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Technical Requirements

Managed Bandwidth Connectivity for UMP Mbombela

RFP No. 3304/28/06/2019

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Glossary

Abbreviation	Term	Description
CAC	Customer Acceptance Certificate	Certificate of Acceptance that the SANReN customer needs to sign off on when civil work is done on the SANReN customer's premises.
CSIR	Council for Scientific and Industrial Research	A statutory body established in terms of Scientific Research Council Act 46 of 1988, as amended.
GIS	Geographic Information System	A system designed to capture, store, manipulate and visualise spatial or geographic data.
ITU	International Telecommunication Union	
LC/APC	Lucent/Little/Local Connector - Angled Physical Contact	Fibre optic connector of the LC type with angle-polishing on fibre end-face.
	Protected Service	Two diverse routes between 2 sites. The service is provisioned as an Active/Passive service. When the active link is down, the service provider is responsible to switch traffic onto the passive link between the 2 sites. A minimum uptime of 99.9% is required.
PoP	Point of Presence	Location where networking equipment may be accessed.

Abbreviation	Term	Description
	Redundant Service	Two diverse routes between 2 sites. SANReN will use the diverse routes as an Active/Active service and is responsible for the routing/switching between sites. A minimum uptime of 98% per link is required. SANReN does not require the Service Provided to have redundant equipment on either site.
RU	Rack Unit	Unit of measure describes the height of electronic equipment designed to mount in a 19-inch rack. One rack unit is 1.75 inches (44.45 mm) high.[1]
RFP	Request for Proposal	A request for organisations and companies to submit a proposal to supply goods and services to CSIR
SANReN	South African National Research Network	The South African National Research Network (SANReN) is a high-speed network dedicated to science, research, education and innovation traffic.

UMP Mbombela Link

1 Introduction

Respondents are invited to offer a 1 Gbps or 10 Gbps Managed Bandwidth service from the Tshwane University of Technology (TUT), Mbombela campus to the University of Mpumalanga (UMP) Mbombela campus for a period of 5 years. This service must be Redundant or Protected as per the definitions above.

2 Requirement Level Keywords

To eliminate ambiguity, respondents are to interpret the meaning of functional (technical) requirements using the keywords; "must", "must not", "required", "shall", "shall not", "should", "should not", "recommended", "may", and "optional", as defined by the IETF RFC (Request For Comments) document designated as RFC2119. A copy of RFC 2119 is attached as Annexure J - RFC 2119.

3 Network Design

3.1 Context/Background

The CSIR requires network connectivity from the UMP Mbombela campus to the TUT Mbombela campus.

Respondents are invited to offer a redundant or protected 1Gbps or 10Gbps Managed Bandwidth service to cater for the requirement above. The underlying infrastructure for this service must be on fibre.

3.2 Capacity

The capacity required for this service is 1 Gbps or 10Gbps provisioned on the fibre infrastructure. No other solutions are acceptable.

3.3 Network Design Philosophy

Respondents are requested to take note that network descriptions (including diagrams) serve to communicate SANReN's intent from a logical networking point of view. The

mapping of a logical topology onto physical infrastructure may introduce common failure points that are not obvious from the logical design.

SANReN is aware that it is not always feasible (in terms of cost and time constraints) for bidders to offer services that map cleanly from the logical design to physical infrastructure (in other words, without introducing common failure points), and it is therefore necessary to find a compromise on the acceptable level of failure risk.

In order to make the above determination, SANReN requires detailed information on the underlying physical infrastructure. Respondents shall disclose this information with at least the level of detail necessary to identify shared infrastructure within the scope of the bid, including the physical location of cable routes and equipment, so that SANReN may independently determine where such locations are shared with other providers (e.g. a cable in the same road reserve, or equipment in the same building) that SANReN could be obtaining services from.

In practical terms, this means that bids shall include both outside and inside plant diagrams, and geographical route maps (these maps should be provided in a standardized electronic GIS format).

The service is expected to be on optic fibre end-to-end. Partnership solutions must be specified and completed as one bid, identifying the partnership members and their individual responsibilities for service delivery.

3.4   Network Diagram

The network diagram illustrates generic solutions. The existing SANReN PoPs are indicated for connection to the required infrastructure. Respondents must adapt the sample design for an optimal implementation topology (optimizing for a balance of cost and reliability) given infrastructure available.
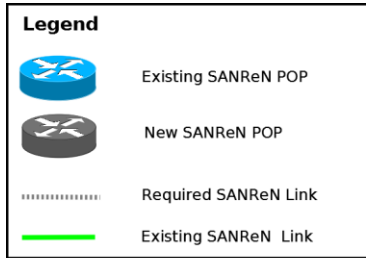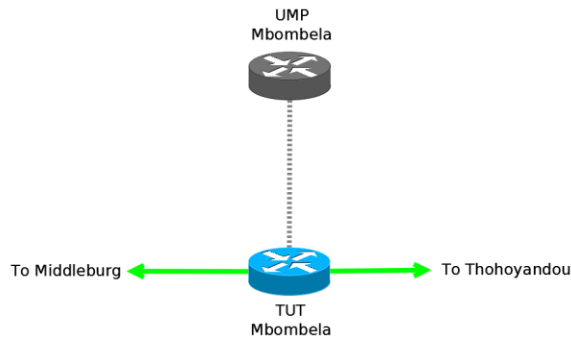
Figure 1: Proposed topology

3.5 Links Required

Table 1: Required Links

Link Number	Site A	Site B	Bandwidth Capacity
1	TUT Mbombela	UMP Mbombela	1/10 Gbps

4 Sites Details

Table 2 contains names, addresses and GPS co-ordinates of the places where the CSIR would like the network to terminate as shown below:

Table 2: Site Details

Name	Address	Co-ordinates	Contact details
Site A: TUT Mbombela	General Dan Pienaar Road, Techno Drive, Nelspruit, 1201	Latitude:- 25.500500 Longitude: 30.954700	Name: Gerhard Van Niekerk, Mobile: 082 902 4797
Site B: UMP Mbombela	Lowveld Agric Campus R40, Mbombela	Latitude: -25.435523 Longitude: 30.982823	Name: Joel Vele Phone: (013) 002 0115 Mobile: 082 617 7109 Email: Joel.Vele@ump.ac.za

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5 Technical Compliance

Respondents shall note the evaluation criteria applicable and the weights attached to each criterion and complete the Technical Compliance Matrix accordingly. Respondents are required to complete the tab titled "**TUT to UMP Mbombela Link**" in the "Technical Compliance Matrix for Managed Bandwidth.xlsx" spreadsheet in response to this RFP.

5.1 Technical Elimination Criteria

The table below specifies the elimination criteria applicable to this RFP. Bids failing to comply with these criteria will be eliminated.

Table 3: Technical Elimination Criteria

Criterion Name	Required Response	Compliance	Result Yes/No
Links capacity is 1Gbps or 10Gbps committed rates.	Provide the capacities required	Confirm compliance.	
Circuits are end-to-end and based on fixed-line fibre infrastructure.	Provide a service description that is end-to-end.	Show compliance by means of a service description.	
Service quality is managed.	Provide the fault handling information	Confirm that faults will be repaired and fault handling information is provided.	

5.2 Technical Evaluation Criteria

- The evaluation of the technical detail of the proposal will be based on the Technical Compliance Matrix (in spreadsheet format).

- The bidder must complete the Technical Compliance Matrix in accordance with the instructions tabled in the Technical Compliance Matrix spreadsheet. The Technical Compliance Matrix is a mandatory submission designed to facilitate evaluation.

- Proposals with technical points of less than the pre-determined minimum overall percentage or less than each specific minimum in the Technical Compliance Matrix on any of the individual criteria category will be eliminated from further evaluation.

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6   Reliability

6.1   Network Management Facilities

End-to-end maintenance services must be offered, i.e. the supplier must maintain the End-to-End Managed Bandwidth on CSIR's behalf. As such, all bids must include an SLA (Service Level Agreement) as part of its solution. SANReN's minimum acceptable uptime per link is 98% (calculated per annum). Bidders shall provide the details of the service levels offered. Bids received without SLA proposals will be eliminated. The capacity required for the link is 1Gbps or 10Gbps provisioned on fibre technology.   No other solutions are acceptable.

The service level details required are:
● Mean Time To Repair information;
● Fault Response Times;
● Fault Logging Procedures offered;
● Maintenance down time procedures and advance warning procedures;
● Fault Monitoring and Alerting capability;
● Technical support personnel locations;
● Maximum restoration times offered;

The bidder must specify whether the link being provided in this tender will be actively monitored or not. If the link is actively monitored, the bidder to provide SANReN or a SANReN designated party regular notifications on the status of the link and other specific details when requested.

7   Pricing Information Required

7.1   Pricing Schedule

Complete a copy of the Pricing Schedule with the Title "Pricing Schedule ARC and UMP". The pricing schedule has four TABS for Project 1, 2, 3 and 4 and bidders can complete the tab for the Project they are bidding for.

7.2   Price Preference Points System

The 80/20 Price Preference Point System will be used to evaluate the pricing proposal for this sub-project RFP.

7.3   Contract Durations

The Managed Bandwidth network contract duration will be **five (5) years**.

8   Acceptance Documentation

In accepting a link, SANReN will require a number of documents:

● Test results (ATPs) for each link
● As-built documentation and CACs for the access builds at the end points if applicable

8.1   Test results

The test results are to be provided for each link tested. The following information must be included on the Test Result Sheet / Acceptance Test Sheet:

● 24 hour soak test results
● BER Test results
● Routing geographical maps

8.2   Customer acceptance certificates

For new access builds, CACs need to be signed off to ensure that all involved parties are satisfied with the work done by the supplier.