THE PROVISION OF SERVICES TO STRENGTHEN SAP S/4 HANA RESILIENCE THROUGH ENHANCED DISASTER RECOVERY CAPABILITIES AT TPT QUEENS WAREHOUSE DATA CENTRE AT TRANSNET SOC LTD (REG. NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") FOR A ONCE OFF PERIOD.

SCOPE OF WORK

Document reference	Title	No of pages
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PROVISION OF SERVICES TO STRENGTHEN SAP S/4 HANA RESILIENCE THROUGH ENHANCED DISASTER RECOVERY CAPABILITIES

1. INTRODUCTION

Transnet Port Terminals (TPT) is committed to enhancing the resilience and reliability of its SAP S/4 HANA infrastructure by strengthening disaster recovery (DR) capabilities at its Queens Warehouse data centre. While the primary production site at Straddle Workshop operates with full functionality, the DR site currently lacks the necessary compute and memory resources to support a complete failover scenario for SAP S/4 HANA.

This project seeks to address these limitations by reinstating an unused IBM S924 server, upgrading memory on the existing IBM Power9 system, and extending the Metro Mirror replication configuration to include SAP S/4 HANA logical unit numbers (LUNs). The successful execution of this initiative will ensure that the DR site can support full failover and failback operations, thereby aligning with TPT's business continuity and high availability objectives.

2. BACKGROUND

Transnet Port Terminals (TPT) operates two data centres in Durban:

- Straddle Workshop – Primary Production Site

- Queens Warehouse – Disaster Recovery (DR) Site

Both sites are equipped with IBM Power 9 servers connected to V7000 storage arrays via Brocade SAN switches. While the production environment is stable and fully operational for SAP S/4 HANA, the DR site currently lacks sufficient compute and memory resources to support a full failover. Additionally, the SAP S/4 HANA LUNs are not yet mirrored to the DR site.

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3. SCOPE OF WORK
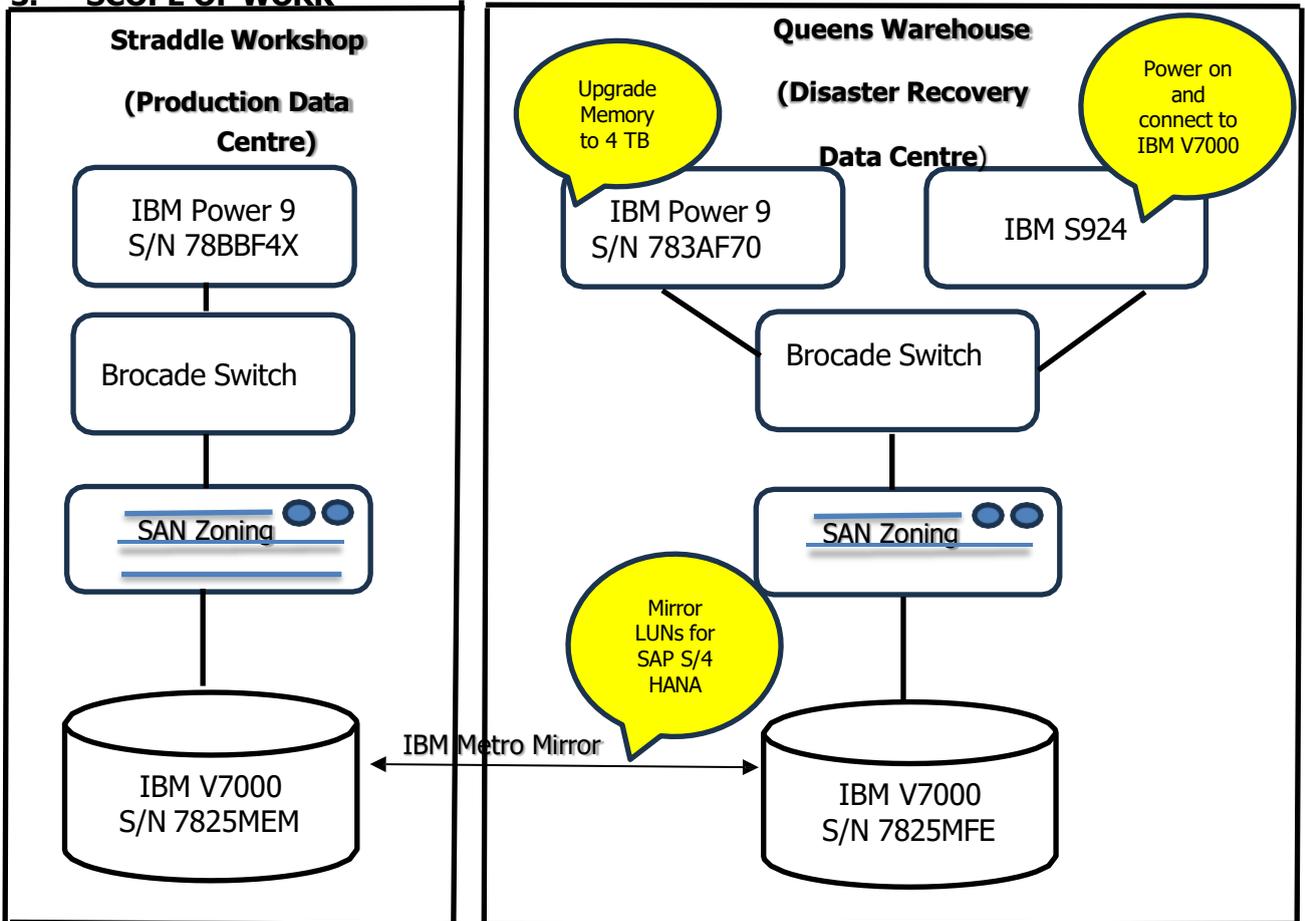
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3.1 Power on IBM S924 Server in Queens and connect it to TPT V7000

The IBM S924 server at Queens Warehouse is currently unused. It is currently powered off.

Pre-Implementation Requirement:

The service provider must conduct a full inspection of the IBM S924 server prior to quoting. Any required repairs (including parts and labour) to restore the server to operational condition must be included in the proposal.

Tasks:

a) Power IBM S924 and it to the existing V7000 storage system.

b) Create a new LPAR for DR purposes.

c) Install SUSE Linux on the new LPAR.

d) Assign and cable a Fibre Channel adapter to the TPT SAN switch.

e) Perform SAN zoning.

f) Map replicated SAP S/4 HANA LUNs to the new LPAR.

g) Conduct a failover test and verify that the LPAR can successfully start in DR mode.

Resources Required:

a) IBM Certified Engineer (CE)

b) V7000 Storage Specialist

c) OM3/OM4 Fibre Channel cables (to be supplied if not already available)

Goods and Services Required:

All inspection, repair, and labour costs required to restore the IBM S924 server to operational condition must be fully quoted in the service provider's proposal.
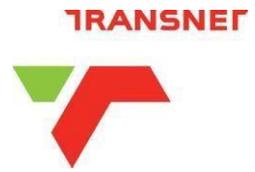
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Task completion checklist:

Task	Status	Remarks
IBM S924 inspected and repaired (if needed)	☐	
IBM S924 connected to V7000 storage	☐	
DR LPAR operational	☐	
SUSE Linux installed	☐	
SAN zoning completed	☐	
LUNs mapped	☐	
DR failover test passed	☐	

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3.2 Memory Upgrade on IBM Power 9 (MODEL 9009-22A)

Current Configuration:

- 8 x EM6Z 16GB DDR4 Memory DIMMs

Upgrade Plan:

- Remove existing DIMMs

- Install 8 x IBM EM7C 128GB DDR4 Memory DIMMs (second-user hardware)

Goods:

- 8 x IBM EM7C 128GB DDR4 Memory DIMMs (second-user hardware)

- 12-month parts warrantee on goods

Services:

- After-Hours Installation

- Installation Labour

Note: Memory modules must be procured and confirmed on-site prior to installation.

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Task completion checklist:

Task	Status	Remarks
Confirm availability of 8 x IBM EM7C 128GB DDR4 DIMMs on-site	☐	
Verify 12-month parts warranty on memory modules	☐	
Schedule after-hours or weekend downtime (if server shutdown is needed)	☐	
Remove existing 8 x EM6Z 16GB DDR4 DIMMs	☐	
Install 8 x IBM EM7C 128GB DDR4 DIMMs	☐	
Verify successful boot and memory recognition post-installation	☐	
Document installation and update asset records	☐	

Please note that if the server is required to be shut down, downtime may only be granted after hours or on a weekend.

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3.3 Metro Mirror Configuration for SAP S/4 HANA

Current Status:

Metro Mirror is already operational for the existing SAP ERP 6.0 EHP5 environment, and DR is functioning successfully for that system.

Tasks:

- Extend the Metro Mirror configuration to include SAP S/4 HANA LUNs.

- Validate replication integrity.

- Perform and document failover and failback tests.

- Compile SOP document to fail over and fail back for SAP S/4 HANA DR using IBM Metro mirror

Task completion checklist:

Task	Status	Remarks
Extend the Metro Mirror configuration to include SAP S/4 HANA LUNs	☐	
Validate replication integrity	☐	
Perform and document failover and failback tests	☐	
Compile SOP document to fail over and fail back for SAP S/4 HANA DR using IBM Metro mirror	☐	

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4.   Failover and Failback for SAP S/4 HANA DR Using IBM Metro Mirror

4.1 Preparation Before DR Test

- Confirm that Metro Mirror replication is active and synchronized for SAP S/4 HANA LUNs.

- Ensure the DR LPAR is ready.

- Inform all relevant stakeholders about the planned DR test.

- Back up critical data and system configurations.

4.2 Simulated Failover from Production (PRD) to Disaster Recovery (DR)

- Pause Metro Mirror replication to make DR LUNs writable.

- Power on the DR LPAR and boot into SUSE Linux.

- Mount SAP S/4 HANA file systems and start SAP services.

- Test application functionality and confirm user access.

- Notify stakeholders that the DR environment is now active.

4.3 Simulated Failback from DR to Production (PRD)

- Shut down SAP services on the DR LPAR.

- Re-enable Metro Mirror replication from DR back to PRD.

- Wait for replication to fully synchronize.

- Power on the PRD LPAR and boot into SUSE Linux.

- Mount SAP S/4 HANA file systems and restart SAP services.

- Confirm application functionality and user access in PRD.

- Notify stakeholders that the PRD environment is restored.

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4.4 Post-Test Activities

- Record test results and note any issues encountered.

- Update this SOP if any steps or configurations have changed.

- Verify that Metro Mirror replication is active and healthy.

- Archive logs and documentation for audit and future reference.

4.4 Compile SOP for TPT for DR for SAP S/4 HANA

Develop a clear and easy-to-follow SOP outlining all steps for failing over and failing back SAP S/4 HANA DR using IBM Metro Mirror, ensuring it can be confidently executed by TPT administrators in future scenarios.

5.   Project completion criteria

Please refer to SAP_S4HANA_DR_Job_Completion_SignOff.docx attached.

6.   Timeline

Project Duration: 2 weeks

All tasks—including inspection, hardware upgrades, configuration, and testing—must be completed within this timeframe.

Precondition: All required hardware components, including memory modules and any replacement parts for the IBM S924, must be available before the project begins.

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7. Essential Returnable Documents

7.1 IBM Business Partner Status

Acceptable Evidence: Formal letter on company letterhead confirming a vendor's Business Partner status.

7.2 IBM Power Systems Certification (Power9 or later)

Acceptable Evidence: IBM-issued technical certification for Power Systems (e.g., "IBM Certified Specialist – Power Systems") or

Formal letter from IBM on company letterhead confirming the vendor's technical competency on Power Systems.

7.3 IBM Storage Certification (V7000 and Metro Mirror)

Acceptable Evidence:

IBM Storage certification for Storwize V7000 or IBM Flash System (which includes V7000 or later)

7.4 IBM Metro Mirror experience

We are seeking documentation of projects or deployments conducted within the past three years involving the IBM V7000 storage system and Metro Mirror technology. The documentation should be supported by client references, including an authentic letter from the customer who received the service. This letter must be printed on the customer's official company letterhead.