for responding to the enquiry with a technical proposal.

2.6   Process for Monitoring

The implementation of this document will be through a procurement/commercial process. The management of the document will be done according to Eskom's document and records management standards.

2.7   Related/Supporting Documents

N/A

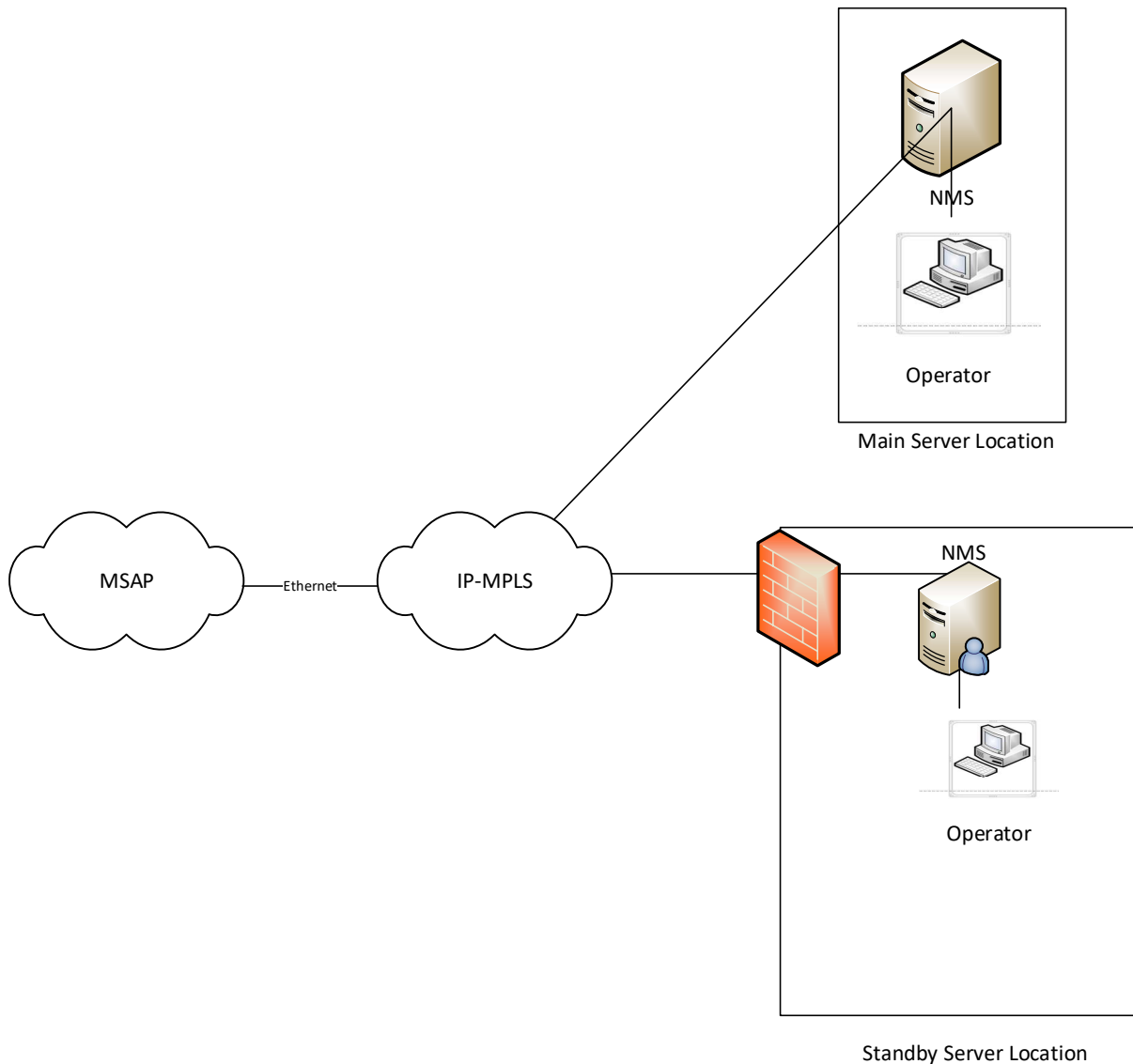## 3.   MSAP NMS Upgrade Design Details and Financials

3.1   Network Architecture

Figure 1 below depict the topology adopted for the MSAP NMS design to be implemented. Two servers will be deployed, one at Simmerpan, which will be the main server and the other at Sunilaws, which will be the standby server. Both servers need to be visible to the operators located at East London NMC. The bandwidth required between the servers for replication is 10Mb/s minimum (20Mb/s recommended by supplier)

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Figure 1: Proposed architecture

3.2 Standby site selection

Sunilaws is the designated DR site to host the standby NMS.

3.3 Server requirement

The requirement for the servers to be used to host the NMS is listed in the table below.

Table 1: Server requirement

CPU	Intel Xeon 48 Core
RAM	Min 128Gb
HDD/SDD	500GB, RAID 1 or higher recommended
Interface	2x 1000BaseT interface plus additional ethernet interface for office LAN
Operating system and licenses	Red Hat Linux Enterprise Linux Release 8.3 64-bit and licenses

Server Power and rack space requirement is summarized below:

Table 2: Power supply and space requirement for each server

	Voltage	Power (W)- Supplier to specify	Servers Qty	Space (u)- Supplier to specify	Server type- Supplier to specify	Power sufficient - Eskom to decide
Main	230Vac		1			
Standby	230Vac		1			

3.4   Scope of Work

3.4.1 Product description requirement

- Supply, delivery and installation of the 2x servers as per requirements specified above.
- The supplier should provide all hardware required to mount the servers in a 19" rack.
- The servers should have the operating system specified installed.
- All necessary licenses should be part of the offering.

3.4.2 Support requirement

This is as described in [2] 240-135089195 Generic Technical Requirements for Eskom Contracts

3.4.3 Maintenance, repair and replacement service

This is as described in [2] 240-135089195 Generic Technical Requirements for Eskom Contracts

4.   Revisions

Date	Rev.	Compiler	Remarks
September 2021	1	B Thakadu	First Draft

5.   Development Team

The following people were involved in the development of this document:

- David Thakadu

6.   Acknowledgements

- Bongani Shezi