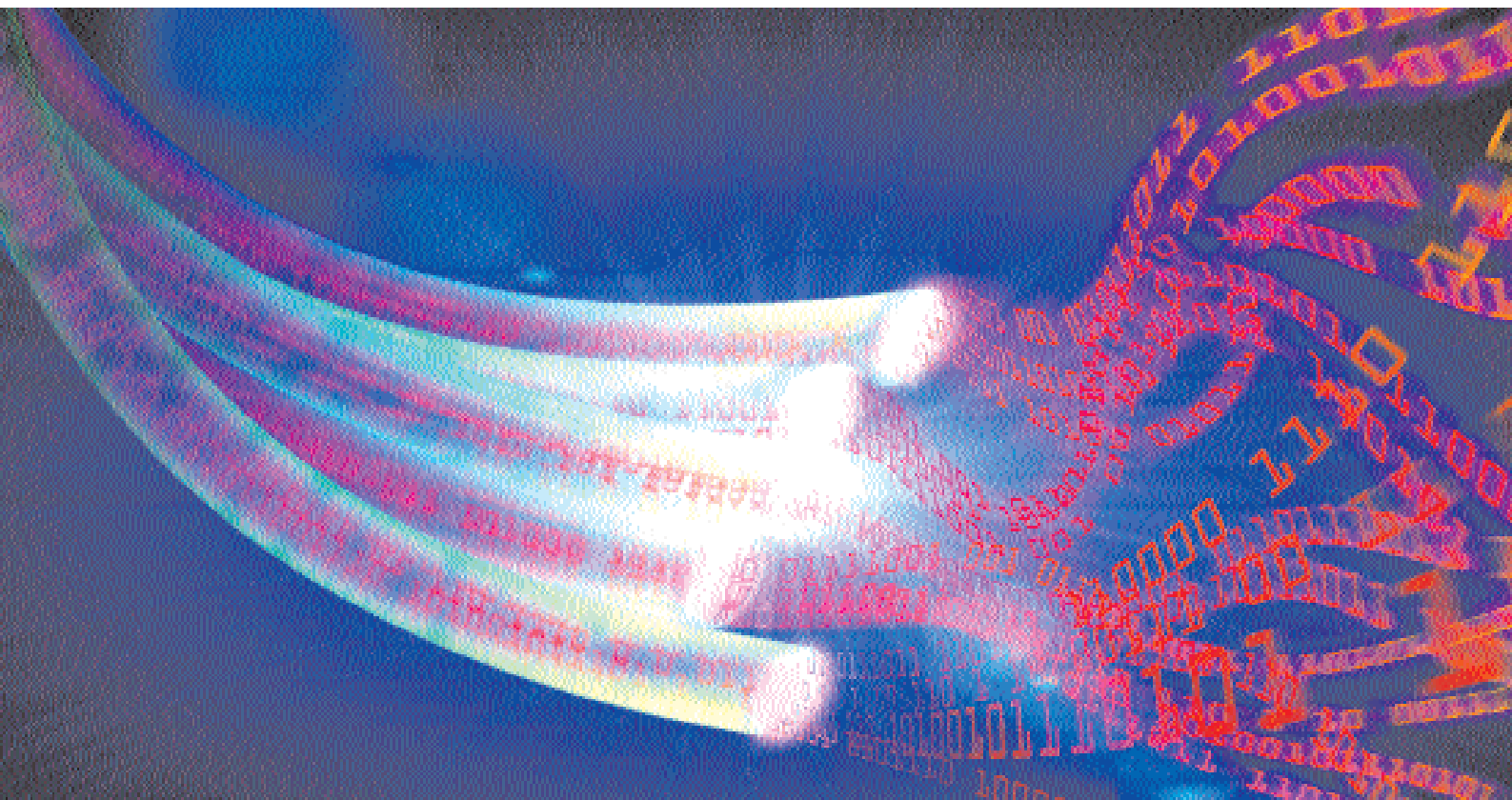


Your access to **GREATER PRODUCTIVITY**



product guide

Telstra Mobile® **SMS ACCESS** Manager



[www.telstra.com](http://www.telstra.com)

	Page		Page
<b>1 CONTACTS</b>	<b>2</b>	<b>9 NETWORK INFORMATION</b>	<b>10</b>
<b>2 GLOSSARY</b>	<b>2</b>	9.1 Domestic Networks	10
<b>3 INTRODUCTION</b>	<b>2</b>	9.2 International Networks	10
3.1 What is SMS?	2	<b>10 CUSTOMER REQUIREMENTS</b>	<b>10</b>
3.2 Key Features	2	10.1 Service and Support	10
3.3 Corporate Usage	2	10.2 Capacity and Throughput	10
<b>4 TELSTRA MOBILE SMS ACCESS MANAGER</b>	<b>3</b>	<b>11 REPORTING</b>	<b>11</b>
4.1 Restriction on Use	3	<b>12 REFERENCES</b>	<b>11</b>
<b>5 TELSTRA MOBILE SMS ACCESS MANAGER – ACCESS SOLUTIONS</b>	<b>3</b>	<b>APPENDIX 1: ALTERNATIVE ACCESS SOLUTIONS</b>	<b>11</b>
<b>6 TELSTRA MOBILE SMS ACCESS MANAGER – PRICING</b>	<b>4</b>	<b>13 WIRELESS ACCESS</b>	<b>11</b>
<b>7 TELSTRA MOBILE SMS ACCESS MANAGER – SMPP ACCESS</b>	<b>5</b>	13.1 Solution Overview	11
7.1 Solution Overview	5	13.1.1 Key Features	11
7.1.1 Key Features	5	13.2 Billing	11
7.2 Billing	6	13.2.1 System Requirements	11
7.3 Provisioning	6	13.2.2 Connection Process	11
7.3.1 System Requirements	6	<b>14 DIAL-UP ACCESS</b>	<b>12</b>
7.3.2 Connection Process	7	14.1 Solution Overview	12
7.4 Post Provisioning	7	14.1.1 Key Features	12
7.4.1 Modifying the Service	7	14.2 Billing	12
7.4.2 Terminating the Service	7	14.3 Provisioning	12
7.5 Short Message Peer to Peer Protocol	8	14.3.1 System Requirements	12
7.5.1 Available Feature Set	8	14.3.2 Connection Process	12
7.5.2 Unavailable Feature Set	8		
<b>8 RETRY METHODOLOGY</b>	<b>9</b>		
8.1 Message States	9		
8.2 Message Delivery Failure	9		
8.2.1 Undeliverable	9		
8.2.2 Absent	9		
8.2.3 Temporary Fail	9		

## 1 CONTACTS

For further information contact your account executive:

Name:

Contact Number:

## 2 GLOSSARY

<b>ESME</b>	External Short Message Entity	<b>SMSC</b>	Short Message Service Centre
<b>HTTP</b>	HyperText Transfer Protocol	<b>SMPP</b>	Short Message Peer to Peer Protocol
<b>MAINS</b>	Messaging Access Intelligent Network Switch	<b>TAP</b>	Telocator Alphanumeric Protocol
<b>MO</b>	Mobile Originated	<b>TCP/IP</b>	Transmission Control Protocol / Internet Protocol
<b>SMS</b>	Short Message Service	<b>VPN</b>	Virtual Private Network

## 3 INTRODUCTION

### 3.1 What is SMS?

Short Message Service (“SMS”) refers to the ability to send text messages to and from a mobile phone. These text messages can be 160 characters in length.

SMS provides a simple and informative way of staying in touch.

### 3.2 Key Features

SMS has several key features, some of which are summarised below:

- **160 Characters:** A single message can be up to 160 characters of text in length. Non-text based short messages, for example, in binary format, are also supported. Keep in mind, not all networks within Australia can support the full 160 characters.
- **Store and Forward Service:** SMS is a store and forward service. That is, short messages are not sent directly from the sender to the recipient, but via an SMS Centre. The SMS Centre will continue its attempts to deliver a message for seven days.

- **Simultaneous with Voice, Data and Fax:** An SMS can be sent and received simultaneously with GSM voice, data and fax calls. That is, an SMS travels over and above the radio channel using the signalling path.

- **Automatic Number Display:** The sender’s mobile number (that is, the source address) is automatically sent with the message text. This enables two-way messaging between the sender and the recipient.

### 3.3 Corporate Usage

The popularity of SMS has increased considerably in recent times. Not only is SMS a mainstream form of communication for consumers, it is now common among business users.

To help businesses take full advantage of SMS, Telstra Mobile has developed the Telstra Mobile SMS Access Manager.

## 4 TELSTRA MOBILE SMS ACCESS MANAGER

Telstra Mobile has developed Telstra Mobile SMS Access Manager to provide flexible access to the SMS network infrastructure. The product's purpose is to deliver large volumes of messages via a standardised, scalable and fully redundant platform.

With Telstra Mobile SMS Access Manager, SMS can be used as a tool for both business and individual communication. Some of the more notable applications include: job dispatch, permission marketing and content provision. Please note that Telstra does not guarantee that Telstra Mobile SMS Access Manager is suitable for these or other purposes for an individual customer.

### 4.1 Restriction on Use

Please note that in certain circumstances the use of Telstra Mobile SMS Access Manager is restricted. For example, a customer sending marketing messages must ensure that each recipient has agreed to receive the message and has the ability to opt out of receiving such messages in the future. A customer should carefully review the terms of their agreement with Telstra before sending any messages using Telstra Mobile SMS Access Manager.

## 5 TELSTRA MOBILE SMS ACCESS MANAGER – ACCESS SOLUTIONS

When delivering large volumes of messages, Telstra Mobile SMS Access Manager utilises Telstra Mobile's Messaging Access Intelligent Network Switch ("MAINS"). MAINS conveniently provides one point of connection to Telstra's multiple SMS Centres.

A connection to MAINS can be initiated in a variety of ways. Each access solution has a different service option depending upon usage requirements. Notably, connections initiated via TCP/IP represent the most convenient method of access.

Consider the following access solutions:

### SMPP Access

This solution allows for a more standardised and commonly available access method to the SMS network. It utilises a common SMS Centre access language called the Short Message Peer to Peer protocol ("SMPP").

The SMPP protocol is discussed further in section 7.5.

### Wireless Access

This level of access provides simple usage via a mobile handset (or GSM modem) and a computer. The handset needs to be interfaced with a computer equipped with handset compatible software. This solution is suited to organisations with minimal throughput requirements.

See Appendix One for a more comprehensive description.

### Dial-Up Access

With this solution the customer can use multi-message message dial up to connect of their own message sending software based on TAP protocol.

See Appendix One for a more comprehensive description.

## 6 TELSTRA MOBILE SMS ACCESS MANAGER – PRICING

---

Telstra Mobile SMS Access Manager has been established to enable flexible access at a price that reflects the volume of messages sent. The appropriate price will be in accordance with the pricing set out in Telstra's Standard Form of Agreement or, if Telstra considers it appropriate, may be negotiated during the application process. In all cases, the price will reflect the forecasted monthly volume of messages. Customers may have to commit to a monthly minimum spend and a minimum connection period ( of at least 6 months ).

There are two specific pricing models relevant to Telstra Mobile SMS Access Manager. Both models have been designed to accommodate the nature and use of the connection. Customers accessing the network with Wireless Access must pay the Single Rate. Customers accessing the network with SMPP Access or Dial Up Access may choose either the Single or Multiple Rate.

### Single Rate

This pricing scenario should be applied when the customer has limited knowledge of the terminating network. Single rate pricing provides the customer the opportunity to easily determine and predict the costs associated with the product. Single rate pricing will only be provided where the customer can commit to more than 25 per cent of all messages being received on handsets connected to the Telstra Mobile network.

### Multiple Rate

With this pricing scenario the customer pays differently according to the network of termination. For example, this pricing scenario can be specifically applied where all proposed messages are terminated on handsets connected to the Telstra Mobile network. This may occur when all messages are received on a fleet of corporate mobiles connected to the Telstra Mobile network.

Regardless of whether a customer chooses the Single or Multiple Rate, they must pay a monthly access fee for the Telstra Mobile service(s) they use in conjunction with Telstra Mobile SMS Access Manager. Customers connecting via TCP/IP must also pay an initial registration fee.

## 7 TELSTRA MOBILE SMS ACCESS MANAGER – SMPP ACCESS

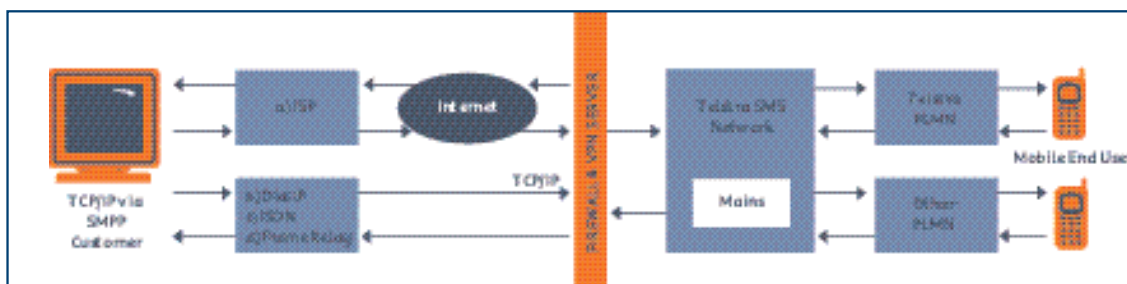
### 7.1 Solution Overview

This form of access allows for a more standardised and commonly available access method to the network infrastructure. It utilises SMPP as the standard application protocol and provides an array of associated functions.

With this form of access, the customer is provided with a dedicated firewall and access server to the network using one of the following interfaces:

- Access via the Internet
- Access via Dial IP
- Access via ISDN
- Access via Frame Relay.

The following diagram provides an overview of the solution:



#### 7.1.1 Key Features

This level of access provides a point of connection capable of supporting communication via the SMPP protocol. The protocol is based on a request/response session between the client application and the SMS Centre. Accordingly, the connection offers a set of two-way messaging functions that have previously been unavailable.

For a more detailed discussion of the SMPP protocol see section 7.5.

### Two-Way Messaging

The SMPP protocol delivers a two-way messaging function between the originating and terminating device. Traditionally, messages originated over a basic Dial Up connection have been one-way.

A two-way messaging session can be achieved by maintaining a constant bind with MAINS. This ensures a constant request/response session between the External Short Message Entity (“ESME”) and the terminating device. Please note that the current arrangement for SMS interconnect enables a reply path from handsets on the Telstra Mobile network and other domestic networks.

Refer to section 9 for more information on current network information.

### Security

As a binary-based protocol that requires the client application to initiate a login sequence using a password and user identification, the protocol provides an enhanced level of security. Moreover, Telstra Mobile’s infrastructure ensures ongoing secure access to the network.

## 7 TELSTRA MOBILE SMS ACCESS MANAGER – SMPP ACCESS

### 7.2 Billing

With the release of Telstra Mobile SMS Access Manager, all charges are levied on the originating party's chargeable number. As discussed, there is also a monthly access fee associated with the Telstra Mobile service(s) used in conjunction with Telstra Mobile SMS Access Manager. Customers connecting via TCP/IP must also pay an initial registration fee.

Charges are also levied against the chargeable number if a registered message is submitted - only customers using SMPP Access may submit a registered message. In general, a registered message will notify the originator of the final state of a message – see Section 8.

While a final state notification can be guaranteed within the Telstra Mobile network, it cannot be guaranteed where the messages terminate on another network. In this regard, the full extent of functionality is limited, as Telstra Mobile is not responsible for the configuration and architecture of the terminating network.

### 7.3 Provisioning

In provisioning access to MAINS, Telstra Mobile expect the customer will have sufficient technical competence to have developed an SMPP interface to MAINS. Customers are also expected to have sufficiently dealt with their own firewall and security concerns. Ultimately, technical readiness will ensure that the duration of testing is limited to the shortest possible time frame and that a live connection can be made without delay.

#### 7.3.1 System Requirements

The system requirements will depend on the method of connection the customer chooses. A customer can use their existing Internet connection (see below) in conjunction with the provided VPN configuration to securely connect into the SMS network.

For a thorough description of what a VPN is, and the deployment options please refer to:

[http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito\\_doc/vpn.htm](http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/vpn.htm)

Each option listed below represents a standard access medium for initiating a private Internet connection to MAINS. The installation and configuration of the connection can be fulfilled by other divisions within Telstra or in consultation with your account team.

Consider the following system requirements:

CONNECTION	SYSTEM REQUIREMENTS
INTERNET	<p>The customer will require:</p> <ul style="list-style-type: none"> <li>• A link to the Internet* (for example, Big Pond)</li> <li>• A Cisco 800 series (or higher) router which supports IPSec</li> <li>• A server (or PC) running client software that supports SMPP.</li> </ul> <p>Go to: <a href="http://www.telstra.com.au/internet">http://www.telstra.com.au/internet</a></p>
ISDN	<p>The customer will require:</p> <ul style="list-style-type: none"> <li>• An ISDN connection* allowing access to the Dial IP network</li> <li>• A server (or PC) running client software that supports SMPP.</li> </ul> <p>Go to: <a href="http://www.telstra.com.au/sfoa/docs/psds.doc">http://www.telstra.com.au/sfoa/docs/psds.doc</a></p>
DIAL IP	<p>The customer will require:</p> <ul style="list-style-type: none"> <li>• A PSTN connection* allowing access to the Dial IP network</li> <li>• A server (or PC) running client software that supports SMPP.</li> </ul> <p>Go to: <a href="http://www.telstra.com.au/sfoa/docs/isdn.doc">http://www.telstra.com.au/sfoa/docs/isdn.doc</a></p>
FRAME RELAY	<p>The customer will require:</p> <ul style="list-style-type: none"> <li>• A dedicated frame relay connection*</li> <li>• A server (or PC) running client software that supports SMPP.</li> </ul> <p>Go to: <a href="http://www.telstra.com.au/sfoa/docs/lds.doc">http://www.telstra.com.au/sfoa/docs/lds.doc</a></p>

Items marked with an asterisk can be supplied and installed by other divisions within Telstra. Please contact your account team or Telstra representative for additional information.

## 7 TELSTRA MOBILE SMS ACCESS MANAGER – SMPP ACCESS

### 7.3.2 Connection Process

A connection to MAINS depends on successfully connecting and testing in the model SMS Centre network. The following process clearly defines the steps that must be undertaken in provisioning access:

#### Step One

##### Define and Provision the Connection Medium

As discussed, the customer is responsible for selecting the appropriate method of connection. The nature of this connection will be dictated by throughput requirements and existing infrastructure.

Upon selecting the method of connection, the customer will be required to provide Telstra Mobile with the details necessary to provision the service in the model SMS Centre network.

A representative from Telstra Mobile will liaise with both the customer and the team responsible for activation to ensure that the provisioning process is managed effectively.

#### Step Two

##### Connect and Initiate Testing on the Model SMS Centre

In order to facilitate a connection and testing in the model SMS Centre network, Telstra Mobile may provide the following SMPP parameters - example values are shown in parenthesis:

System Id	{'Company_Name'}
Password	{'AnyPassword'}
Ton	{'0'}
Npi	{'0'}
MSISDN	{'0'}
System Type	{'MHS'}
Destination IP address and TCP Port	{202.12.34.6, port 8490}

Connection to the live SMS Network is conditional upon approval being received. The aim of testing is to verify that the SMPP as implemented by the customer is able to communicate, is stable and can successfully send and receive messages.

Please note that the functionality of the application that drives the SMPP communication is not being tested. As previously discussed, this is the responsibility of the customer.

#### Step Three

##### Connect to MAINS and the Live SMS Network

Upon satisfying all testing requirements, the customer will be provisioned on the live network - this includes the provision of access through all firewalls and access to MAINS itself.

During the provisioning process, Telstra Mobile will endeavour to provide support where available. An informal test plan will be communicated prior to testing. However, before connection to the live network, Telstra Mobile does not maintain any service level agreements.

### 7.4 Post Provisioning

Upon the successful provisioning of Telstra Mobile SMS Access Manager, Telstra Mobile will be committed to supporting any technical faults associated with its network. The relevant contact details will be provided once the service has been provisioned.

#### 7.4.1 Modifying the Service

Where a customer requires their service to be modified, approximately 10 days notice is necessary. This will enable Telstra Mobile to facilitate a new connection and conduct testing again. The same connection process described above will need to be undertaken.

#### 7.4.2 Terminating the Service

Where a customer wants to terminate their service, 60 days notice is necessary. Please refer to the Telstra Mobile Short Message Service Access Agreement for further information.



## 7 TELSTRA MOBILE SMS ACCESS MANAGER – SMPP ACCESS

### 7.5 Short Message Peer to Peer Protocol

The SMPP protocol is an open standard protocol designed to provide a flexible data-communications interface for the transfer of short messages. It has been specifically designed to enable applications and value-added products to communicate with an access gateway such as the Telstra Mobile MAINS platform.

All references to the SMPP protocol within this document are made to version 3.3. For a more comprehensive discussion of the SMPP protocol refer to the specification at: <http://www.smpp.org>.

#### 7.5.1 Available Feature Set

As previously discussed, SMPP is based on a request/response session between an SMS Centre and the ESME. The following list provides a brief (non-exhaustive) summary of the SMPP operations supported by Telstra Mobile – for more specific information on unsupported SMPP operations see below:

##### “BIND” Operation

The “BIND” Operation allows the ESME to set up a virtual connection with MAINS. Authentication is ensured through the exchange of password and unique identification numbers.

##### “SUBMIT\_SM” Operation

The “SUBMIT\_SM” Operation enables the ESME to submit a short message to MAINS for transmission. Additional parameters can be included in the “message” field adding further functionality.

##### “DELIVER\_SM” Operation

This command allows the SMS Centre to deliver confirmation messages back to the ESME. Where the “registered\_delivery\_flag” is set, a notification will be provided when the message reaches its final state.

In general, a registered message will notify the originator of the final state of a message – see Section 8. As previously discussed, while this function can be guaranteed within the Telstra Mobile network, it cannot be guaranteed where the message terminates on another network. In this regard, the full extent of functionality is limited, as Telstra Mobile is not responsible for the configuration and architecture of the terminating network.

Please note that the registered message function can only be supported where a valid MSISDN is used as the source address. That is, a final state notification cannot be routed back to an alphanumeric source address.

#### 7.5.2 Unavailable Feature Set

As a general rule, Telstra does not support the following SMPP operations. Notwithstanding, there may be instances where their usage can be permitted. For a more thorough explanation of our capacity to support these operations and a further explanation of all SMPP related features, please consult your Telstra Mobile representative.

##### “QUERY\_SM” Operation

This command is issued by the ESME to query the status of a previously submitted short message. The “QUERY\_SM” Operation can be used to query the status of a message sent to a single address, a distribution list or multiple recipients.

##### “CANCEL\_SM” Operation

This command can be used to cancel short messages that have not yet been delivered. Single messages or all messages with a particular source and destination address can be cancelled.

##### “REPLACE\_SM” Operation

This command allows the ESME to replace outstanding messages with new text.

Telstra Mobile has no capacity to support the following SMPP operation:

##### “SUBMIT\_MULTI” Operation

This command is used to submit messages to multiple recipients. This does not restrict the customer from sending bulk messages. Effectively, the “SUBMIT\_SM” Operation will need to be used per message.

## 8 RETRY METHODOLOGY

### 8.1 Message States

Once a message has entered the Telstra SMS Centre (via MAINS) it is forwarded to the mobile network for delivery. As it passes through the network it will change states. These states reflect the progress of the message delivery. In general, they can be described as:

STATE	DESCRIPTION
Accepted	The message has been successfully entered into the SMS Centre marked by Telstra Mobile as sent.
For Delivery	The message has been checked and is ready for delivery.
Scheduled	The message has a pre-defined time for sending the message.
For Re-Delivery	The message delivery failed, and the message is to be re-sent.
Delivered	The message has been successfully sent to a mobile phone.
Deleted	The message has been deleted by Telstra Mobile.
Expired	The message validity period has expired.
Undeliverable	A condition exists that prevents message delivery.

### 8.2 Message Delivery Failure

There are various different errors that may cause the failure of a message to be delivered on the first attempt. These range from incorrect addressing, network errors and handset constraints. The following list represents some of the handset specific failures:

- The mobile phone is powered off or is temporarily out of radio range
- The mobile phone memory which holds short messages is full
- The mobile phone does not have the short message capability
- There has been signalling or system failure in the mobile network
- The customer's mobile service is barred for receipt of SMS messages.

In short, there are a multitude of reasons for failed message delivery. Moreover, each type of failure is handled differently by the SMS Centre - this is set by configuration parameters specific to the failure type. These may be grouped into three broad categories:

#### 8.2.1 Undeliverable

The system will not attempt a delivery retry for a message failure categorised as “undeliverable”. An “undeliverable” message is likely to arise when a phone does not support the receipt of short messages or the message is incorrectly addressed. “Undeliverable” messages are marked as “done” and purged from the message file.

#### 8.2.2 Absent

For a message failure categorised as “absent”, the system will retry delivery based on both a trigger from the mobile switch and a retry algorithm. A message is held in the retry (i.e. for delivery) state, until the mobile phone registers. That is, it is turned on and signals back to the switch that it is connecting to the mobile network.

In short, an attempt to deliver the message will be made when the mobile registers or roams onto a network that supports SMS. “Absent” messages that are not delivered within the system default time period of 7 days are marked as “expired” and are purged from the message file.

#### 8.2.3 Temporary Fail

For a message failure categorised as “temporary fail”, the system will retry delivery but the retry algorithm is varied according to the configuration parameters associated with the particular reason for the “temporary fail”. For each type of “temporary fail”, there can be up to 8 levels of retry, and each retry level can be repeated numerous times.

## 9 NETWORK INFORMATION

### 9.1 Domestic Networks

The current interconnect environment now facilitates the implementation of a solution that takes full advantage of the two-way messaging function delivered by the SMPP protocol.

In short, the arrangement for SMS interconnect between Telstra Mobile and the other domestic networks can be summarised as follows:

- Message termination on all networks; and
- A reply path from all networks.

Please note that Telstra cannot guarantee delivery on any network. A customer is charged based on the submission of a message and will still be charged for an SMS message if it is not successfully delivered.

### 9.2 International Networks

For messages terminating on international networks, delivery will only be achieved if an international roaming agreement exists with the relevant carrier. If not, the two-way functionality will not be supported. Telstra has international roaming agreements with a subset of international cellular networks.

## 10 CUSTOMER REQUIREMENTS

### 10.1 Service And Support

A connection to the MAINS provides customers with a high benchmark for network service and availability. Telstra Mobile undertakes 99.5 per cent availability of the mobile network. The level of availability of the network is also dependent on the connection medium utilised.

Telstra Mobile also undertake to resolve any faults that may exist in relation to their SMS network. Contact details for technical support will be provided to the customer at the time of initiating a connection to MAINS.

Telstra Mobile will also provide limited technical support for development and testing. However, as discussed, Telstra Mobile will not provide assistance in the development of an SMPP application interface to MAINS.

### 10.2 Capacity And Throughput

In theory, there is no limit to the number of messages that can be delivered to MAINS. This is a result of the “store and forward” feature of SMS messaging. That is, messages will be queued and delivered accordingly. Nonetheless, a benchmark limit has been established to avoid congestion within MAINS and the subsequent mobile network.

In this context, the maximum message capacity per second per connection is 30 messages. Please note that this is not the end-to-end message rate - this reflects the maximum capacity available in MAINS. In the first instance, the throughput volume achievable by a customer depends on the method of connection.

The following table provides a quick reference guide in relation to the bandwidth achievable over some of the connection options available. Please note that other factors such as traffic congestion, Quality of Service and VPN overhead will impact actual throughput.

CONNECTION	BANDWIDTH	MESSAGES PER SECOND
Dial IP	28.8Kbit/s	5
ISDN (1 B Channel)	64Kbit/s	15
ISDN (2 B Channel)	128Kbit/s	30
Frame Relay	64Kbit/s	15
Frame Relay	128Kbit/s	30

The message capacity for an Internet VPN will vary according to the method of access chosen. Notwithstanding, the message capacity will be a representation of the above table less approximately 10 to 15 per cent to accommodate for VPN overhead.

## 11 REPORTING

The current release of Telstra Mobile SMS Access Manager does not cater for reporting. Future releases will incorporate a reporting interface designed to deliver concise information to the customer.

## 12 REFERENCES

Short Message Peer to Peer (SMPP) Interface Specification, Version 3.3.

Telocator Alphanumeric Protocol (TAP), Version 1.2, August 20, 1992, The Personal Communications Industry Association.

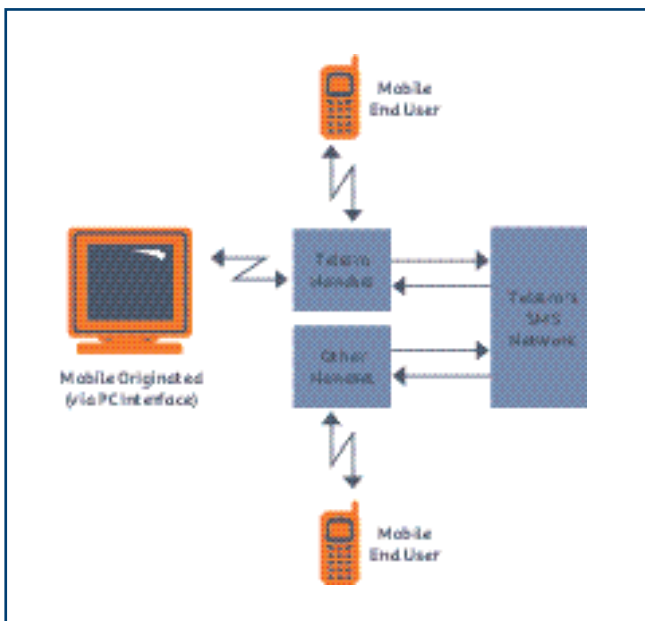
## Appendix 1: ALTERNATIVE ACCESS SOLUTIONS

## 13 WIRELESS ACCESS

### 13.1 Solution Overview

This solution provides access via a mobile handset (or GSM modem) and a computer. The handset needs to be interfaced with a computer equipped with handset compatible software. This solution is suited to organisations with minimal throughput requirements.

The following diagram provides an overview of the solution:



### 13.1.1 Key Features

A connection is initiated via a computer and associated mobile handset or GSM modem. The computer requires application specific software that communicates with the handset. The message sending process is equivalent to sending messages via a handset. However, the entry or retrieval of messages is via a computer.

### 13.2 Billing

All charges are levied to the originating party's chargeable number. Messages will be billed at the negotiated rate. This will be determined according to the forecasted volume of messages.

#### 13.2.1 System Requirements

A customer will need to ensure they have the following system requirements:

- Mobile (or GSM modem) with PC interface via PC/MIA card or RS232 adaptor.
- PC to mobile specific communications software.

#### 13.2.2 Connection Process

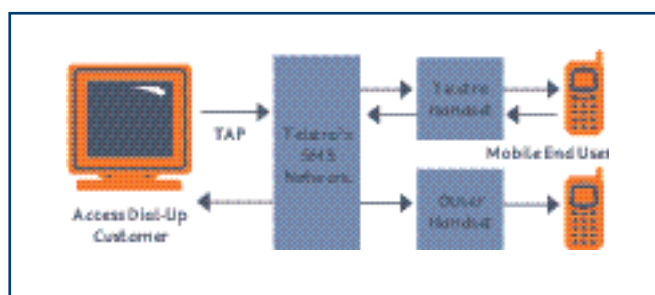
Once the above requirements are satisfied the customer will be supplied with a mobile phone service. This service will include a SIM card for the account. The customer will be required to supply the handset (or GSM modem).

## Appendix 1: ALTERNATIVE ACCESS SOLUTIONS

### 14 DIAL-UP ACCESS

#### 14.1 Solution Overview

This solution provides a direct connection to the SMS network via a PSTN dial up service. Access is enabled via a computer terminal employing message sending software. The following diagram provides an overview of the solution:



#### 14.1.1 Key Features

Using multi-message dial up, this is designed for customers wishing to develop their own message software based on the TAP protocol.

#### Multi-Message Dial Up

Multi-message dial up enables the customer to send multiple messages in a single dial up session. This solution is suited to organisations with minimal throughput requirements that do not require reply path capability.

#### 14.2 Billing

All charges are levied to the originating party's chargeable number. Messages will be billed at the negotiated rate. This will be determined according to the forecasted volume of messages.

An additional cost will be levied for the dial up PSTN call. This will be levied at the customers' relevant local call rate.

#### 14.3 Provisioning

##### 14.3.1 System Requirements

A customer will need to ensure the following system requirements:

- \* Compatible modem (capable of 2400 bps)
- \* TAP terminal software
- \* RS-232C physical interface.

##### 14.3.2 Connection Process

Once the above requirements are satisfied the customer will be supplied with the basic access dial-in number and additional details on the required settings for the communications line.