

RFP 14/2016

NETWORK CARRIER AND INFRASTRUCTURE SERVICES

BUSINESS REQUIREMENTS SPECIFICATION

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RFP 14/2016

Network Carrier and Infrastructure Services

Business Requirements Specification

This document forms part of the RFP 14/2016 pack. The document sets out the business requirements that SARS has for Network Carrier and Infrastructure Services (Data Carrier Services Tower; Voice Carrier Services Tower, Internet and Hosting Services Tower and the SMS Carrier Services Tower) and the models under which the Services are to be provided.

1 USAGE OF TERMS IN THIS DOCUMENT

1.1 Glossary Table

The capitalised terms in this document have the meanings given to them in the glossary table below. The Bidder is referred to paragraph 2.2 of the *RFP Main Document* (SARS RFP 14-2016 1-1 Network Carrier and Infrastructure Services Summary Guidelines Instructions and Conditions) for the use and meaning of capitalised terms generally in the RFP pack.

Term	Meaning
Customer Provisioning Portal	means a Service Provider-provided portal which is accessible by SARS via a secure Internet connection to provide functionality for SARS to place orders, review order progress and order history. The detailed functionality required is discussed in the detailed requirements for each Tower in this document.
DMARC	Domain-based Message Authentication, Reporting & Conformance.
DMZ	means the Network demilitarised zone.
Hosted Infrastructure Application Services	means the hosted infrastructure application services set out in paragraph 8.4.8.
Hosting Services	is an optional portion of the scope of Tower I described in paragraph 8.1.
Internet Services	is the mandatory portion of the scope of Tower I described in paragraph 8.1.
Managed Network Services	are the onsite network services including: LAN, network equipment support and maintenance; onsite voice services, , audio and video teleconferencing and network integration services (monitoring and other service management functions). Note that these services are out of scope of this RFP.
MPLS	means multi-protocol label switching.
MO	is a Mobile Operator.
Monitoring and Reporting Portal	means a Service Provider-provided portal which is accessible by SARS via a secure Internet connection to provide monitoring and reporting functionality. The detailed functionality required is discussed in the detailed requirements for each Tower in this document.
MoS	is the Mean Opinion Score defined in the ITU-T PESQ P.862 standard.
P2P	means Point to Point Protocol.

PPS&G	means Policy, Procedure Standards and Guidelines.
SDM	means Service Delivery Manager.
Service Coverage Period	has the meaning set out in paragraph 5.1.7.
Service Level Class	has the meaning set out in paragraph 5.1.7.
SMPP	means Short Message Peer to Peer Protocol.
SMS	means Short Message Service as provided by Mobile Operators.
SMSC	means Short Message Service Centre.
SPFC	means Sender Policy Framework.
Term	means the Term of the intended contract between SARS and the Service Provider.
Town Concentrator (TC)	is an aggregation point (SARS building or office or campus site) from which connectivity is provided to SARS access sites in the same geographical region. Town Concentrator sites host servers providing infrastructure application services (mail, software distribution, document storage, file-shares etc.) for the TC itself and to the connected access sites. The SARS Town Concentrators are set out in <u><i>Town Concentrator Site List</i></u> .
VRF	means Virtual Routing and Forwarding.
VPN	means Virtual Private Network.
WASP	means Wireless Application Service Provider.

1.2 References to Other Documents in the RFP Pack

Underlined and italicised names are references (or short names) to other documents in the RFP Pack. The Bidder is referred to paragraph 3.2 of the *RFP Main Document* for the table of documents and their short names.

1.3 Mandatory and Directory Requirements

Bidders are advised to read the business requirements as set out in this document with care. Where SARS has specified a mandatory requirement, (e.g. where the business requirement, by the context and/or presence of verbs such as 'must'; 'will'; 'shall' etc. and/or or explicit instruction indicate that it is mandatory), the Bidder must build and price its solution accordingly. If a Proposal fails to meet, or does not address a mandatory requirement, the Proposal may, at SARS' discretion, be disqualified at any stage of the evaluation process as being a non-responsive Proposal.

Directory requirements are optional requirements that may improve a Bidder's score in the evaluation of its Proposal.

2 BACKGROUND

During 2006/7 SARS issued and awarded RFT 06/2006 in terms of which service providers were engaged to undertake transformation of SARS' network and thereafter to provide on-going support and maintenance and the provision of network carrier services. SARS' network transformation project was completed during 2008/9.

The primary objective of this RFP is to provide for the delivery, continuity and cost-effectiveness of SARS' data carrier (WAN), voice carrier, Internet and hosting, and SMS carrier services.

SARS has sought to simplify the definition of the services by specifying the requirements, as far as possible, without specifying the detail of the underlying technologies. This approach puts greater emphasis on the agreed service levels, while allowing the Service Provider a certain freedom to configure the technology solutions in the most cost-effective manner. This approach is particularly evident in the requirements specification in Towers D, V and I.

SARS' objectives in issuing this RFP do not include contracting for the transformation of the network to newer technologies; however, SARS' objective is to contract for services that will allow for the deployment of newer technologies that will improve the quality and provide value for money in the delivery of the Services. During the Term of the Network Carrier and Infrastructure Services Agreement, inevitable developments in carrier technologies, and service-based offerings, demand that SARS maintains a flexible approach in engaging Service Providers to ensure SARS can take advantage of such developments. This Business Requirements Specification sets out, to the extent that it has currently been determined, the strategic direction SARS is taking with regard to services in the Towers. In certain of the Towers, the strategic direction will have an impact on volumes, distribution and requirements for underlying technologies. These are presented for reasons of transparency to enable the Service Providers contracted to do so with knowledge of SARS' plans in this regard although implementation of these plans is subject to approvals, budget and capacity. The information presented in this document is to the best of the SARS' knowledge at the time of issuing this RFP. Flexibility, however, remains a key principle with regard to the directions presented which may change during the Term.

3 COMPONENTS OF SCOPE

SARS has divided the scope of the tender into 4 (four) Towers of scope:

Tower D: Data Carrier (WAN) Services;

Tower V: Voice Carrier Services;

Tower I: Internet and Hosting Services; and

Tower S: SMS Carrier Services.

The scope, as defined in each of the Towers, above may overlap. If an element of scope could be read within the definitions of more than one of the Towers, SARS, in its sole discretion, may choose to source such a common element of scope from any of the Service Providers who have been awarded Towers into which the common element of scope could be read. By electing to source such a common element of scope from a particular Service Provider, SARS is not bound to source such common element of scope from the same Service Provider on future occasions during the Term.

4 TECHNOLOGY SPECIFICATIONS

In defining the requirements in each of the Towers, reference may be made to specific technologies and/or specific products currently deployed in the SARS network. The Bidder must note the following:

- Where a specific technology has been specified as mandatory in this Business Requirements Specification, the Bidder's Proposal must be designed with that specific technology.
- Where no specific technology has been specified, the Bidder may propose any technology. The underlying assumption is, however, that the requirement is for latest solutions based on the proven industry technologies and that these will be preferred.

In addition, during the Term of the envisaged agreement(s) arising from the award of this RFP, the use of alternative technologies may be proposed by the Service Provider and/or requested by SARS and their implementation will not be considered out of scope of the award, provided that they are effectively substitutes for technologies contained in the Service Provider's original Proposal. SARS' approval is required for the implementation of alternative technologies during the Term. Also, where new technologies become available and present opportunities for improving availability, cost or quality, SARS may request the migration to the newer technology, which will not be considered out of scope. Where SARS is unable to take advantage of newer technologies due to a Service Provider being unwilling or unable to provide such, SARS will retain the right to substitute such elements of scope with services from a different service provider.

5 SERVICES COMMON TO ALL TOWERS

The services described in this paragraph 5 must be performed by Service Providers regardless of the Tower(s) for which they are delivering Services, unless otherwise specified.

5.1.1 Service Management

The Service Providers appointed in each of the Towers will be required to maintain standards of service management in their organisations dealing with incidents, problems, change, configuration, service level management, performance and capacity management. ISO certification, or similar certification, should preferably be held by the Service Provider.

The Service Provider must provide a 24x7 interface (e.g. a contact or service centre) for the reporting of incidents and problems and to provide status updates.

The Service Providers are not required to interface directly with the SARS service management system nor are Service Providers required to receive requests, respond to incidents or generally update records directly from the SARS service management system.

The Service Provider will be expected to participate, provide information and perform tasks as may be prescribed by the SARS PPS&G in terms of incident, problem, change, service level management, performance and capacity management.

A key component of the Services is providing the functionality and access for SARS to monitor the delivery of the Services. The requirements for monitoring and reporting are discussed under the specification in each Tower for a Monitoring and Reporting Portal.

A further key component of the Services is the provision of functionality to enable for SARS to place and track orders, access procedures, prices etc. The detailed

requirements for a Customer Provisioning Portal are discussed under the specification in each Tower.

5.1.2 Training

The Service Provider will be required to provide training, at no additional cost to SARS, on its monitoring systems, Monitoring and Reporting Portal, Customer Provisioning Portal, call logging procedures etc. and any other training required by SARS for the integration of the Services.

5.1.3 Technical Support

As and when required by SARS, the Service Provider will be required to provide *ad hoc* technical support for the roll-out of projects, installations, upgrades, downgrades, moves, changes and decommissions. The engagement of such technical support must be provided by the Service Provider and charged at the Personnel Rates submitted by the Service Provider in its Tower x Pricing Response Template (where x is the applicable Tower reference).

5.1.4 Consulting

The Service Provider will be required to provide SARS with certain *ad hoc* advisory services related to the Services at no additional cost, including the availability and capabilities of new technologies and offerings by the Service Provider and generally in the market. Formal consulting assignments from Service Providers may be engaged by SARS from time to time. These will be undertaken on written authorisation by SARS and fixed rates as proposed by the Service Provider.

5.1.5 Technical Security Requirements

The Bidder's Proposal for Data Carrier (WAN) Services must comply with best practices for enterprise security and the current SARS PPS&G. The Bidder must set out, in full, the security features of its solution where requested in the Tower x Technical Response Template, (where x is the applicable Tower reference).

5.1.6 Processes, Procedures, Schedules, Work Practices

The Service Provider is required to execute the processes, procedures, schedules and work practices developed in accordance with the Network Carrier and Infrastructure Services Agreement. Throughout the Term of the envisaged agreement, the Service Provider will be required to improve and modify the processes, procedures, schedules and work practices as required by SARS.

The Bidder must note the obligations to adhere to SARS PPS&G in Network Carrier and Infrastructure Services Agreement.

5.1.7 Service Level Requirements

It is of critical importance to SARS that the Service Provider must provide the Services to meet or exceed the Service Levels that are specified in Schedule C of Network Carrier and Infrastructure Services Agreement and its Appendices. The Service Provider will be required to measure, monitor and report on the delivery of the Services and the performance in terms of the Service Levels.

The Service Level requirements in each Tower are set out in the Tower-specific requirements specifications in paragraphs 6, 7, 8 and 9 below. The methods of calculation, the Service Level Targets and the provisions regarding Service Level Credits are set out in detail in Schedule C of the Network Carrier and Infrastructure Services Agreement.

Service level definitions are generally made with reference to the SARS Site(s) to which a particular element of the Service applies. For example, the requirement for the service availability for Data Carrier MPLS (WAN) services at a SARS Site will depend on the Service Coverage Period and the Service Level Class assigned to the SARS Site.

The Service Coverage Period assigned to a SARS Site is one of Basic, Standard, Extended or Premium and will always have the meaning set out in the following table, regardless of the Tower:

Service Coverage Period	Period Covered
Basic	6:00 to 19:00 on weekdays regardless of whether the weekday falls on a public holiday or not.
Standard	6:00 to 21:00 on all days, including Saturdays, Sundays and public holidays.
Extended	6:00 to 24:00 on all days, including Saturdays, Sundays and public holidays.
Premium	24x7x365 (at all times).

The Service Level Class will be one of: Gold, Silver or Bronze. The meaning attached to Gold, Silver or Bronze is defined specifically for each of the services in the each of the Towers.

5.1.8 Service Provider Personnel

- 5.1.8.1 The Service Provider personnel placement obligations specified in this subparagraph applies to all Towers.

The Service Provider must provide an Account Executive (“**Account Executive**”) to maintain overall oversight of commercial and escalated operational issues. The Account Executive must hold a position with sufficient decision-making authority and standing in the Service Provider organisation to represent any issues at the highest level in the Service Provider’s organisation. The Service Provider Account Executive will be a member of the Key Service Provider Personnel (see Schedule A of Network Carrier and Infrastructure Services Agreement for definition).

- 5.1.8.2 The Service Provider personnel placement obligations specified in this subparagraph apply to Towers D and V.

The Service Provider must provide a Service Delivery Manager (“**SDM**”) who must maintain a presence at SARS Head Office in Brooklyn, Pretoria. SARS will make permanent office space available to the Service Provider SDM. The Service Provider SDM will be a member of the Key Service Provider

Personnel (see Schedule A of Network Carrier and Infrastructure Services Agreement for definition).

The Service Provider must provide an Operations Manager (“**Operations Manager**”) who must maintain a presence at SARS Head Office in Brooklyn, Pretoria. SARS will make permanent office space available to the Service Provider Operations Manager. The Service Provider Operations Manager will be a member of the Key Service Provider Personnel (see Schedule A of Network Carrier and Infrastructure Services Agreement for definition).

At least one the SDM and Operations Manager must be present on site at SARS during office hours (other than by arrangement with the relevant SARS Executive).

- 5.1.8.3 SARS requires the availability of Key Service Provider Personnel for regular meetings to be held at SARS’ request at SARS premises. SARS may also request the presence of Key Service Provider Personnel at meetings at SARS’ premises given reasonable notice in the light of the urgency with which the subject matter of the meetings is to be addressed.

6 TOWER D: DATA CARRIER (WAN) SERVICES

6.1 Scope

The Data Carrier (WAN) Services scope comprises the provision of the underlying communication technologies and management that make up the SARS Wide Area Network (“**WAN**”) at all SARS Sites. The scope also includes any other network related links that may be required between sites (e.g. point to point links, Metropolitan Area Network (“**MAN**”) requirements etc.).

The responsibility for Local Area Networks (“**LANs**”) and SARS-owned LAN-related network equipment on the premises within SARS Sites is out of scope of this RFP. All equipment and communications within the LAN is managed by SARS (or by SARS’ Managed Network Services service provider on its behalf). The provision and management of the Customer Premises Equipment router (“**CPE**”) router is included in the Data Carrier (WAN) Services scope to provide the interface between the SARS LAN and the WAN, excluding the physical cabling connection from the CPE router to the SARS LAN environment.

The Data Carrier (WAN) Service Provider will be required to work, and co-operate, with SARS, and SARS’ Managed Network Services service provider, if so determined by SARS, during transition and during the Term of the agreement.

SARS’ requirements for Data Carrier (WAN) Services include the following:

- an MPLS network to provide highly available core network carrier services to all SARS Sites as per the SARS Site Classifications. The sites to which the Data Carrier (WAN) services may be changed during the Term and the scope may include new sites or may exclude SARS Sites that are currently defined in the SARS Site Classifications.
- The provision of connectivity (leased lines, ATM circuits, fibre circuits, satellite circuits and wireless circuits) to provide redundancy and point to point connectivity as may be required.
- WAN management services and network optimisation services
- Monitoring and Reporting Portal to provide SARS with dynamic monitoring functionality and with historical trend reports; and
- Customer Provisioning Portal to facilitate the ordering, upgrading, downgrading and cancellation of circuits, status tracking of an order, cost of an order together with a history reporting of all orders made.

6.2 Current Delivery Model

SARS currently engages a single service provider to provide data carrier services. The incumbent data carrier service provider is managed by SARS together with the incumbent Managed Network Services service provider.

The current service delivery model allocates responsibility for the management of the WAN to the Managed Network Services service provider, and the responsibility of the data carrier service provider is essentially limited to the provision of the underlying physical links and the necessary interfacing technologies. The current list of technologies is described in the documents below:

- an MPLS network VPN List;
- leased lines from SARS Sites to the SARS TCs as listed in Leased Lines;
- ATM circuits as listed in ATM Circuits to the Bidder's MPLS cloud;
- Metro Ethernet circuits listed in Metro Ethernet P2P Circuits and Metro Ethernet Circuits;
- Wireless circuits listed in Wireless Circuits;
- Satellite circuits listed in VSAT Site List and VSAT Diagrams;
- Third Party listed circuits in Third Party Circuits;

The scope described above in 6.1 is delivered by the incumbent data carrier services service provider with the exception of:

- WAN management, which is provided by the Managed Network Services provider;
- Satellite circuits, which are provided by the Managed Network Services provider;
- Monitoring and reporting portal; and
- Customer provisioning portal.

6.3 Required Delivery Model

6.3.1 Accountability

SARS requires a single Service Provider to be accountable for its Data Carrier (WAN) Services, including all carrier elements underpinning SARS' WAN. SARS does not require the Service Provider to provide all the Data Carrier (WAN) Services itself and the Service Provider may source different elements of the Data Carrier (WAN) Services from other service providers provided that the Service Provider manages the provision of the individual elements in a seamless manner

from SARS' perspective and takes full accountability for all aspects of the services, including meeting the Service Levels.

The Service Provider must supply all elements of the Data Carrier (WAN) Services to SARS in the Service Provider's name. The Bidder must not propose a solution in any part of its Data Carrier (WAN) Services Proposal that is contingent on SARS granting the Bidder an agency in order for it to procure elements of the solution from a third party in SARS' name.

6.3.2 Non-Exclusivity

SARS intends to contract for the different areas of scope with a Service Provider on the following basis:

Service Component	Contracting Basis
WAN management MPLS services	SARS intends to procure all its carrier service requirements for the WAN from a single Service Provider to all SARS Sites.
Metro Ethernet circuits	SARS reserves its rights to procure Metro Ethernet circuits, other than such services making up part of its core WAN network, from any service provider.
Leased lines ATM circuits Wireless circuits	Although SARS intends to procure all its requirements from the Service Provider, SARS reserves its rights to procure these and/or alternative, equivalent or better technologies from other service providers.
Satellite circuits	SARS reserves its rights to procure satellite circuit services from any service provider.

In general, SARS will retain the right to source Data Carrier (WAN) Services falling outside of the SARS WAN network from other service providers during the Term.

6.3.3 Technical Transformation

SARS has no specific or immediate requirement to undertake a major transformation in terms of the technology in the scope of Data Carrier Services. However the Bidder should note that during the Term of the agreement SARS is looking to improve its data carrier network in terms of reliability, speed, capacity and cost. On request by SARS, the Service Provider must implement:

- connectivity to new sites;
- the upgrading / downgrading / cancellation of existing circuits;
- back-up/redundant circuits. Typically this would be to implement diverse physical routing; use of alternative communication media; or by the engagement of a different network operator's physical infrastructure; and/or
- alternative technology solution proposals that have been made at the Service Provider's initiative with SARS' approval.

6.4 Detailed Requirements for Data Carrier (WAN) Services

6.4.1 WAN MPLS Services

The Data Carrier (WAN) Service Provider must provide a highly available MPLS core network. SARS' requirement is for MPLS network services to be provided at all SARS Sites at the bandwidth as specified in SARS Site Classifications.

SARS' preference is to hold the Service Provider accountable for the availability of the WAN network service to a SARS site as opposed to accountability at an individual circuit level. As SARS' network requirements span centrally located sites in metropolitan areas to remote border posts, the differences between the technologies that are available in these extremes mean that SARS has had to adopt an approach that is appropriate and reasonable in under the different circumstances. SARS has therefore grouped the SARS Sites into two groups

For sites ("Platinum sites") where reliable technologies are abundantly available such as in metropolitan areas, SARS requires that the Service Provider will take responsibility for fully redundant connectivity. The redundant circuits must actively participate in the connectivity even under normal conditions and failover must be seamless in the event of an incident. There must be no single point of failure in the carrier design and the service level at Platinum sites anticipates that there is never any carrier downtime.

For sites not classified as Platinum, SARS still requires that circuit level redundancy (a primary and a secondary circuit) must be provided, but the secondary link need not actively participate in the network at all times. The secondary circuit must be tested regularly, no less frequently than monthly, and failover to the backup link must be made in near-real time through an automated process. The service levels (defined below for each of the technologies) will apply to the individual circuits (Gold Silver or Bronze). Failover must occur in the event that the primary link is unavailable, unreliable or is experiencing issues such as poor quality, response problems, when error rates exceed specified thresholds, or generally any condition limiting the WAN service to below that which is expected including not meeting service levels.

The list of SARS Sites in SARS Site Classifications indicates whether a Platinum service level is required for a site. For clarity, if a Platinum Service Level is applied to a site, circuits terminating at the site CE router are not subject to circuit level Service Levels in addition to the Platinum service level requirement. During the term, SARS may convert a SARS Site for which only circuit level Service Levels have been specified to a Platinum Service Level as the base technologies become available. On request by SARS, the pricing for a site level Service Level must be proposed by the Service Provider to SARS, who may accept or reject the proposal.

SARS has a number of Town Concentrator sites which provide infrastructure application services (mail, software distribution, document storage, file-shares etc.) for the TC itself and to access sites that are geographically close. The Town Concentrator sites are specified in Town Concentrator Site List.

The data carrier network design proposed by the Bidder may include network carrier technologies other than those currently deployed. Alternate technologies proposed must meet or exceed the specifications (including the Service Levels). The factors that will be considered by SARS for the acceptance and approval of alternate technologies will be the achievement of SARS' objectives and in particular: reliability, capacity, speed and cost.

In designing its solution for Data Carrier (WAN) Services the Bidder's Proposal must be compatible with SARS' current router deployments. SARS' standard for networking equipment is CISCO and SARS' preference is to maintain this standard for all equipment interfacing directly with SARS' onsite equipment.

Platinum Service Level

Given the requirement that a Platinum SARS Site has active redundant WAN circuits and that the core MPLS network is highly available, the requirement for availability of a Platinum site is 24x7. The WAN availability must be measured to the CPE router and excludes any period of WAN unavailability due to site environmental factors (e.g. power). The Service Provider is responsible for the configuration of WAN circuits to the site to meet the Platinum site level service levels.

Service Level Class	Maximum Cumulative WAN unscheduled unavailability at the Site
Platinum	0 hours

Non-Platinum Site Service Level

The requirements set out for individual circuit technologies define the service levels for circuits at non-Platinum sites. For clarity, where a Platinum service level has been specified for a SARS Site the individual WAN circuits to that site are not subject to service level availability measures. Circuits providing connectivity from Platinum sites to non-Platinum sites will be subject to service levels at the circuit level.

6.4.2 Leased line circuits

Leased line circuits

The provisioning of leased line circuits must be made on a solution basis and charged on an all-inclusive basis. The provisioning of leased line circuits to SARS must not be dependent on the sale of any equipment to SARS, or dependant on SARS owning its own equipment. The Service Provider must provide all equipment necessary to provide the service and the charge for any equipment must be included in the monthly charge and ownership of the equipment will remain with the Service Provider. A minimum contract period of up to 12 (twelve) months may be linked to any one installation requested by SARS.

The Bidder's attention is drawn to the existing leased line circuits set out in Leased Lines. The Bidder is encouraged to propose replacements of leased lines with fibre

circuits should be made where this offers value for money for SARS and the achievement of greater reliability and availability.

Leased line circuit Service Levels

The Service Level Class and Service Coverage Period assigned to a Wireless Circuit will be the Service Level Class and Service Coverage Periods assigned to the SARS Site. In the event that a circuit connects two SARS sites, the Service Level Class and Service Coverage Period that apply to the circuit will be the lower (less strict) of the two SARS sites it connects. The required availability of the Wireless circuits will only be measured during the Service Coverage Period.

Service Level Class	Cumulative Monthly Circuit Unavailability
Bronze	8 hours
Silver	4 hours
Gold	2 hours

6.4.3 Metro Ethernet

SARS currently has dual Metro Ethernet circuits from its Brooklyn campus to the incumbent Internet and hosting provider. Note that the Bidder must not include the Internet access circuit in its Proposal for Tower D and must not provide the pricing for this circuit in this Tower D as this must be proposed and priced in Tower I. However the Service Provider may be required to provide and/or, if SARS so elects, to manage the provider of equivalent connectivity from SARS Brooklyn to the Internet and Hosting Service Provider's data centre.

SARS requires the Service Provider to have sufficient bandwidth capacity on its Metro Ethernet service to be able to connect all SARS sites listed in *Metro Ethernet P2P Circuits*.

SARS requires Metro Ethernet circuits between its contact centres at Alberton, Doornkloof, Durban and Bellville and the Brooklyn campus if such circuits can show value for money. The Bidder should include its plan to provide such circuits at the SARS contact centres in its Proposal with committed timelines if not currently available.

The Bidder must provide details of its deployed Metro Ethernet capabilities and of its future plans in this regard. The evaluation of Proposals will favour earlier committed timelines for Metro Ethernet deployment.

Metro Ethernet Circuit Service Levels

The Service Level Class and Service Coverage Period assigned to a Metro Ethernet Circuit will be the Service Level Class and Service Coverage Periods assigned to the SARS Site. In the event that a circuit connects two SARS sites, the Service Level Class and Service Coverage Period that apply to the circuit will be the lower (less strict) of the two SARS sites it connects. The required availability of

the Metro Ethernet circuits will only be measured during the Service Coverage Period.

Service Level Class	Maximum Cumulative Monthly Circuit unscheduled Unavailability
Bronze	8 hours
Silver	4 hours
Gold	2 hours

6.4.4 **Wireless Circuits**

SARS utilises wireless technology for the rapid deployment of connectivity and for the provision of secondary redundant circuits. The Bidder must either be in possession of the necessary licences to provide such services itself or must have the necessary back to back agreements in place to provide and manage such services through other service providers.

The provisioning of wireless circuits must be made on a solution basis and charged on an all-inclusive basis. The provisioning of wireless circuits to SARS must not be dependent on the sale of any equipment to SARS, or dependant on SARS owning its own equipment. The Service Provider must provide all equipment necessary to provide the service and the charge for any equipment must be included in the monthly charge and ownership of the equipment will remain with the Service Provider. A minimum contract period of up to 24 (twenty-four) months may be linked to any one installation requested by SARS.

The Bidder should provide wireless circuits that are capable of bandwidth upgrades on request by SARS. While the bandwidth capacity has been specified for particular sites, the Bidder is also required to specify the maximum bandwidth capacity of the wireless configuration it has proposed, where such maximum can be offered without hardware changes.

Wireless Circuit Service Levels

The Service Level Class and Service Coverage Period assigned to a Wireless Circuit will be the Service Level Class and Service Coverage Periods assigned to the SARS Site. In the event that a circuit connects two SARS sites, the Service Level Class and Service Coverage Period that apply to the circuit will be the lower (less strict) of the two SARS sites it connects. The required availability of the Wireless circuits will only be measured during the Service Coverage Period.

Service Level Class	Cumulative Monthly Circuit Unavailability
Bronze	8 hours
Silver	4 hours
Gold	2 hours

6.4.5 Satellite Circuits

SARS utilises satellite circuits for connectivity to remote, temporary and mobile sites and for alternate medium redundancy. The Bidder must provide a proposal to provide and manage existing satellite circuits as and when requested by SARS.

Satellite circuits must be provided on a solution basis and charged on an all-inclusive basis. The provisioning of satellite circuits to SARS must not be dependent on the sale of any equipment to SARS, or dependant on SARS owning its own equipment. The Service Provider must provide all equipment necessary to provide the service and the charge for any equipment must be included in the monthly charge. The Service Provider must take full responsibility for all equipment necessary for maintenance of the satellite circuit availability. A minimum contract period of up to 36 (thirty-six) months may be linked to any one installation requested by SARS. After expiry of the 36 (thirty-six) month period, SARS may elect to continue the service for that circuit and, providing the equipment provided is still serviceable, the Service Provider's price must be reduced to reflect the depreciated status of the installed equipment.

The Bidder must take note of the different categories of satellite circuits, namely, the provisioning of P2P VSAT circuits and pool VSAT circuits. In particular the Bidder's attention is drawn to the contention ratios applicable to the pool VSAT circuits. The Bidder's Proposal must provide equivalent or better connectivity when taking the contention ratios into account.

A required feature of the Service Provider's satellite service is redundancy of the Service Provider's earth station. SARS must be protected against localised weather conditions at the Service Provider's earth stations affecting the satellite circuit availability. For clarity, this requires sufficient geographic separation of the Service Provider's earth stations to minimise the probability of weather-related unavailability incidents.

If the Bidder proposes satellite circuits for both the primary and secondary (redundant) circuits, the secondary circuit must utilise a different satellite service provider. Note that redundancy is not required for mobile tax units.

SARS makes no undertaking to transition the existing satellite circuits to the successful Bidder, but on request to the successful Bidder, at any time during the Term of the *Network Carrier and Infrastructure Services Agreement*, SARS may exercise the option for the successful Bidder to take-on some or all of the existing satellite circuits at the prices it has supplied in its response.

The SARS-owned VSAT equipment is specified in *VSAT Site List* and *VSAT Diagram*.

Satellite Circuit Service Levels

The Service Level Class and Service Coverage Period assigned to a Satellite Circuit will be the Service Level Class and Service Coverage Periods assigned to the SARS Site. The required availability of the Satellite circuits will only be measured during the Service Coverage Period.

Mobile satellite circuits will all carry a service level of Bronze and a Service Coverage Period of Standard.

Service Level Class	Maximum Cumulative Monthly Circuit Unscheduled Unavailability
Bronze	8 hours
Silver	4 hours
Gold	2 hours

6.4.6 Other Network Circuits and technology

The Service Provider must be able to provide other communication channels (e.g. microwave and laser) for redundancy, and for inter-campus communications. The Service Provider will also be expected to provide and manage network carrier technologies that become available during the Term of the agreement that will enable SARS' business solutions. Such technologies may require the engagement of third party providers. SARS' Data Carrier (WAN) Services Service Provider will be expected to provide and manage the delivery of such solutions from third party providers.

6.4.7 Third Party Circuits

SARS currently maintains circuits from third parties to its DMZ in Brooklyn and/or to the SARS Hosted Environment hosted at the incumbent Internet and hosting service provider. There are: (i) 29 (twenty-nine) third party circuits that terminate at the incumbent service provider and are then routed via a VRF to SARS Brooklyn and (ii) a further 9 (nine) circuits that connect directly to SARS Brooklyn via leased lines. See Third Party Circuits document for further details.

SARS requires that the following is included in the transition project:

- 6.4.7.1 the transfer of the 29 (twenty-nine) circuits that are currently terminating on the incumbent Internet and hosting service provider's network to terminate on the Service Provider's network and the configuration of a VRF from the Service Provider's network to SARS Brooklyn to route the circuits to Brooklyn must be included in the Transition project; and
- 6.4.7.2 the transfer of the remaining 9 (nine) third party circuits that terminate at Brooklyn to terminate on the Service Provider's network to be routed over the VRF referred to in paragraph 6.4.7.1 above.

6.4.8 Monitoring and Reporting Portal

SARS requires the Service Provider to provide a Monitoring and Reporting Portal which is accessible by SARS or SARS' designated agent(s) via a secure Internet connection. The Monitoring and Reporting Portal must provide the following:

- 6.4.8.1 real-time (or near real time with no longer than a 10 (ten) minute delay in updating) status of all in-scope elements (including third party circuits terminating on the Service Provider's MPLS and P2P circuits hosted by the Service Provider) of the Data Carrier (WAN) Services in a graphical topological view using SARS circuit naming conventions including:

- Up / down availability status (colour-coded)
- Capacity utilisation (by traffic type)
- Error rates
- IP traffic flow
- Redundancy status

6.4.8.2 up-to-date accumulated statistics (or near real time with no longer than 10 (ten) minute delay in updating) of all in-scope elements of the Data Carrier (WAN) Services over the Term of the agreement including:

- Monthly availability
- Capacity available and capacity utilisation (by traffic type)
- Error rates
- IP traffic flow

Detailed time interval records should be kept for at least 60 (sixty) days.

6.4.8.3 reports of all outages affecting the Data Carrier Services (including one-time outages and special summaries for severe outages). An outage affecting a circuit for which there is a redundant/backup circuit is still regarded as an outage. Outage reports will include at least the following details: date and location of outage; outage hours; root cause of outage; actions taken, impact, timelines, and problem resolution; associated Service Level Credits; and additionally, the following cumulative data: total number of outages, average duration of outage, average response time, and average repair time over the term of the contract;

6.4.8.4 reports of all major events affecting, or potentially affecting, the Data Carrier (WAN) Services;

6.4.8.5 reports of all events that were not repaired within the required time intervals;

6.4.8.6 reports indicating trends by root cause as determined on trouble ticket closure. In addition, the record of identified actions the Service Provider is taking to address problems;

6.4.8.7 reports with a historical correlation of trouble tickets affecting the same element of the Services. The correlation parameters (i.e., network elements, number of trouble tickets and time period of measurement) may be determined by SARS;

6.4.8.8 inventory data, including the configuration, assignments, parameters, barcodes, SARS location, logical link capacities and settings applied to all items of equipment implemented to deliver the Data Carrier Services;

The Monitoring and Reporting Portal must include functionality to:

- effect role-based access;
- filter all reports to certain date ranges, and other filters to limit the selection of data. Reporting functionality must allow summarisation to selectable time periods (e.g. per day, week, month year etc.);
- specify recipients of a report and the ability to email reports to the specified recipient email addresses at specified frequencies; and

- send SMS notifications of incidents and threshold breaches as defined by SARS.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan, including the timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Monitoring and Reporting Portal is operational on or before the first circuits are cut over to the Service Provider during Transition.

6.4.9 Customer Provisioning Portal

The Bidder's Proposal should include a Customer Provisioning Portal which provides the following functionality and information to SARS through a secure Internet portal:

- Pricing of new installations, upgrades, downgrades and transfers of circuits;
- Ability to request a new installation, upgrade, downgrade, transfer or cancellation of a circuit;
- Request a change in the assignments of Service Levels or service coverage periods to SARS sites;
- List of active Projects and up-to-date status;
- Decommissioning/cancellation; and
- Order tracking (including third party orders).

Reporting on a full order history for all orders placed during the Term including but not limited to the following information

- Date of placement of order;
- Date of fulfilment of order;
- Details of order;
- Price of order;
- Price of component increase /decrease; and
- Tracking and reporting on variances from the original Proposal configuration.

The Customer Provisioning Portal must include functionality to:

- ensure that SARS-related information can only be accessed by persons and systems authorised by SARS and should be segmented to cater for role-based access (e.g. financial information is only accessible by persons fulfilling a financial role);
- include functionality to filter all reports to certain date ranges, and other filters to limit the data selected. Summarisation functionality must allow summarisation to selectable time periods (e.g. per day, week, month year etc.) to be finalised during Transition; and
- include functionality to specify recipients of reports and the ability to email reports to the specified recipients' email addresses at specified frequencies.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan including timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Customer Provisioning Portal is operational before the Commencement Date.

6.4.10 **Monitoring**

The Service Provider must actively monitor the status of all components of the Data Carrier (WAN) Services. In the event that an incident affects, or is likely to affect, any component of the Data Carrier (WAN) Services, the Service Provider must proactively ensure the event is logged in the SARS service management system, diagnose, establish the necessary actions to restore Services and commence and complete restoration activities. The Service Provider must proactively inform SARS or a party nominated by SARS and keep such party up to date regarding the progress in the detection, diagnosis and repair events.

For SARS monitoring purposes, SARS requires the SNMP community strings (read only access) within the Service Provider's network related to the SARS network. For clarity, SARS requires read access to all Service Provider equipment (routers) that deliver connectivity to SARS Sites for the purpose of verifying that the services are being delivered in accordance with the Agreement, in terms of availability, performance and capacity.

The Service Provider will be required, at SARS' election, to maintain a presence in the SARS IT Operations Centre. The Service Provider personnel will form part of the SARS monitoring team and (a) will be required to participate in the identification, diagnosis and resolution of incidents involving, or related to, the Tower D services; including logging and updating incident and problem records on SARS' service management system and (b) will be required to be the interface point to the Service Provider for communication and escalation. This will not be required as part of the base services and will be separately priced as an optional service.

6.4.11 **Integration with the Tower V (Voice Carrier) Service Provider(s).**

The plans for internal voice traffic (see Tower V) include the carriage of internal traffic over VOIP and external traffic to and from centralised break out points at the Alberton Campus and the Doornkloof Campus over VOIP. The data network for the carriage of internal voice traffic must be provided by the Tower D provider.

SARS' requirement for the carriage of internal voice over data traffic is that it must be on a **separate network and must traverse physically separate circuits from SARS' data WAN**. Where a fibre or ATM circuit is deployed, the voice circuit must be logically separated from the data circuit but may be on the same physical circuit.

6.5 **Transition**

6.5.1 **Timelines**

The Service Provider(s) appointed in Tower D is required to complete the Transition Services within a 4 (four) month period from the time of the award and finalisation of the contract. By this time, the Service Provider must have assumed full management responsibility for the full scope of Data Carrier (WAN) Services. In addition to any other commitment required in the Network Carrier and Infrastructure Services Agreement, the Service Provider must have:

- Fully designed, developed and implemented the processes, procedures, schedules and work practices detailed in Network Carrier and Infrastructure Services Agreement, especially those detailed in Schedule B-D and its attachments;
- Cut over the services to the Service Provider's MPLS network;
- Committed to reporting and meeting Service Levels as set out in Schedule C-D;
- Transferred or provisioned all leased lines, ATM or alternative circuits (subject to paragraph 6.5.2 below);
- Developed and established the necessary interfaces with other SARS service providers required for the delivery of Data Carrier (WAN) Services;
- Deployed CPE routers at all SARS sites or redeployed the existing SARS-owned CPE routers (under the terms set out in paragraph 6.4.1);
- Taken over the management of Data Carrier (WAN) Services that are sourced through third parties;
- Transitioned all of the third party circuits;
- Attended any training specified by SARS to understand the SARS environment, systems and operating procedures;
- Developed and implemented the Monitoring and Reporting Portal; and
- Developed and implemented the Customer Provisioning Portal.

6.5.2 Transition Expectations and Constraints

Pricing for transition must include all activities the successful Service Provider will need to undertake to meet all the requirements of this Business Requirements Specification, including the activities to take over from the incumbent service provider. The current service provider is contracted to perform handover activities to the Service Provider.

The leased line and/or ATM circuits that are currently provided to SARS may be taken over by the new Service Provider only by arrangement with the incumbent service provider. SARS does not have the right to force a cession to a new service provider of existing contracts under which such circuits are provided.

It is a general responsibility of the new Service Provider that as part of the transition the new Service Provider will issue all cancellation notices on SARS' behalf and with SARS' approval, for existing circuits that are contracted in SARS' name to the existing provider of network circuits as may be required. The Service Provider will thus not be able to charge for a replacement circuit, and SARS will not be liable for any such charges, until the cancellation of the existing circuit it is replacing has been effected and after the cessation of charges for the existing circuit.

In the event that a circuit under contract with the incumbent service provider is contracted for a period ending later than the Commencement Date and the new Service Provider is unable to effect cancellation before the Commencement Date, the Service Provider must then manage these circuits operationally although SARS will retain a direct relationship with the incumbent service provider for commercial matters until the termination of the individual circuit contracts. The Service Provider must transfer the existing, or provision replacement, circuits to maintain connectivity beyond the termination of the existing individual circuit contracts.

7 TOWER V : VOICE CARRIER SERVICES

7.1 Scope

The Voice Carrier Services scope comprises the provision of:

- underlying communication technologies that enable SARS' inbound and outbound voice communications at an acceptable quality at the lowest possible cost;
- SARS' future requirements for hosted voice services, such as hosted PABX, fax solutions etc.;
- Monitoring and Reporting Portal; and
- Customer Provisioning Portal.

Onsite voice services (IP or IP-enabled PABXs and Cisco Call Manager), IP telephony, cabling, handsets, headsets, teleconferencing equipment) are out of the Tower V scope. These onsite voice services are managed by SARS, or the Managed Network Services provider on behalf of SARS.

If so determined by SARS, the Service Provider(s) in Tower V will be required to work with SARS' Managed Network Service provider during transition and during the Term.

The Tower V scope includes the responsibility for connecting the Service Provider's onsite termination equipment to the onsite gateway/PABX.

7.2 Current Delivery Model

7.2.1 Outbound calls from SARS Site fixed lines

SARS currently routes all its outbound calls to the fixed line operator except for +/- 30 (thirty) SARS sites. At these 30 (thirty) sites, outbound calls are routed to either a service provider external VOIP network or the fixed line operator network on the basis of least cost depending on the destination.

The physical infrastructure to carry calls is over PRI/BRI circuits, over a SIP trunk (in the case of Alberton and Doornkloof) and, in the case of small SARS Sites, over single analogue lines.

7.2.2 Inbound calls to SARS Site fixed lines

Inbound voice calls to SARS's fixed line numbers are carried by the incumbent service providers to the onsite PABX. The physical infrastructure to carry calls is over PRI/BRI circuits, over a SIP trunk (in the case of Alberton and Doornkloof) and, in the case of small SARS Sites, over single analogue lines.

7.3 Required Delivery Model

7.3.1 Requirement overview

SARS' objective is to award the scope of Tower V to a single Service Provider (the "**Primary Voice Carrier Provider**") subject to ongoing achievement of the lowest cost for calls at acceptable quality. SARS therefore retains the right to award certain of the scope (e.g. certain outbound call types and certain call destinations) to other voice carrier providers ("**Preferred Outbound Carrier Provider(s)**"). On an annual basis, the Primary Voice Carrier Provider and the appointed Preferred Outbound Carrier Provider(s) must provide pricing for all SARS' outbound call destinations classes (e.g. International, national, local, mobile operator). SARS will update its call routing strategy to the Service Providers based on the best pricing per destination.

SARS's longer term strategy is to carry all internal fixed line calls over an internal voice over data network to and from Alberton and/or Doornkloof. The break outs at Alberton and Doornkloof must be over SIP trunking. It is therefore expected that during the Term an increasing number of outbound calls will break out either at Alberton and/or Doornkloof. The number of PRI/BRI and analogue lines at SARS sites, and the number of calls carried over such circuits, is therefore expected to decrease.

7.3.2 Primary Voice Carrier Provider

The Primary Voice Carrier Provider must provide the necessary voice communication circuits (analogue or digital) for SARS to be able to maintain inbound and outbound voice communications at all SARS Sites. Bidders submitting a Proposal for the Primary Voice Carrier service must submit a solution for all SARS Sites. The scope of award to the Primary Voice Carrier Provider will be subject to any award(s) made to Preferred Outbound Carrier Provider(s) and subject to the necessity for maintaining breakout connectivity SARS sites given the strategy outlined in paragraph 7.3.1 above. The scope may include value-added solutions for inbound call services (for example toll-free services) requested during the Term although will be made on a non-exclusive basis.

The scope of the Primary Voice Carrier Provider will be for the provision of:

- Analogue voice lines
- PRI / BRI circuits
- Hosted voice-based services, such as hosted PABX, fax solutions etc.
- Inbound and outbound calls

The Primary Voice Carrier provider must provide a SIP trunking solution for break in and out at both Alberton and Doornkloof.

7.3.3 Preferred Outbound Voice Carrier Provider

The scope of the award made, if any, to a Preferred Outbound Voice Carrier Provider(s) will be on a preferred basis, i.e. SARS may route certain outbound call types to a Preferred Outbound Voice Carrier Provider in preference to the Primary Voice Carrier Provider on the basis described in paragraph 7.3.1.

In line with the centralised break out strategy set out in paragraph 7.3.1, a Preferred Outbound Voice Carrier Provider must carry calls over its own SIP trunking infrastructure for break out at both Alberton and Doornkloof and no other sites. During the term of the contract, SARS may require additional break-out points, for example from SARS' Brooklyn head office. The charges related to additional break-out points will be treated on a project basis as may be defined in a separate work order.

The Preferred Outbound Voice Carrier Provider must be able to carry calls to all destinations (International, national, local and mobile calls to all South African mobile operators) and therefore must provide the price (per second) for calls to each.

7.3.4 Technical Transformation

SARS has no specific requirement for the Service Provider's to transform its voice carrier network. SARS' primary drivers regarding its Voice Carrier Services are to obtain such Services at the lowest cost at acceptable voice quality.

7.4 Detailed Requirements for Voice Carrier Services

7.4.1 Primary Voice Carrier Provider Requirement

Bidders for the Primary Voice Carrier Provider scope must submit a Proposal that will provide:

- inbound and outbound Voice Carrier Services for all SARS Sites; and
- SIP trunk circuits at Alberton and Doornkloof
- PRI / BRI circuits and analogue circuits. See SARS Site Classifications for details.

Bidders for the Primary Voice Carrier Provider scope must complete the pricing templates for **all elements** of the Voice Carrier Services Tower.

- **Analogue voice lines**

Service Provider must provide and manage analogue voice lines from all SARS Sites as defined in SARS Site Classifications to/from the fixed line operator network.

The Bidder must propose a voice carrier solution that matches the capabilities of the current PABX's. (I.e. the Bidder must not propose an IP

based solution for a SARS Site currently with a PABX only capable of analogue signals).

- **PRI / BRI lines**

The Service Provider must be able to provide and manage PRI / BRI lines to/from all SARS Sites. The Bidder must familiarise itself with the SARS requirements with regard to PRI/BRI lines especially the terms governing the provision, charging and cancellation which are set out in the Network Carrier and Infrastructure Services Agreement.

- **Existing Number Retention**

The Service Provider must be able to provide the Voice Carrier Services without requiring SARS to change its geographic numbers for inbound calls. The Primary Voice Carrier Provider will therefore be required to port the existing SARS geographical numbers to meet this condition as part of the Transition.

- **Outbound call concurrency assumptions**

The outbound call concurrency value is calculated at design phase of each site based on 1/3 of the actual number of users at the site. For example if there are 90 actual users at a site, then under this assumption, the design of the site would be to cater for a maximum of 30 concurrent users i.e. 1 (one) PRI (1 PRI = 30 (thirty) voice channels).

Therefore the concurrency level can be determined by the number of PRI's currently installed at a site, where each PRI can be assumed to be a provision for thirty concurrent users or ninety users that are situated at the site.

- **SIP Trunks**

In addition to the immediate requirement for SIP trunking to Alberton and Doornkloof, the Service Provider may be requested by SARS, during the Term, to provide SIP trunking to other major centres. Additionally, the Service Provider may, from time to time, be requested to increase or reduce the number of channels provided over such deployed SIP trunks.

The fundamental requirement for SARS is that the Service Provider can provide the services at all the SARS Sites. As outlined above, SARS' longer term plan is to route its voice calls over its internal voice network to Alberton and Doornkloof. The requirement for analogue lines and PRI/BRIs for local break out will diminish and therefore SARS makes no commitment to the requirement for these circuits during the Term.

7.4.2 Preferred Outbound Voice Carrier Provider Requirement

Bidders submitting Proposals for the Preferred Outbound Voice Carrier Provider scope must clearly state the per-second rates to the different destination types outlined in the pricing template Tower V Pricing Response Template.

The Preferred Outbound Voice Carrier Provider solution must carry the outbound calls over a SIP trunk from the Alberton and Doornkloof sites. The charges for the Preferred Outbound Voice Carrier Provider must only be for outbound calls. The cost of the SIP trunk must not be separately charged and no minimum charges must apply (i.e. the charges for the outbound calls must include the costs associated with the SIP trunking).

7.4.3 Audio Quality

Audio quality will be deemed to be acceptable at a MoS of 3.8 or higher. In order to achieve acceptable voice quality to mobile phones the Bidder must propose a solution which takes SARS' outbound calls directly to the cellular network provider's networks via interconnection links and must not rely on 'over the air' cellular transport to take calls from the SARS site (for example the Bidder must not propose onsite direct to air least cost routing appliances).

7.4.4 Call Line Identification

All voice services and the pricing proposed must include Call Line Identification functionality.

7.4.5 Volume based discounting

SARS disfavours pricing that is based on discounts that are contingent on the actual volume of outbound calls or on the actual spend SARS makes in order to qualify for such discounts. SARS is not able to predict the actual volume of calls in the future and will have no certain method of evaluating such pricing. If the pricing offered by a Bidder in its Proposal includes discounts, such pricing must be expressed using the discount level offered to SARS irrespective of volumes.

7.4.6 Term based discounting

The approach to evaluation of term based discounting will be based on the intended Term of the contract. The pricing for the Primary Voice Carrier Provider service should be based on the assumption of a 5 (five) year minimum term.

SARS may consider PRI/BRI provisioning (rental thereof) for a long term commitment with a Service Provider if such a long term commitment by SARS provides value for money. The Bidder should make the discount that is applicable for different term commitments clear in *Tower V Pricing Response Template*.

7.4.7 Per second billing

The Bidder must specify its solution in terms of per second billing.

7.4.8 Monitoring and Reporting Portal

Monitoring and reporting is a critical requirement to be addressed in the Bidder's Proposal.

SARS requires the Primary Voice Carrier Provider to provide a Monitoring and Reporting Portal which is accessible by SARS or a SARS designated agent via a secure Internet connection. The provision of a Monitoring and Reporting Portal in a Bidder's Proposal for Preferred Outbound Carrier Provider is not mandatory but will improve such Bidder's evaluation score for this Service. A Monitoring and Reporting Portal must provide the following:

- 7.4.8.1 real-time (or near real time with no longer than 10 (ten) minutes delayed updating) status of all in-scope elements of the Voice Carrier Services:
 - Up / down availability status (colour-coded);
 - Capacity utilisation (by traffic type)
 - Error rates; and
 - Traffic flow.
- 7.4.8.2 up-to-date accumulated statistics (or near real time with no longer than 10 (ten) minutes delayed updating) of all in-scope elements of the Voice Carrier Services over the Term of the agreement including:
 - Availability;
 - Capacity utilisation (by traffic type);
 - Error rates; and
 - Traffic flow.

Detailed time interval records should be kept for at least 60 (sixty) days.
- 7.4.8.3 a downloadable electronic record of all details of inbound and outbound calls. The entire detailed history of all call records must be available for the duration of the Term.
- 7.4.8.4 reports of all outages affecting the Voice Carrier Services (including one-time outages and special summaries for severe outages). Such outage reports will include at least the following details: date and location of outage; outage hours; root cause of outage; actions taken, impact, timelines, and problem resolution; associated Service Level Credits; and additionally, the following cumulative data: total number of outages, average duration of outage, average response time, and average repair time;
- 7.4.8.5 reports of all major events affecting or potentially affecting the Voice Carrier Services;
- 7.4.8.6 reports of all events that were not repaired within the required time intervals;
- 7.4.8.7 reports indicating trends by root cause as determined on trouble ticket closure. In addition, the record of identified actions the Service Provider is taking to address problems;
- 7.4.8.8 reports with a historical correlation of trouble tickets affecting the same element of the Services. The correlation parameters (e.g., network elements, number of trouble tickets and time period of measurement) may be determined by SARS;

- 7.4.8.9 inventory data, including the configuration, assignments, parameters, barcodes, SARS location, logical link capacities and settings applied to all items of equipment implemented to deliver the Voice Carrier Services;

The Monitoring and Reporting Portal must include functionality to:

- effect role-based access;
- filter all reports to certain date ranges, and other filters to limit the data selected. Summarisation functionality must allow summarisation to selectable time periods (e.g. per day, week, month, year etc.);
- specify recipients of the report and the ability to email reports to the specified recipient email addresses at specified frequencies; and
- send SMS notifications of incidents as defined by SARS.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan including timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Monitoring and Reporting Portal is operational 3 (three) months after the Effective Date and in no event later than when the first service are taken on by the Service Provider during Transition.

7.4.9 Customer Provisioning Portal

The Bidder's Proposal should include a Customer Provisioning Portal which provides the following functionality and information to SARS through an Internet portal:

- Pricing of new installations, upgrades, downgrades and transfers of circuits;
- Ability to request a new installation, upgrade, downgrade, transfer or cancellation of a circuit; and
- Request a change in the assignments of Service Levels or service coverage periods to SARS sites;
- List of active Projects and up-to-date status;
- Decommissioning/cancellation; and
- Order tracking (including third party orders).

Reporting on a full order history for all orders placed during the Term including but not limited to the following information

- Date of placement of order;
- Date of fulfilment of order;
- Details of order;
- Price of order;
- Price of component increase /decrease; and
- Tracking and reporting on variances from the original Proposal configuration.

The Customer Provisioning Portal must include functionality to:

- ensure that SARS-related information can only be accessed by persons and systems authorised by SARS and should be segmented to cater for role-based access (e.g. financial information is only accessible by persons fulfilling a financial role);
- filter all reports to certain date ranges, and other filters to limit the data selected. Summarisation functionality must allow summarisation to selectable time periods (e.g. per day, week, month year etc.); and
- specify recipients of the report and the ability to email reports to the specified recipient email addresses at specified frequencies.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan including timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Customer Provisioning Portal is operational 3 (three) months after the Effective Date and in no event later than when the first service are taken on by the Service Provider during Transition.

7.4.10 Monitoring

Service Providers appointed, whether as Primary Voice Carrier Provider or Preferred Outbound Voice Carrier Provider, must actively monitor the status of all components of the Voice Carrier Services within the scope it was awarded. In the event of an incident affecting any component of the Voice Carrier Services, the Service Provider must proactively diagnose, establish the necessary actions to restore Services and commence and complete restoration activities. The Service Provider must proactively contact SARS or a party nominated by SARS at designated stages in the detection, diagnosis and repair events.

The Service Provider will be required, at SARS' election, to maintain a presence in the SARS IT Operations Centre. The Service Provider personnel will form part of the SARS monitoring team and (a) will be required to participate in the identification, diagnosis and resolution of incidents involving, or related to, the Tower V services; including logging and updating incident and problem records on SARS' service management system and (b) will be required to be the interface point to the Service Provider for communication and escalation. This will not be required as part of the base services and will be separately priced as an optional service.

7.4.11 Integration with the Tower D Data Carrier (WAN) Service Provider(s).

Bidders submitting a Proposal for both Tower V and D must note that their Proposal for Tower V must **not** propose the carriage of voice traffic over the same physical circuits as those proposed for Tower D. **It is a mandatory requirement for the Bidder's Proposal that Voice and Data are carried over separate physical circuits, unless otherwise stipulated by SARS.** Where a fibre or ATM circuit is deployed, the voice circuit may be logically separated from the data circuit on the same physical circuit.

7.4.12 Service Levels

The Service Level Class and Service Coverage Period assigned to the various voice circuits will be the Service Level Class and Service Coverage Period assigned to the SARS Site that the circuit connects. The required availability of the voice circuit will be measured during the Service Coverage Period of the circuit.

SIP Trunking

Service Level Class	Maximum Monthly Cumulative SIP Trunk Unavailability
Bronze	4 hours
Silver	2 hours
Gold	1 hours

PRI

SARS' preference is for solutions that offer committed service levels on PRIs as below:

Service Level Class	Maximum Monthly Cumulative PRI Unavailability
Bronze	4 hours
Silver	2 hours
Gold	1 hours

7.5 Transition

The current service provider is contracted to perform handover activities to the successful Bidder. Pricing for transition must include all activities the successful Bidder will need to undertake to meet all the requirements of the Business Requirements Specification, including the activities to take over from the incumbent service provider.

The Service Provider(s) appointed in Tower V is required to complete the Transition Services within a 3 (three) month period from the time of the award and finalisation of the contract. By this time, the Primary Voice Carrier Provider must have assumed full management responsibility for the full scope of Primary Voice Carrier Provider Services. In this regard the Service Provider must have:

- Fully designed, developed and implemented the processes, procedures, schedules and work practices detailed in Network Carrier and Infrastructure Services Agreement, especially those detailed in Schedule B-V and its attachments;
- Attended any training specified by SARS to understand the SARS environment, systems and operating procedures;

- Where necessary, to have effected the necessary cession and assignment agreements with incumbent service providers;
- Deployed the necessary trunking and/or taken over responsibility for existing circuits; and
- Cut over Voice Carrier Services to the Service Provider's solution while retaining SARS' existing inbound numbers.

If SARS has made such appointment(s), Bidder(s) appointed as Preferred Outbound Voice Carrier Provider(s) must have deployed the necessary infrastructure at Alberton and Doornkloof to carry outbound calls from these sites within a period no longer than 3 (three) months from the time of the award and finalisation of the contract with the Preferred Outbound Voice Carrier Provider(s).

The Bidder must note that there are no transition project charges for the Preferred Outbound Voice Carrier Service Provider to take on the services and all costs relating to the transition are to be absorbed in the usage charges.

8 TOWER I : INTERNET AND HOSTING SERVICES

8.1 Scope

The Internet and Hosting Services scope comprises the provision of Internet connections, hosting services and related services, such as firewall and mail scanning.

The Service Provider must supply the following mandatory elements of scope (the “**Internet Services**”):

- Internet access services;
- Internet Address space and domain administration;
- Firewall services;
- Assessments and penetration testing;
- Email gateway service (anti-SPAM and anti-virus);
- Monitoring and Reporting Portal;
- Customer Provisioning Portal; and
- Internet web filtering and proxy services

The Service Provider must have submitted a proposal for the following elements of scope (the “**Hosting Services**”) which SARS may elect to implement, at its sole discretion, either at the time of the award; during the Term; or not at all:

- Secure hosting of SARS infrastructure; and
- Hosted environment network support.
- Remote Access Services;

8.2 Current Delivery Model

SARS currently engages a single service provider for the provision of service within the scope of Internet and Hosting Services.

8.2.1 Internet access services

All Internet traffic is currently routed over the SARS data network to SARS Brooklyn campus and is then carried to the incumbent service provider’s Internet break out point. SARS currently has dual Metro Ethernet circuits from its Brooklyn campus to the incumbent Internet and Hosting service provider.

The Internet bandwidth requirement is for 200 Mbps local access and 200 Mbps International access.

8.2.2 **Hosting Services**

SARS currently hosts its Internet application infrastructure at the incumbent Internet and hosting service provider's site in Bryanston, Sandton. SARS' current space requirement is for a hosting environment of a vault with 15 (fifteen) 43" network / server cabinets.

The current hosting traffic allocation is 1 TB per month.

The Bidder is referred to the information provided in Hosting Network Hardware Configuration to obtain the precise configurations, equipment, sites, bandwidths and space requirements.

The future hosting requirements for SARS' infrastructure are not certain. SARS will therefore only contract for the Hosting Services when the strategy and requirements have been finalised, and makes no undertaking as to the ultimate contract for the Hosting element of scope. SARS options in this regard include providing hosting service at its own facilities, a combination of internal and externally-provided hosting facilities, or the use of external hosting facilities only.

8.3 **Required Delivery Model**

8.3.1 **Accountability**

SARS requires a single accountable Service Provider for its Internet Services. SARS expects the Service Provider to provide all the Internet Services itself, however, the Service Provider may source different elements of the Services from other service providers, provided that the Service Provider manages the provision of the individual elements in a seamless manner from a SARS perspective and takes full accountability for the Internet and Hosting Services meeting the required performance standards.

8.3.2 **Non-Exclusivity**

Notwithstanding SARS' preference for a single Service Provider for Tower I, SARS intends contracting for the Internet Services portion of the scope of Tower I at the conclusion of the RFP process and may make an award for the Hosting Services simultaneously, later or not at all.

8.3.3 **Transformation**

SARS has no specific and immediate requirement to undertake a major transformation in terms of the technology within the scope of Tower I. However the Bidder should note and take account of the specific opportunities for improvements in the following paragraph.

8.4 Detailed Requirements for Internet Services

8.4.1 Internet Access Services

All Internet traffic will be routed over the SARS data network to SARS Brooklyn campus and must then be carried to the Service Provider's Internet break out point.

As set out above, SARS currently has dual Metro Ethernet circuits from its Brooklyn campus to the incumbent Internet and Hosting service provider. The Bidder must include this or equivalent circuits to its breakout point in its Proposal for Tower I and must provide the pricing for these circuits in Tower I Pricing Response Template. If SARS so elects, these circuits may be excluded from the scope of Tower I, and may be provided by the Tower D Service Provider.

The Internet bandwidth requirement consists of 200 Mbps local access and 200 Mbps International access. These capacities must be provided at a 1:1 contention ratio. If the Bidder does not charge for local access then the Bidder must enter a zero price in the relevant cell in the pricing template.

The Service Provider should provide the functionality to prioritise different Internet traffic for performance. SARS requires flexibility to be able to prioritize traffic within traffic classes or QoS classes (gold, silver etc.). Hence the solution must have the ability to prioritize traffic at a protocol level as well as by the network source or destination addresses. For example, the ability to prioritize certain transactional emails over normal work or private emails.

Other value added services that may be proposed include:

- Bandwidth Management Services – the solution must be able to manage the availability of bandwidth on the “Internet Circuit” to avoid bottlenecks which includes shaping, optimization, traffic classification and congestion avoidance.
- News, Cache and FTP services
- IP accounting services, including the ability to view detailed information regarding the flow of traffic across the leased line and usage of the service by individual SARS users.

Internet Access Service Level

The Internet access service level requirement is for Internet access to be available for a maximum cumulative unavailability of no more than 1 hour per month. This excludes the Internet being inaccessible to SARS due to the unavailability of the circuit from the SARS network to the Service Provider.

8.4.2 Internet Address space and domain administration

The Service Provider will be required to maintain primary and secondary Domain Name Servers (DNS) and manage domain name registrations both locally and internationally and manage SARS public IP address allocation(s).

8.4.3 Assessments and Penetration Testing

The Service Provider is required to provide application security assessments, penetration testing and vulnerability assessments on request by SARS. SARS currently performs these assessments to assist with improving the security posture of applications by way of pre-implementation assessments and post-implementation application assessment reviews following remediation. The focus of these assessments is on SARS' internal facing applications.

Due to the specific and specialised nature of a security assessment, the Service Provider will be required to submit a proposal in response to SARS's request detailing the skills, knowledge and experience of the individuals proposed to conduct the assessment. The personnel proposed by Service Provider must be charged for their services within the personnel rates proposed by the Service Provider. SARS, in its sole discretion, may accept or reject the proposal. The award of the RFP to the Service Provider is non-exclusive and SARS reserves its right to contract third parties to conduct security assessments.

8.4.4 Secure Hosting of SARS Infrastructure

In the event that the Hosting Services are contracted from the Service Provider, the requirements of this paragraph 8.4.4 and paragraphs 8.4.5, 8.4.6 and 8.4.7 will apply.

The hosting environment for SARS infrastructure must be connected to a dedicated DMZ protected by a dedicated firewall, which in turn must be connected to the Service Provider's Internet access services. The hosting environment must be directly connected to the Service Provider's core network.

Monitoring of the hosting environment must be performed by using the latest technologies and practices and must include monitoring down to interface level. Monitoring of equipment deployed by SARS in the hosted environment must be performed to at least a basic network level by the Service Provider. Equipment deployed by the Service Provider used to render the hosting service, or a portion thereof, to SARS must be fully monitored by the Service Provider. Monitoring must be integrated into the Service Provider's operational centre with alert notification to the Service Provider's operational personnel. The monitoring must also be integrated to the Monitoring and Reporting Portal. The Service Provider must inform SARS of any failures and provide regular updates on event status.

Hosting environment services must be provided in a secure, access-controlled data-centre that is located in Gauteng which must meet the requirements for a Tier 3 (or higher) data-centre. The Service Provider's data-centre must preferably be certified (design or operational) in this regard.

The Service Provider should preferably have the capability to provide a redundant environment in a Tier 3 (or higher) data-centre meeting the separation requirements for disaster recovery. The Bidder is required to provide details of such a redundant hosting environment in *Tower 1 Technical Response Template*.

SARS makes no commitment to contract for a redundant environment during the Term.

SARS' requirement for a hosting environment is for a vault with 18 (eighteen) 43" network/server cabinets. The Service Provider must be able to accommodate growth in the hosted environment to an adjacent vault(s) of an, additional capacity of up to 10 (ten) 43" network/server cabinets, although SARS makes no commitment to the timing of the requirement for the additional capacity or for it to be required at all during the Term.

8.4.5 Firewall Services

In the event SARS contracts for hosting services, SARS requires a dedicated, fully managed redundant firewall solution for its hosted environment. The firewall architecture needs to provide for high availability, scalability and cost effective security services.

The Firewall services must be provided as a managed service with constant monitoring and reporting on performance and throughput. The Firewall solution must integrate with the currently implemented SARS Qradar SIEM solution.

The firewall solution must, at a minimum:

- have stateful failover functionality (failover must be seamless to the end-user);
- be able to handle network traffic during peak business periods of up to 10Gbps throughput (including during periods of failover);
- have 2 (two) appliances each with 10 x 1Gbps Ethernet SFP Ports;
- have 30 logical interfaces per individual firewall in the failover cluster;
- be capable of expansion up to 100 interfaces; and
- have end-to-end internal redundancy (such as dual feed power supplies).

SARS has a further requirement for automated firewall auditing, which must provide the following functionality:

- policy clean-up and optimization;
- intelligent rule reordering;
- intelligent policy tuner;
- risk analysis and mitigation reports;
- automated compliance reports;
- baseline compliance analysis;
- group and object analysis; and
- read access to SARS.

8.4.6 Remote Access Services

The current Remote Access Service is provided to approximately 40 (forty) SARS technical support staff to enable their access to support the environment hosted with the incumbent hosted services provider.

In the event SARS contracts for Hosting Services, the Remote Access Service must provide a highly available clientless SSL VPN solution for secure remote access to the SARS infrastructure in the hosting facility. The VPN connection must

be secured with a strong second factor authentication solution using software tokens.

The SSL VPN solution must have the ability to restrict access based on a group level. Secure access must be provided to SARS administrators via a Web Console for user management/provisioning. The SSL VPN solution must have user-level reporting capability.

The Remote Access Service for up to 100 users must be included in the charge for Hosting Services.

8.4.7 SARS Hosted Environment Network Support

In the event that the Hosting Services are contracted SARS would require specialist support for the network configuration for its CISCO-based network systems in the hosted environment. SARS may engage the services of certified CISCO network engineers under the following support model:

- 24x7 standby, 30 (thirty) minute time to respond, 2 (two) hour onsite response to unscheduled incidents;
- 40 (forty) hours of diagnostic, incident resolution, install, move, add, change support per month, with a carry-over of unused hours to a maximum of 10 (ten) hours per month for up to 3 (three) months;
- 2 (two) Business Day notice for scheduled onsite support;
- Fixed monthly support fee (including the above);
- Fixed rate for time in excess of the contracted hours per month (including carry-overs);
- Support through liaising with the CISCO OEM support team based on the SARS contract with CISCO; and
- Cisco OEM support (hardware and software maintenance. (Refer to Hosting Network Hardware Configuration).

The Service Provider must be able to provide specialist CISCO skills including CISCO ACE Load Balancing skills and future load balancing skills of importance to SARS. The Service Provider must have provided CV's of support staff as part of its Proposal.

8.4.8 Hosted Infrastructure Application Services (mandatory)

8.4.8.1 Email Gateway Service (anti-spam and anti-virus)

Email filtering must be provided based on the content of Simple Mail Transfer Protocol (SMTP) messages and their attachments. The system must inspect all SMTP messages originating from, or destined to SARS network and transmit or quarantine messages based on their structure/content according to pre-defined filtering rules specified by SARS. SARS' external email statistics for the 12 (twelve) months ending in January 2016 appear below:

External Email Sent & received	Number	Size
Monthly average	7.3 million	948 GB
Peak month	8.1 million	1.1 TB

The Service Provider must host the hardware and software that comprises the solution with local networking connecting the system components to the Service Provider backbone, a server hosting facility, an administrative interface for SARS to view blocked/quarantined messages; a Web based online reporting utility; and to perform day-to-day security management of the supported e-mail gateway Services.

The solution instance must be logically separated from other customers by utilising Virtual Local Area Networks (VLANs) and source to destination IP mapping (from SARS network to the Service Provider network). Redundancy must be provided including load balancing across redundant elements of the solution.

The e-mail gateway solution configuration backup services must include the taking of encrypted daily incremental (14 (fourteen) copy cycle) and encrypted weekly full backups (52 (fifty-two) copy cycle) that must be kept at a secure offsite facility.

The solution must spool e-mail messages if the host/recipient cannot be reached. The Service Provider must monitor inbound and outbound queues and if these queues exceed pre-defined thresholds, take the necessary action to remediate the queuing. SARS should have the ability to monitor the queues.

The solution must cater for a variety of anti-virus scanning packages (at least two of McAfee, MailMarshal, Symantec and Sophos, or equivalents) to ensure a comprehensive approach to anti-virus management.

The anti-spam solution proposed by the Bidder must be based on Cisco/Ironport; Symantec; Microsoft; Google/Postini; McAfee; Proofpoint or equivalent. If the Bidder wishes to propose a different product the Bidder must submit proof of the products status (for example, its presence in the leader quadrant of the latest Gartner Magic Quadrant). The anti-spam solution must be physically dedicated to SARS.

The Service Provider must provide SARS with a Management Console for purposes of connecting to the solution, viewing/releasing blocked e-mail messages and setting notifications.

The solution must provide the ability to set attachment file size limitations including the ability to hold back large files for release after business hours. The solution must provide the ability to create exception rules for which filtering rules will not apply and that are customisable for inbound and outbound messages.

The Email Gateway solution must have spoofed sender detection ability in order to detect and block spoofed messages with SPF and DMARC functions. It must have approved and blocked sender lists with capabilities to block or allow emails based on IP, source address, signatures, skeptic heuristics and subject line. It must have content filtering capabilities that allow customised email policies to be created based on content rules.

The solution must provide Email Gateway Encryption functionality with the following characteristics:

- Email must be encrypted whether in transit or at rest.
- No client software required to encrypt email.
- The solution must be centrally managed, activate or deactivate.

8.4.8.2 Web filtering and proxy Services

The Service Provider must provide enterprise Web filtering and proxy service, configured with high availability and fault tolerance, for the control of internet access by SARS personnel and must have local support capability for the solution. SARS' requirement is for 16,000 internet users. The solution proposed must have the following characteristics:

- The system must have centralised management console with an intuitive interface management and reporting for administrators.
- Deployment options must be flexible and scalable including explicit and transparent proxy options.
- Protection must be real-time and the security options must be dynamically updated.
- The solution must have multi-layered security with capability to stop malware, including zero-day malware at the entry point before being downloaded to the SARS network.
- The scanning engine and content categorisation must be dynamically updated.
- URL filtering according to categories, users, groups and client machines.
- Active Directory integration with support for legacy NTLM authentication.
- SIEM integration (QRadar).
- Advanced reporting to meet complex business requirements.
- Capability for on premises deployment, cloud or hybrid cloud options.
- Granular policies that can be applied to users, user-groups, client machines.
- Capability to restrict usage based on time limits and or bandwidth usage.
- DLP integration (Symantec).
- Application control that allows business applications to be allowed whilst restricting unwanted applications.
- SSL inspection with capability to tunnel selected protocols

8.4.8.3 Other Hosted Infrastructure Application Services

During the Term SARS may require hosted infrastructure application services beyond the scope of those listed above. SARS may engage the Internet and Hosting Services Provider to provide additional hosted infrastructure application services.

The Bidder should provide details of other hosted infrastructure application services as part of its Proposal to demonstrate the scope of services it could provide during the Term. The scope of other hosted infrastructure application services that may be engaged under this Tower need not be limited to the scope of hosted infrastructure application services supplied by the Bidder in its Proposal. SARS is under no obligation to request other hosted infrastructure application services from the Service Provider during the Term and may engage other service providers to do so.

8.4.9 Monitoring and Reporting Portal

Monitoring and reporting is a critical requirement to be addressed in the Bidder's Proposal.

SARS requires the Service Provider to provide a Monitoring and Reporting Portal which is accessible by SARS or SARS' designated agent(s) via a secure Internet connection. The Monitoring and Reporting Portal must provide the following:

- 8.4.9.1 real-time (or near real time with no longer than 10 (ten) minutes delayed updating) status of all in-scope elements of the Internet and Hosting Services including:
 - Up / down availability status (colour-coded)
 - Capacity utilisation (by traffic type)
 - Error rates
 - IP traffic flow
 - Firewall throughput statistics
 - 8.4.9.2 up-to-date accumulated statistics (or near real time with no longer than 10 (ten) minutes delayed updating) of all in-scope elements of the Internet and Hosting Services over the Term of the agreement including:
 - Availability
 - Capacity utilisation (by traffic type)
 - Error rates
 - IP traffic flow
 - Firewall throughput statistics
- Detailed time interval records should be kept for at least 60 (sixty) days.
- 8.4.9.3 monthly reports of all outages affecting the Internet and Hosting Services (including one-time outages and special summaries for frequently recurring outages and any planned changes within the ISP provided services). Such outage reports will include at least the following details: date and location of outage; outage hours; root cause of outage; actions taken, impact, timelines, and problem resolution; associated Service Level Credits; and additionally, the following cumulative data: total number of outages, average duration of outage, average response time, and average repair time;
 - 8.4.9.4 reports of all major events affecting or potentially affecting the Internet and Hosting Services;
 - 8.4.9.5 reports of all events that were not repaired within the required time intervals;
 - 8.4.9.6 reports indicating trends by root cause as determined on trouble ticket

closure. In addition, the record of identified actions the Service Provider is taking to address problems;

- 8.4.9.7 reports with a historical correlation of trouble tickets affecting the same element of the Services. The correlation parameters (i.e., network elements, number of trouble tickets and time period of measurement) may be determined by SARS;
- 8.4.9.8 inventory data, including the configuration, assignments, parameters, barcodes, SARS location, logical link capacities and settings applied to all items of equipment implemented to deliver the Internet and Hosting Services.

The Monitoring and Reporting Portal must include functionality to:

- effect role-based access;
- filter all reports to certain date ranges, and other filters to limit the selection of data. Reporting functionality must allow summarisation to selectable time periods (e.g. per day, week, month year etc.);
- specify recipients of a report and the ability to email reports to the specified recipient email addresses at specified frequencies; and
- send SMS notifications of incidents and threshold breaches as defined by SARS.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan including timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Monitoring and Reporting Portal is operational 3 (three) months after the Effective Date and in no event later than when the first service are taken on by the Service Provider during Transition.

8.4.10 **Customer Provisioning Portal**

The Bidder's Proposal should include a Customer Provisioning Portal which provides the following functionality and information to SARS through an Internet portal:

- Pricing of new installations, upgrades and downgrades to elements of the solution;
- Ability to order the provisioning of a new Service or change to an existing Service;
- Decommissioning/cancellation; and
- Order tracking (including third party orders).

Reporting on a full order history for all orders placed during the term including but not limited to the following information:

- Date of placement of order;
- Date of fulfilment of order;
- Details of order;

- Price of order; and
- Price of component increase and decrease ;and
- Tracking and reporting on variances from the original Proposal configuration.

The Customer Provisioning Portal must include functionality to:

- ensure that SARS-related information can only be accessed by persons and systems authorised by SARS and should be segmented to cater for role-based access (e.g. financial information is only accessible by persons fulfilling a financial role);
- filter all reports to certain date ranges, and other filters to limit the data selected. Summarisation functionality must allow summarisation to selectable time periods (e.g. per day, week, month year etc.); and
- specify recipients of the report and the ability to email reports to the specified recipient email addresses at specified frequencies.

The Bidder is required to provide details of its current capability to deliver the requirements as set out above as well as details of its plan including timelines to which the Bidder is prepared to commit to implement the full functionality as set out above. While it is not a requirement that the Bidder must currently possess the capability to provide all the specified functionality, it is a mandatory requirement that the Customer Provisioning Portal is operational 3 (three) months after the Effective Date and in no event later than when the first service are taken on by the Service Provider during Transition.

8.4.11 Monitoring

The Service Provider must actively monitor the status of all components of the Internet and Hosting Services. In the event of an incident affecting any component of the Internet and Hosting Services, the Service Provider must proactively diagnose, establish the necessary actions to restore Services and commence and complete restoration activities. The Service Provider must proactively contact SARS or a party nominated by SARS at designated stages in the detection, diagnosis and repair events.

The Service Provider will be required to co-operate in providing monitoring information and interfacing to the SARS monitoring centre.

8.5 Transition

8.5.1 Timelines

The current service provider is contracted to perform handover activities to the successful Bidder. Pricing for transition must include all activities the successful Bidder will need to undertake to meet all the requirements of this Business Requirements Specification, including the activities to take over from the incumbent service provider.

The Service Provider appointed in Tower I is required to complete the Transition Services within a 3 (three) month period from the time of the award and finalisation of the contract. By this time, the Service Provider must have assumed full management responsibility for the scope of Internet Services and, to the extents elements of the Hosting Services have been included, the Hosting Services. In this regard the Service Provider must have:

- Fully designed, developed and implemented the processes, procedures, schedules and work practices detailed in Network Carrier and Infrastructure Services Agreement, especially those detailed in Schedule B-I and its attachments;
- Provisioned the circuit between Brooklyn and the Service Provider's hosting environment (if required by SARS);
- Attended any training specified by SARS to understand the SARS environment, systems and operating procedures;
- Provisioned and cut over the Hosted Infrastructure Application Services to the Service Provider offerings:
 - Email gateway service (anti-SPAM and anti-virus);
 - Firewall services;
- Taken over management of the SARS domain management;
- Cutover Internet access to the Service Provider's network;
- Developed and implemented the Monitoring and Reporting Portal; and
- Developed and implemented the Customer Provisioning Portal.
- If so contracted, provisioned and moved the SARS Hosted Environment to the Service Provider's data-centre and established associated services, including the Remote Access Services and Hosting environment monitoring services;

9 TOWER S : SMS CARRIER SERVICES

9.1 Scope

The provision of SMS Carrier Services comprises the delivery of computer-generated SMS messages to mobile subscribers of all Mobile Operators (MOs). The Service Provider must:

- include the provision of all infrastructure at the Service Provider's datacentre to receive SMS messages from SARS and to transmit to the MOs;
- allow for the transmission of high and low priority SMS on separate queuing systems to meet Service Levels for the delivery of different message priorities.

9.2 Current Delivery Model

SARS currently maintains contracts with 2 (two) service providers for the transmission of SMS messages generated by SARS systems.

The SMS functionality currently used by SARS is that of outbound messages not requiring a response from the subscriber.

Messages are sent using the SMPP protocol over the Internet to the Service Provider's SMSC.

The projected volume of SMS's to be sent by SARS is 63,000,000 for the 2016/17 financial year.

9.3 Required Delivery Model

9.3.1 Non-Exclusivity

SARS is seeking to maintain contracts for the transmission of SMS messages with up to two Service Providers in Tower S. In the event that more than one Service Provider is appointed, SARS will elect to route SMS traffic to a particular Service Provider based on the following decision criteria:

- price;
- Service Levels offered; and/or
- availability and performance (if a Service Provider's Service is unavailable or is delivering SMS in times in excess of the Service Level, then an alternate Service Provider may be used by SARS, either on a temporary or on-going basis).

During the term, SARS will on a periodic basis, no less frequently than annually, update the routing algorithms for its SMS traffic to the Service Providers based on then current availability, performance and pricing for as they may apply to different classes of subscribers.

9.3.2 Mobile Operator Agreements

The Service Provider must maintain agreements with each of the Mobile Operators and its SMSC (Short Message Service Centre) must bind with each of the Mobile Operators directly. The Service Provider must not be reliant on, and must not send traffic via other WASPs in order to transmit SMS messages to the MO's.

The Bidder must supply SARS with any codes of conduct that SARS will be required to agree to as a condition of providing the Services.

9.4 Detailed Requirements for SMS Carrier Services

9.4.1 SMS requirements

SARS requires a solution which, at a minimum, must provide for:

- Scheduled or ad-hoc reminders and messages regarding SARS' services, e.g.:
 - Reminders to business channels/partners /taxpayers;
 - Promotional messages;
 - Employee notices; and
 - SARS Exchange based e-mail to SMS
- General transactional notices, e.g.:
 - Notices about certain filing status;
 - Transactional message notifications; and
 - Individual reminders;
- Transactional (time-sensitive) notices, e.g.:
 - Password resets; and
 - Event triggered operational notifications.

The solution must be capable of receiving delivery confirmations that can be interrogated by SARS to determine the delivery status of a message. The Bidder must provide details of how this can be accomplished by its solution.

The solution must be capable of restricting transmission of messages to certain times of the day which may vary depending on the day of the week. The solution must provide SARS with the flexibility to change these times from time to time.

While the current volumes of SMS sent by SARS are projected at 63,000,000 per annum, this figure is expected to increase during the Term depending on the acceptance, usage and enhancement of this channel for taxpayer communications.

SARS, however, makes no commitment to volumes of SMSs that will be sent during the Term.

9.4.2 Additional functionality requirements

While the SMS functionality currently used by SARS is that of outbound messages not requiring a response from the subscriber, the following functionality may be required during the Term and the Bidder's ability to provide such services will form part of the evaluation:

- USSD (Unstructured Supplementary Services Data)

The Service Provider must support SMS based services capable of delivering session-based transactions.

- User initiated SMS-based queries

The Service Provider must support the functionality for a subscriber to initiate a query and receive a response from SARS systems through SMS.

- MMS (Multi-media Messaging services)

The Bidder must show its capability to enable SARS to send MMS to subscribers of all mobile networks.

9.4.3 Monitoring and Reporting

Monitoring and reporting is an important requirement to be addressed in the Bidder's Proposal.

SARS requires the Service Provider to perform monitoring of the SMS Carrier Service and to provide such reporting to SARS.

- 9.4.3.1 real-time monitoring of all in-scope elements of the SMS Carrier Services in a including:

- Up / down availability status of circuits to the MO's
- Capacity utilisation of critical elements
- Queue status

- 9.4.3.2 up-to-date monthly accumulated statistics of all in-scope elements of the SMS Carrier Services over the Term of the agreement including:

- Traffic volumes
- Incidents and problems
- Break down of volumes per channel and within each channel the relevant department or cost centre. 'Channel' means one of high and low priority SMSs, bulk campaign SMSs, e-mail to SMS, system monitoring SMSs.

- 9.4.3.3 Monitoring tools to analyse the outbound transactions to detect unusual usage.

9.4.4 Transmission of SMSs from SARS

Currently SARS sends SMSs to its incumbent service providers using the Internet. The Bidder may propose alternate connection options that may present lower risk and higher reliability. The Service Provider must bear all costs relating to such connections.

9.4.5 Service Level Requirements

SARS understands that no Service Level can be guaranteed for delivery to a mobile device. However SARS is seeking Proposals that will provide Service Levels across those components in the delivery chain on which performance and reliability undertakings can be offered and that are within the Service Provider's control.

The Bidder will be required to propose such Service Levels which will be incorporated in Schedule C of the Network Carrier and Infrastructure Services Agreement. Any Service Levels proposed by the Bidder must be able to be measured by the Bidder and those target levels proposed will form the basis for performance management and the payment of Service Credits.

9.5 Transition

9.5.1 Timelines

The current service provider is contracted to perform handover activities to the successful Bidder. Pricing for transition must include all activities the successful Bidder will need to undertake to meet all the requirements of this Business Requirements Specification, including the activities to take over from the incumbent service provider.

The Service Provider(s) appointed in Tower S is required to complete the Transition Services within a 2 (two) month period from the time of the award and finalisation of the contract. By this time, the Service Provider must have assumed full management responsibility for the full scope of SMS Carrier Services. In this regard the Service Provider must have:

- Fully designed, developed and implemented the processes, procedures, schedules and work practices detailed in Network Carrier and Infrastructure Services Agreement, especially those detailed in Schedule B-S and its attachments;
- Attended any training specified by SARS to understand the SARS environment, systems and operating procedures.

----- Document ends -----