



## **Technical Requirements**

# **The Provision of Managed Bandwidth Connectivity for University of Venda for the CSIR based in Pretoria**

**RFP No. 3354/07/02/2020**

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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.
PoP	Point of Presence	Location where networking equipment may be accessed.
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. <sup>1</sup>
RFP	Request for Proposal	A request for organisations and companies to submit a proposal to

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<sup>1</sup>

Abbreviation	Term	Description
		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.

# UNIVEN Link

## 1 Introduction

Respondents are invited to offer a 10 or 20 or 100Gbps Managed Bandwidth point-to-point link from the Unisa Makhado campus to the University of Venda (UNIVEN) Thohoyandou campus, Limpopo for a period of 5 years.

## 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 Unisa Makhado to University of Venda(UNIVEN) Limpopo campus. Respondents are invited to offer a point-to-point 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 link is 10Gbps or 20Gbps or 100Gbps 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 10Gbps/20Gbps/100Gbps link 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.

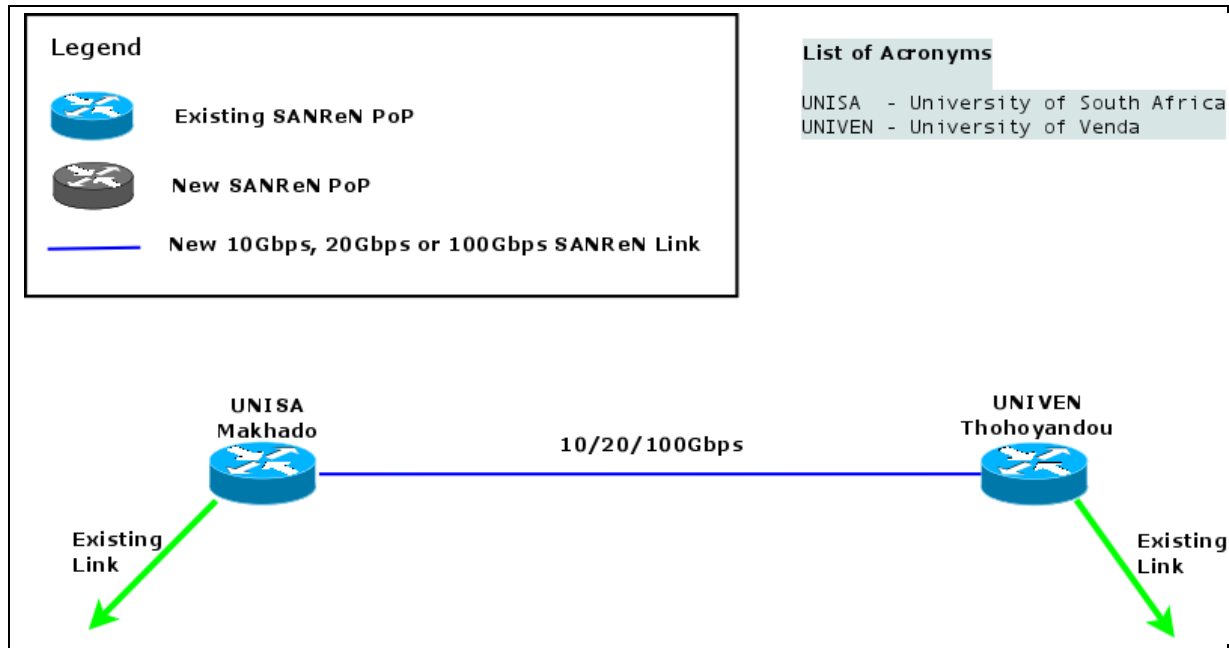


Figure 1: Proposed topology

### 3.5 Links Required

Table 1: Required Links

Link Number	Site A	Site B	Bandwidth Capacity
1	Unisa Makhado	UNIVEN Thohoyandou	10/20/100 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**

<b>Site Name</b>	<b>Address</b>	<b>Co-ordinates</b>	<b>Contact details</b>
Unisa Makhado	Office No 2, 93 Krogh St, Louis Trichard, 0920	Latitude:- 23.041600 Longitude: 29.907100	Name: Peter Bronkhorst Work: 0124293753 Email: PBronkho@unisa.ac.za
UNIVEN Thohoyandou	Main Campus, University Rd, Thohoyandou, 0950	Latitude: - 22.976965 Longitude: 30.446870	Name: Joel Vele Work: 015 962 8320 Email: velenj@univen.ac.za

## 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 “**Unisa Makhado to UNIVEN 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**

<b>Criterion Name</b>	<b>Required Response</b>	<b>Compliance</b>	<b>Result Yes/No</b>
Links capacity is 10/20/100Gbps 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 with a link availability of	Provide the fault handling information	Confirm that faults will be repaired and fault	



Criterion Name	Required Response	Compliance	Result Yes/No
98%.		handling information is provided. The link's availability will be maintained at 98%.	

## 5.2 Technical Evaluation Criteria

- The evaluation of the technical aspects 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 predetermined 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.

## 6 Link Requirements

The link must comply with the following requirements:

1. The link must be provisioned on fixed line infrastructure.
2. All equipment deployed at the specified sites must be AC powered (220V 50Hz).
3. The link handoff must be an Ethernet handoff (LAN Phy)
4. The link must support Link Loss Forwarding
5. The link must support Jumbo Frames
6. The link must terminate on active equipment at the sites specified above.

Over and above these requirements, the bidder must provide a high level service routing diagram and indicate where shared physical infrastructure exists between this link and any other links that CSIR/SANReN obtains from the bidder.

## 7 Reliability

### 7.1 Service Requirements

The CSIR requires that a minimum end-to-end up-time of 98% (calculated per quarter) to be maintained for the service. To manage these requirements, the CSIR requires all bidders to include an SLA (Service Level Agreement) as part of its solution. Bids received without SLA options will be eliminated. The SLA shall provide the details of the service levels offered and as a minimum comply with the following criteria:

1. 24/7 access to a Network Operations Centre (NOC) to log support requests;
2. Maximum response time of 4 hours; and
3. Maximum service restoration time of 8 hours.

Over and above the requirements above, the bidder must provide the following information in the SLA:

1. Mean Time To Repair;
2. Same day response, Working day response only, etc.; and
3. Procedures for scheduled reporting of incidents & performance measurements.

## **7.2 Maintenance**

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.

Details about the following aspects of the bidder's maintenance and support capabilities are required in order to evaluate the quality of the maintenance that the bidder will provide with respect to this link details on their:

1. Proactive Maintenance Activities;
2. Fault Logging Procedures;
3. Maintenance down time procedures and advance warning procedures;
4. Fault Monitoring and Alerting capability; and
5. Customer responsibilities indicated.

These details must be provided in the relevant section in the Technical Compliance Matrix.

## **8 Project Plan**

Bidders must submit a project plan and schedule for this Project. The project plan must, at a minimum, cover the following items:

1. Planning activities
2. Last Mile Civil Works (if applicable)
  - a. Way Leaves
  - b. Trenching
  - c. Blowing Fibre
3. Circuit Provisioning
  - a. Equipment procurement
  - b. Equipment deployment
  - c. Equipment configuration
4. Link Testing
5. Handover

## **9 Acceptance Documentation**

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

1. Test results for each link
2. CACs for the access builds at the end points (if applicable)
3. As-deployed documentation

### **9.1 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:

1. 24 hour soak test results
2. BER Test results
3. Routing maps (Logical or Physical) of the actual service that was provisioned.

### **9.2 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.

### **9.3 As-deployed documentation**

A hand over report is required by SANREN. This should contain the following:

1. Photographs of the deployed equipment at each end-point with clearly identifiable and labelled demarcation points.
2. All of the test results as indicated in the section above
3. Any applicable CACs

## **10 References**

All bidders must provide details for three (3) references for similar projects. The references must cumulatively be able to testify to the bidder's capability in:

1. Provisioning high speed (10Gbps/20Gbps/100Gbps) national point-to-point services on Fibre; and
2. Providing support and maintenance of provisioned cross-country services.

The following details need to be available per reference:

1. Name of Company
2. Name of account manager that the bidder has dealt with (optional)
3. Contact details for the company/account manager (email or telephone number)
4. Reference letter from company/account manager (optional)