A2P SMS FEATURES GUIDE
PRODUCT REQUIREMENTS FOR ENABLING A SUCCESSFUL A2P SMS INFRASTRUCTURE
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EXECUTIVE SUMMARY

MEF’s Future of Messaging Programme was established in October 2015, uniting a collaborative cross-ecosystem working group of participants, represented by senior executives from across Commercial, Operator Relations, Product and Technical teams, to support and develop enterprise mobile messaging. The group defined three core objectives for the Programme:

- To combat fraud, by promoting and accelerating best practices to limit fraudulent behaviours
- To support and educate all stakeholders and develop trusted customer communications
- To advocate market innovation and best practices, shape a sustainable enterprise mobile messaging sector and accelerate growth

In its mission to accelerate knowledge-sharing across the enterprise mobile messaging delivery value chain, the Messaging Programme Participants have developed this guide to help even out the playing field so that all stakeholders, including Mobile Network Operators (MNOs), enterprise, messaging providers and app developers have access to a set of common tools and language to aid their understanding of the sector and support their discussions about Application to Person (A2P) Short Message Service (SMS) product features and requirements, also known as enterprise mobile messaging. The guide will further support these objectives by:

- Educating MNOs and developers on what features are required to build an effective and profitable enterprise messaging infrastructure
- Giving MNOs visibility of advanced features that will contribute to the development of more advanced products and services
- Providing MNOs with more effective tools to curate and manage their A2P SMS traffic, including visibility into classes of traffic and policy controls to support effective management, monetisation, and customer satisfaction of A2P SMS.
- Providing the buyers of A2P SMS with a tool to facilitate discussion and negotiations with MNOs

This guide identifies, describes and groups the MNO features which are essential to support a successful A2P SMS infrastructure, as follows:

- **Design Features**: core product requirements and decisions which will be translated as platform or service features
- **Platform Features**: core product functionalities, which establish the hardware and software components that an A2P SMS product should deliver to support client needs
- **Service Features**: the underlying, fundamental components of an A2P SMS messaging solution which are made available to A2P SMS Clients, such as enterprises, app developers and other messaging providers, etc.

It is recognised that the mobile messaging ecosystem is not a uniform or consistent environment. It has developed at different rates across various regions, originating sometimes very different legal, regulatory and business environments, where the various A2P SMS infrastructures are deployed. Therefore, this guide sets out different key features and recommended levels of compliance, from the minimum basic acceptable level, to an advanced medium-level, and finally, to the maximum premium level. This categorisation should support A2P SMS product owners and experts in designing their own solutions, whilst providing executive teams with visibility on the required level of investment needed to achieve a solid and competitive A2P SMS platform.
INTRODUCTION

Historically referred to as A2P – Application to Person or Application-2-Person – is the term used to refer to the automated communication occurring between a business and its customers; the terms ‘A2P’ and ‘enterprise mobile messaging’ are interchangeable. However, these terms do not prescribe the delivery technology, mechanism or app, i.e., A2P can be via SMS, MMS (Multimedia Message Service), and more recently RCS (Rich Communication Services).

A2P also incorporates OTT (Over-The-Top) apps, whereby messages are commonly delivered over an IP network, although OTT usually falls within the category of retail traffic. Ranging in age from the 25 year old SMS to the brand new RCS, these technologies are at different stages in terms of their development and geographical presence, with adoption rates varying significantly across the globe. Undoubtedly, though, SMS is the most well-established of A2P communications. It is a safe, efficient and cost-effective way for enterprises to build trusted relationships and communicate with their customers, which MEF’s Mobile Messaging Report 2016 attests to.

WHAT MESSAGING SERVICE OR APP DO YOU TRUST THE MOST TO COMMUNICATE WITH COMPANIES?

<table>
<thead>
<tr>
<th>Service/App</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS</td>
<td>35%</td>
</tr>
<tr>
<td>MESSAGING APP E.G. WHATSAPP, INSTAGRAM ETC.</td>
<td>28%</td>
</tr>
<tr>
<td>FACEBOOK, YAHOO MESSENGER OR SKYPE</td>
<td>18%</td>
</tr>
<tr>
<td>PUSH NOTIFICATION DIRECT TO THE COMPANY’S APP</td>
<td>16%</td>
</tr>
<tr>
<td>OTHER</td>
<td>4%</td>
</tr>
</tbody>
</table>
INTRODUCTION

The focus of this guide is enterprise mobile messaging delivered via SMS only, and therefore, for clarity and for the purposes of this guide, we will refer to ‘A2P SMS’ from this point on.

The growth of A2P SMS, driven by Enterprise to Consumer communications, continues to be strong for the following key reasons:

- It is the only truly ubiquitous communication mechanism, which, irrespective of technology, has the ability to reach 7 billion devices and over 5 billion people globally, besides voice
- It uses the only global addressing system in the world, i.e., the mobile phone number
- It is a trusted and reliable communications channel
- It is facilitated by a mature and well-established global technical and commercial infrastructure

Until recently, solutions such as A2P SMS or Value-Added Services (VAS) were not significant revenue sources for MNOs when compared to voice, roaming fees and peer-to-peer SMS, also known as P2P SMS or simply SMS. A2P SMS was therefore not given the same attention by MNOs in terms of the commercial opportunities available to them. However, regulatory and market shifts over the last ten years, coupled with the huge adoption rates of smartphones and their effect on mobile usage, have elevated A2P SMS to a key position within an MNO’s business strategy and is becoming an increasingly important source of revenue.

The perception that the opportunity of A2P SMS is limited to marketing has also changed. Many new internet-based services use A2P SMS for mission-critical communications such as verification or notifications, appointment reminders, and a variety of alerts, including those related to public-service announcements by schools and local government.

Additionally, new use cases reflecting innovation driven by “Gig-Economy” start-ups, including Uber and AirBnB for example, reflect an opportunity for MNOs to promote broader economic growth through their support of A2P SMS enterprise messaging. Use cases in areas such as IoT, with software updates for home electronics and devices, show additional opportunities for growth within the messaging sector. We are at the early stages of realising the innovative use cases which will drive the future growth of messaging. Advances in machine learning and artificial intelligence will further enhance innovation, development and growth.

Therefore, the promotion of a sound infrastructure and common policies across all MNOs and messaging providers globally is of critical importance. All of these factors have led MNOs to look seriously at A2P SMS, with the realisation that it requires significant attention and continuous development if it is to remain safe, reliable and, most importantly, profitable.

A2P SMS must keep evolving to ensure that it remains relevant in the enterprise messaging context and that it captures the seemingly open-ended opportunities for innovation and market growth. By implementing the fundamental basic requirements set out within this guide, MNOs can then shift their focus onto developing more innovative services and continue to support both the wider industry and their own customers.
INTRODUCTION

INTENDED AUDIENCE

This guide is recommended for any company which intends to, or is currently buying or selling A2P SMS. This includes:

- Mobile Network Operators (MNOs)
- Messaging Providers
- Enterprises
- A2P API Providers
- OTT App Providers
- Brands

Typically, those within the following roles should find this document of particular relevance within their day to day work:

- CTO Office
- Executive Sponsors of Enterprise/Bulk/A2P Messaging Business
- Enterprise/Bulk/A2P Messaging Business Unit Managers
- Enterprise/Bulk/A2P Messaging Product Managers
- Network Planning or Engineering Teams
- A2P SMS Client Communications Teams
THE BASICS
A2P SMS FEATURES GUIDE
THE BASICS

This document is not a technical guide – SMS is a very mature solution, with multiple resources widely available on the internet. However, for those readers less familiar with SMS, this section provides some background, definitions and technical detail for A2P SMS.

SMS – SHORT MESSAGE SERVICE

SMS, as used on modern handsets, allows users and businesses (brands, enterprise, app developers, etc.) to send and receive messages of up to 160 characters to and from GSM mobile handsets.

SMS is a stateless communication protocol in which every SMS message is considered entirely independent of other messages. When services require a stateful communication, enterprise applications using SMS as a communication channel need to manage the session / conversation outside the GSM protocol.¹

There are several specific features which apply to A2P SMS messages which help to differentiate the various A2P SMS products available from the MNOs. These different features are the focus of this guide.

¹ Adapted from https://en.wikipedia.org/wiki/SMS#Technical_details
### THE A2P SMS MARKET

Figures on the actual and forecast size of the A2P SMS market vary but there is consensus amongst analysts that the value of the market is significant: a high-level estimate suggests that in 2016, more than 1 trillion A2P SMS were sent globally on an annual basis, worth between US$ 10 Billion and US$ 90 Billion. The findings of two analyst houses are included below:

- **Mobilesquared** forecast that the A2P messaging sector was worth $17.21 billion at the end of 2016, rising to $58.75 billion by 2020 and that during this timeframe, the global average enterprise SMS communication will grow per subscriber from 15 per month to 30 per month.

- **Ovum** estimates that A2P messaging traffic will total 2.2 trillion events this year, representing 31.3% of total messaging traffic. This is up 1.8 trillion events in 2014.²

### THE IMPACT OF FRAUD

As market opportunities grow within national and global enterprise communities, so does the significance and impact of fraud on the quality and reliability of services, on the ability for legitimate players to monetise services, and ultimately, on the continued growth of the sector.

The direct monetary losses being incurred by the industry through fraud are significant. In May 2016, MEF’s Messaging Programme Founders estimated that fraud was costing the ecosystem at least $2Bn annually.

This number is relatively conservative when compared to figures from Mobilesquared which calculated that between 2015 and 2020, revenue leakage within the global market which is attributed to traffic which cannot be monetised by an MNO due to the absence of an AA.¹⁹ Agreement is worth $82.1 billion.

Mobilesquared further calculated that if this area of revenue leakage was stopped and the traffic monetised, the global enterprise mobile messaging market would be worth $31.8 billion in 2016, rising to $70.1 billion in 2020.

However, the real impact of fraud on the global ecosystem extends beyond the direct financial losses incurred by MNOs failing to monetise enterprise mobile messaging traffic, as MEF’s Enterprise Mobile Messaging Fraud Framework Version 2.0 explains in detail.

THE BASICS

ANALYSIS FRAMEWORK

The following simple framework analysis has been used to assess the different levels of compliance obligation which apply to an A2P SMS product feature which should or can be made available from an MNO:

**BASIC**: the minimum level of compliance obligation that an MNO should have available to guarantee a lawful, safe and acceptable quality of service for both A2P SMS Clients and end users.

**ADVANCED**: going beyond the minimum Basic compliance obligations to enable an MNO to extend its capacity, technical alternatives or platform reach, and the opportunity to add some competitive advantage over its peers.

**PREMIUM**: innovative and cutting-edge enhancements on features, such as in capacity, allowing more advanced MNOs to understand and meet A2P SMS market demand and support more complex use cases.
A2P SMS FEATURES

A2P SMS FEATURES GUIDE
### REACH

Reach refers to the MNOs subscribers around the world, who can be reached by a certain A2P SMS product either directly or indirectly, via other messaging providers or partner MNOs. A2P SMS messages can be delivered, or 'terminated' as follows:

- within the mobile network owning the A2P SMS product: on-net traffic,
- via other national networks: off-net traffic, or,
- by sending messages to be terminated internationally through global coverage or to other specific countries

Depending on the agreements that the A2P SMS Product owner establishes with other MNOs and/or the type of connections established, reach can vary in both global presence and quality.

For more information on how the A2P SMS industry works, see MEF’s [Enterprise Mobile Messaging Guide](#).

### REGULATORY FRAMEWORK

Detailed knowledge of the local regulatory frameworks within the markets though which messages are transmitted and delivered to is essential. Alignment with local regulations and specifications on what is and is not permitted is key to ensuring the provision of a lawful A2P SMS product. For example, in some countries:

- the maximum time allowed to attempt delivery of an A2P SMS is prescribed, (eg., 24 hours in Brazil)
- certain types of content are restricted, such as adult or political content, or,
- A2P SMS messages may only be sent during business hours.

Where any such requirement is defined, they must be reflected in an A2P SMS product.

### FRAUD PROTECTION

Fraud protection is one of the key features requested of a message delivery platform. While the majority of businesses which decide to use A2P SMS to communicate with their client base send legitimate messages for which consent has been obtained, some organisations may search for a channel which supports fraudulent activities, such as the delivery of spam messages. Deploying adequate protection mechanisms, in line with GSMA recommendations, is essential for offering a safe, secure and quality service to A2P SMS clients and their customers.³

³ See MEF’s [Enterprise Mobile Messaging Fraud Framework v2.0](#) for more details on fraud types and means to protect the infrastructure.
Closely related to fraud protection is price notification and the associated price notification notice period. As in other industries with a long and diversified value chain, the A2P SMS sector benefits from considered, fair, stable and publicly available pricing information.

Positioned at the start of the messaging delivery value chain, MNOs are responsible for leading and setting the wholesale price for a specific country. This will, in turn, inform the price of services along the remainder of the value chain and, eventually, will allow the A2P SMS client understand the legal market price.

A2P SMS messaging solutions which are offered below the MNO-set market price should be viewed with suspicion. In general, the earlier that the market is notified of a price for A2P SMS, the more stable that market can be in terms of reducing price volatility.

<table>
<thead>
<tr>
<th>PRICE NOTIFICATION PERIOD</th>
<th>DATA SECURITY</th>
<th>INTEGRATION TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closely related to fraud protection is price notification and the associated price notification notice period. As in other industries with a long and diversified value chain, the A2P SMS sector benefits from considered, fair, stable and publicly available pricing information.</td>
<td>Data security refers to how well an A2P SMS product protects the message content, namely, the data that an A2P SMS transports. To comply with different security standards which are necessary for the transfer of sensitive data, such as banking data or PINs, it is necessary to both obtain different security certificates and deploy technology and transmission paths in accordance with the required security level, including the encryption of A2P SMS content, use of different IP protocols for data transfer or establishment of IP VPNs etc.</td>
<td>Integration technology generally refers to the technology that an A2P SMS product allows for the direct integration of its A2P SMS Clients, namely, a partner aggregator or an A2P SMS Client. SMPP and SS7 are the most common technologies and their deployment varies between different MNOs. Some MNOs state that SS7 is their preference for internal traffic and SMPP for most off-net traffic, while other MNOs state the opposite.</td>
</tr>
</tbody>
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## A2P SMS FEATURES

### DESIGN FEATURES

<table>
<thead>
<tr>
<th>PORTABILITY</th>
<th>PROCESSING CAPACITY</th>
<th>AVAILABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portability means moving or 'porting' a mobile number from one MNOs to another within the same country.</td>
<td>Processing capacity refers to the capacity that an A2P SMS product is designed to handle and which must be in line with the requirements set by a business and be translated chiefly in a messaging provider’s platform throughput, maximum latency and scalability.</td>
<td>Availability is the percentage of the total time that a service delivery platform is actually delivering a service compared to the total time that a connection is commercially available.</td>
</tr>
<tr>
<td>In countries where portability is supported, the correct deployment of HLR on SMPP platforms it is essential to ensure that A2P SMS messages are routed correctly to ported mobile numbers.</td>
<td>Adequate business planning and quality technical delivery must be ensured or an MNO risks poor quality of service delivery to both its A2P SMS Clients and their customers, with events such as queuing of messages which can cause A2P SMS messages to expire and not be delivered to the end user.</td>
<td></td>
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</table>
A2P SMS FEATURES

PLATFORM FEATURES

THROUGHPUT

Throughput is the capability to transfer a certain quantity, or volume, of messages within a certain unit of time. As a general recommendation, the higher the throughput, the better. A more carefully designed platform will calculate, amongst other things:

- the necessary throughput based on the number of subscribers
- expected peak volume within the markets targeted by an MNO
- markets’ different volume curves, for example, different peaks at different times, within different seasons, etc
- the capacity required on signalling links

LATENCY

Businesses need certainty that the A2P SMS messages which are sent are successfully delivered and, in some cases, that they are delivered within a certain time frame.

SMS latency is defined as the amount of time it takes from when a message is submitted to a network entry point until the message is delivered to the handset. Latency can be measured end-to-end or at any stage of the message delivery chain. For the purposes of this document, we are considering the latency inside an MNO network.⁴

Ideally, latency requirements would distinguish on-net and off-net traffic, for example, a maximum latency of fifteen seconds in off-net traffic and ten seconds for on-net traffic. However, it is complex for an MNO to commit to an SLA (Service Level Agreement) for off-net A2P SMS deliveries because technically the MNO has no control over a message once it has left its network.⁵

REDUNDANCY

Redundancy refers to the ability of a platform to retain service, fully or partially, in the event of a failure, by means of back-up systems, connections or parts, etc.

⁴ Adapted from https://www.clxcommunications.com/help/glossary-of-terms/latency/
⁵ Download MEF’s Enterprise Mobile Messaging Guide for a detailed explanation on non-net and off-net traffic.
Prioritisation

Both the A2P SMS product and the SMSC used for the termination of A2P SMS messages should support different priorities by deliberately introducing different and controlled, latency levels.

For example, banking traffic, such as OTPs (One-Time Passwords) requires immediate delivery and the highest priority, while marketing messages may be less time sensitive and can be delivered within a somewhat longer time span.

Retry Scheme

A flexible retry scheme is an additional functionality which is very important for the SMSC used for the delivery of A2P SMS. While A2P SMS messages are commonly re-sent during a 48-72 hour period, for certain A2P SMS message types, the retry scheme should be set up to attempt delivery multiple times during a very short time frame. A retry scheme for delivery of a message containing a PIN could be set to attempt to re-send an A2P SMS message several times within a five minute time window.

Concatenation Support

Concatenation support refers to the capacity of the A2P SMS product to handle messages which exceed the protocol-imposed character limitation, namely, 160 characters for ASCII and 70 for Unicode. Receiving a concatenated message is a seamless experience to the end-user.

PDU (Protocol Description Unit) SMS

There are two ways to send and receive A2P SMS messages:

1) Text
2) PDU

The text mode, which is unavailable on some handsets, is an encoding of the bit stream, represented by the PDU mode. An application which is capable of reading incoming A2P SMS messages can use either Text or PDU. If Text mode is used, the application is bound to, or limited by, the set of pre-set encoding options. In some cases, this limitation can be detrimental to the purpose of the message.

SAT Push (Binary Support)

SAT Push indicates the capability of a platform to send SAT push messages, commonly used in interactive campaigns. Due to the overall expansion of 3G/4G technology, as well as the increasing presence of smartphones, many MNOs worldwide have discontinued this functionality. As such, this feature is relatively uncommon nowadays.

Legacy-wise, this technology was used in large part to promote ringtone and wallpaper download services over the years. As these services fell out of favour, the use of this medium fell as well. Nowadays, push messages are used in a different context, namely to promote a different A2P channel as an alternative or backup to SMS. It is important to note that SAT Push is not supported by iOS devices.
## A2P SMS FEATURES

### PLATFORM FEATURES

#### ALPHANUMERIC SENDERID

In short, this is the alphanumeric expression of the originator in the A2P SMS message and should be a basic capability of any A2P SMS product. Typically, the SenderID will be chosen by the A2P SMS Client and refer to their name, brand or product.

While the use of an alphanumeric SenderID is very common in the A2P SMS industry, it is important to point out that A2P SMS messages do not necessarily have to use one. Some markets require the use of short codes or even long numbers from a national range. It is very important to understand the applicable national regulations and design an A2P SMS messaging platform accordingly.

#### SENDERID MANAGEMENT

A2P SMS products differ in their capacity to administer the SenderIDs managed by each partner. The more flexibility which is embedded into a messaging platform, the better and more convenient it is for an A2P SMS Client. However, SenderID Management can also aid end user security. Functionalities in this category include:

1. Blacklisting Sender ID(s)
2. Whitelist Sender ID, for a certain client, on an allocated account
3. Whitelist Sender ID on all or selected A2P SMS Client accounts
4. View the whitelisted Sender IDs for each A2P SMS Client
5. No restriction on account to whitelist the number of Sender IDs

#### ENCODING

Encoding refers to the machine representation of text characters, bit by bit.

ASCII encoding supports the representation of the Latin alphabet with a 7-bit scheme (128 characters). This includes capital and lower-case letters as well as numbers and basic punctuation symbols. This is the basic set supported in GSM-7 encoding as well.

However, in many countries other alphabets and letters may be used. If this is the case, Unicode encoding may be required as it allows for a greater range if characters, albeit at the expense of the number of characters allowed within a message. While basic encoding will allow for 160-character messages, Unicode will support up to 70.
In the context of A2P SMS, a timestamp indicates the time when an event has occurred, related to submitting, sending or generally delivering A2P SMS messages.

Timezone

Ideally, a timestamp will be expressed in local time, but due to time zone differences, this may vary. The majority of platforms will offer UTC time as default. The benefit of having UTC time in message logs applies to daylight savings as well, as UTC time-in logs will remain unchanged.

For the A2P SMS client Graphic User Interfaces (GUIs), it may be beneficial to have automated conversion of log time into actual local time. The benefits of this include application of daylight savings time in appropriate yearly periods.

Some platforms apply a Time Zone feature to messages sent by consumers who are roaming so that the restriction applies to local time in roaming.

Timestamped Events

This refers to the addition of timestamps to delivery reports.

Timestamp Granularity

Timestamps should have the highest granularity possible, ideally capturing the date and time to the second, i.e. HR:MIN:SEC
A2P SMS FEATURES

PLATFORM FEATURES

DELIVERY REPORTS

Delivery reports contain information about what happened after an A2P SMS message was submitted to the network entry point. It is important to note the stated end point referred to in a delivery report when analysing data.

Sent
This is the stage within the message delivery flow when an A2P SMS message has been delivered to an MNOs by an SMS Aggregator or client, and the A2P SMS Client is awaiting confirmation of message delivery to the destination handset.

Rejected
A message which is rejected is one which has been successfully submitted to an MNO for delivery, but has actively been refused. This is very often related to issues with an invalid SenderID on the destination network.

Delivered
This is the stage within the message delivery flow when an A2P SMS has been received at the destination handset, and an MNO has provided confirmation of message delivery.

The MNO must receive the following parameters from the SMSC to confirm a delivered status: Status, MSISDN NO, Sender ID, Retry Count, Submit Time, Delivered Time, Originating Terror Code, VLR ID, IMSI, SMSC Time Stamp.

The delivered status is also subject to an MNO passing the following parameters on to SMS Aggregator or Enterprise: Status, MSISDN NO, Sender ID, Retry Count, Submit Time, Delivered Time, Originating GT, Error Code, SMSC Time Stamp.

Undelivered
After attempting delivery for a period of time and an MNO has failed to deliver the message to the destination handset, an A2P SMS is marked as undelivered. The cause may be due to an invalid Sender ID or a subscriber being out of network range.

In order to retry delivery, an MNO would require confirmation that the mobile number is correct, that the handset is on and within reception range. The message should be re-sent with a different SenderID. Additional causes for messages being marked as undelivered include signalling problems or implementation faults, etc.

Invalid Number
A destination number is invalid if it cannot be recognised by a messaging platform for delivery. Common causes include a mobile number not being submitted in the international format, being entered incorrectly, or is one that is too short or too long.

Expired
In the case of a mobile handset not being reached, delivery will be retried over a period of time. After the maximum retry period has been reached for the MNO receiving an A2P SMS, the status will be marked as expired and delivery will no longer be retried.

No Credits
Usually, if an A2P SMS account is out of credit, the A2P SMS Client will need to purchase more credits and resend the messages.
**Absent Subscriber**

The end user is offline in the network, as confirmed by the handset's paging response. This is often due to the handset being switched off.

**Busy Subscriber**

The end user is busy for MT (Mobile Terminating) A2P SMS

**Blacklisted / Blocked**

A message is not delivered because one or more elements in the message is not permitted. Some common examples of blacklisting include:

- The message SenderID has been blacklisted
- The destination number has been blacklisted either at the MNO’s request or on the A2P SMS Client’s account
- The destination number was found blacklisted in the DND (Do Not Disturb) blacklist provided by the MNO, or the same error code was reverted by the MNO
- Text content is blacklisted
A2P SMS FEATURES

PLATFORM FEATURES

CONSUMER-CONTROLLED DELIVERY

The features listed below provide an end user with some degree of control over the A2P SMS messages they receive, potentially increasing their levels of trust in this communication channel.

**Accepted Delivery Time**

The capability to restrict delivery to end users based on a chosen acceptable time.

**Opt-out**

An end user must be able to opt-out or STOP receiving messages from any given sender, at any time, and with immediate effect, even if the sender is using multiple MSISDNs.

**Opt-in**

End users should not receive messages which are unsolicited, namely, those for which an end user has not given their consent for the receipt of specific messages.
A2P SMS FEATURES

SERVICE FEATURES

CLIENT SUPPORT

These features relate to the level of support that an MNO offers to its A2P SMS Clients and the ability to refer problems occurring within a platform’s operational systems, which affect the quality of the service received by an end user. Client support is commonly assessed through the way in which an MNO deals with incoming requests for support and how quickly these are resolved. Support requests should be categorised as follows:

Priority – how quickly should the problem be resolved
Severity – what impact is the problem causing, eg, complete loss of service versus an unexpected delay in message delivery

Client support levels are then determined by how quickly an MNO can:

• Acknowledge receipt of the support request, also known as ‘Ack time’
• Provide a first analysis of the problem
• Provide a provisional fix
• Provide a permanent solution

REPORTING

It is essential for a good A2P SMS product to have reporting capabilities containing information on message delivery rates, reasons for non-delivery, delayed messages, destinations to which messages are delivered etc. The more detailed and/or accurate the reporting, the more flexible the product sold and re-sold to A2P SMS Clients is. For example, information on what is being delivered to an end user should be available per A2P SMS Client, per account, in order to facilitate transparent billing and invoicing.

PAYMENT METHODS

Messaging providers need to charge businesses, their A2P SMS Clients, for the messages they transmit. Flexible charging schemes need to be supported, namely pre-paid schemes, through which a client business pays in advance for a predefined volume of messages, or post-paid schemes, which are billed on the basis of the final volume of messages transmitted.
THE A2P SMS FEATURE COMPLIANCE MATRIX

A2P SMS FEATURES GUIDE
## The A2P SMS Feature Compliance Matrix

### Design Features

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<th>Feature</th>
<th>Basic</th>
<th>Advanced</th>
<th>Premium</th>
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<tbody>
<tr>
<td><strong>Reach</strong></td>
<td>On-net</td>
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<td>Domestic Off-net</td>
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<tr>
<td><strong>Regulatory Framework</strong></td>
<td>Lawful end-to-end</td>
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<td>Lawful end-to-end</td>
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<td><strong>Fraud Protection</strong></td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
</tr>
<tr>
<td><strong>Price Notification Period</strong></td>
<td>30 days</td>
<td>90 days</td>
<td>180 days</td>
</tr>
<tr>
<td><strong>Data Security</strong></td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
</tr>
<tr>
<td><strong>Integration Technology</strong></td>
<td>Either SS7 or SMPP v3.3 / v3.4</td>
<td>SS7 SMPP v3.3 / v3.4 HTTP / REST</td>
<td>SS7 SMPP v3.3 or v3.4 HTTP / REST (others e.g. UCP)</td>
</tr>
<tr>
<td><strong>Portability</strong></td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Processing Capacity</strong></td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
<td>See dedicated chapter above</td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>99.0%</td>
<td>99.9%</td>
<td>99.99%</td>
</tr>
</tbody>
</table>
# The A2P SMS Feature Compliance Matrix

## Platform Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Basic</th>
<th>Advanced</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughput (SMS/s)</td>
<td>Minimum of 10 per partner per 10 million subscribers</td>
<td>Minimum of 100 per partner per 10 million subscribers</td>
<td>Minimum of 200 per partner per 10 million subscribers</td>
</tr>
<tr>
<td>Latency (in sec)</td>
<td>Maximum of 30</td>
<td>Maximum of 10</td>
<td>Maximum of 5</td>
</tr>
<tr>
<td>Redundancy</td>
<td>Multiple binds to a single SMSC</td>
<td>Multiple binds to more than one SMSC in a single geographic location</td>
<td>Multiple binds to multiple SMSC’s in at least two geo-redundant locations</td>
</tr>
<tr>
<td>SMS Sending Capabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prioritisation</td>
<td>Per partner, based on A2P SMS traffic category</td>
<td>Per partner, based on A2P SMS traffic category</td>
<td>Per partner, based on A2P SMS traffic category</td>
</tr>
<tr>
<td>Retry Scheme</td>
<td>A2P SMS messages retried at least 3 times between 48 and 72 hours</td>
<td>A2P SMS messages retried at least 3 times between 48 and 72 hours</td>
<td>A2P SMS messages retried at least 3 times between 48 and 72 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Different retry schemes, per partner, based on A2P SMS traffic category</td>
<td>Different retry schemes, per partner, based on A2P SMS traffic category</td>
</tr>
</tbody>
</table>
### THE A2P SMS FEATURE COMPLIANCE MATRIX

**PLATFORM FEATURES**

<table>
<thead>
<tr>
<th>SMS Sending Capabilities</th>
<th>&lt;i&gt;STAR&lt;/i&gt;</th>
<th>&lt;i&gt;STAR STAR&lt;/i&gt;</th>
<th>&lt;i&gt;STAR STAR STAR&lt;/i&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concatenation Support</td>
<td>Single Message</td>
<td>Two messages</td>
<td>Four or more messages</td>
</tr>
<tr>
<td>PDU SMS</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>SAT Push</td>
<td>Supported</td>
<td>Supported</td>
<td>Supported</td>
</tr>
<tr>
<td>Alphanumeric SenderID</td>
<td>Supported</td>
<td>Supported Pre-Registered</td>
<td>Supported Pre-Registered</td>
</tr>
<tr>
<td>Multiple binds to a single SMSC</td>
<td>Whitelist Sender ID(s), per A2P SMS Client, per account</td>
<td>Whitelist Sender ID(s), per A2P SMS Client, per account</td>
<td>Restriction on account to whitelist the number of SenderIDs</td>
</tr>
<tr>
<td></td>
<td>Restriction on account to whitelist the number of SenderIDs</td>
<td>View the whitelisted SenderIDs for each A2P SMS Client</td>
<td>Blacklisting SenderID(s)</td>
</tr>
</tbody>
</table>
# The A2P SMS Feature Compliance Matrix

## Platform Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Basic</th>
<th>Advanced</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoding</td>
<td>GSM 7-bit alphabet</td>
<td>GSM 7-bit alphabet</td>
<td>GSM 7-bit alphabet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unicode</td>
<td>Unicode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latin-1</td>
<td></td>
</tr>
<tr>
<td>Timestamp</td>
<td>Fixed (generally UTC)</td>
<td>Fixed (generally UTC)</td>
<td>Fixed (generally UTC)</td>
</tr>
<tr>
<td></td>
<td>Daylight saving corrected</td>
<td>Daylight saving corrected</td>
<td>Daylight saving corrected</td>
</tr>
<tr>
<td></td>
<td>Adjusted to subscriber location</td>
<td></td>
<td>Adjusted to subscriber location</td>
</tr>
<tr>
<td>Timezone</td>
<td>Not supported</td>
<td>Submit</td>
<td>Submit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delivered</td>
<td>Delivered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failed</td>
<td>Expired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reject</td>
</tr>
<tr>
<td>Timestamped Reports</td>
<td></td>
<td>Submit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delivered</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expired</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reject</td>
<td></td>
</tr>
<tr>
<td>Timestamp Granularity</td>
<td>To the minute (HH:MIN)</td>
<td>To the second (HH:MIN:SS)</td>
<td>To the second (HH:MIN:SS)</td>
</tr>
</tbody>
</table>
# The A2P SMS Product Compliance Matrix

## Platform Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Basic</th>
<th>Advanced</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malicious Content Delivery Protection</td>
<td></td>
<td>Sent, Delivered, Rejected, Undelivered</td>
<td>Supported</td>
</tr>
<tr>
<td>Delivery Reports (DLR)</td>
<td></td>
<td>Sent, Delivered, Rejected, Undelivered, Invalid Number, Expired, No Credits</td>
<td>Expired, No Credits, Absent Subscriber, Busy Subscriber, Blacklisted / Blocked</td>
</tr>
<tr>
<td>Consumer-Controlled Delivery</td>
<td></td>
<td>Opt-out</td>
<td>Opt-out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opt-In</td>
<td>Accepted Delivery Time</td>
</tr>
</tbody>
</table>

**Sent**

**Delivered**

**Rejected**

**Undelivered**

**Invalid Number**

**Expired**

**No Credits**

**Accepted Delivery Time**
### The A2P SMS Feature Compliance Matrix

#### Service Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Basic</th>
<th>Advanced</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reporting (per partner)</strong></td>
<td>A2P SMS message submitted count</td>
<td>A2P SMS message submitted count</td>
<td>A2P SMS message submitted count</td>
</tr>
<tr>
<td></td>
<td>A2P SMS messages delivered count</td>
<td>A2P SMS messages delivered count</td>
<td>A2P SMS messages delivered count</td>
</tr>
<tr>
<td><strong>Payment Methods</strong></td>
<td>Pre-Paid</td>
<td>Pre-Paid</td>
<td>Pre-Paid</td>
</tr>
<tr>
<td></td>
<td>Post-Paid</td>
<td></td>
<td>Post-Paid</td>
</tr>
<tr>
<td><strong>Client Support</strong></td>
<td>Business hours</td>
<td>24x7</td>
<td>24x7</td>
</tr>
<tr>
<td></td>
<td>Ack time: 1 hour</td>
<td>Ack time: 30 min</td>
<td>Ack time: 5 min</td>
</tr>
<tr>
<td></td>
<td>First analysis: 2 hours</td>
<td>First analysis: 1 hour</td>
<td>First analysis: 30 min</td>
</tr>
<tr>
<td></td>
<td>Fix: 4 hours</td>
<td>Fix: 2 hours</td>
<td>Fix: 1 hour</td>
</tr>
</tbody>
</table>
ABOUT THE PROGRAMME

Established in 2015, MEF’s Future of Messaging Programme is a worldwide, cross-ecosystem approach to promote a competitive, fair and innovative market for mobile communication between businesses and consumers. Programme participants represent different regions and stakeholder groups working collaboratively to:

• Produce and publish best practice frameworks, papers and tools to accelerate market clean-up and limit revenue leakage
• Educate buyers of enterprise messaging solutions
• Promote enterprise mobile messaging as a premium and trusted channel
• Drive knowledge across the ecosystem of new platforms, technologies and procedures to address the evolving messaging landscape
• Develop the value-chain to support new use cases and business

FOR FURTHER INFORMATION ON THE FUTURE OF MESSAGING PROGRAMME AND TO GET INVOLVED PLEASE VISIT:

WWW.FUTUREOFMESSAGING.COM
WWW.MOBILEECOSYSTEMFORUM.COM
BICS is recognized in the wholesale communications market as a top global voice carrier and the leading provider of mobile data services. It aims at bridging the telecom world with the new unconventional communication providers worldwide.

BICS’ innovative suite of solutions for Voice, Messaging, Data & Connectivity, Business Intelligence & Analytics, Fraud & Authentication, Roaming, MVNE and Asset Monetization bring value to its customers’ businesses by enabling them to offer state-of-the-art communication services.

Its headquarters are located in Brussels and offers global connectivity with strong presence in Africa, Americas, Asia-Pacific, Europe and Middle East. Its regional offices are located in Bern, Madrid, Dubai, New York, San Francisco and Singapore, its satellite office is located in Beijing and its local representations are based in Accra, Cape Town, Miami, Montevideo, Nairobi and Toronto.

BICS is a pioneer into the future of next generation communications and have achieved a series of World’s Firsts successes with the launch of the first LTE Roaming relation or the first VoLTE International call between Europe and Asia, to name a few. With a diverse and multicultural team of about 500 employees, BICS continuously strive to provide customers with the highest level of quality, reliability and interoperability, enabling them to maximize their end-user value.

CLX Communications connects enterprises to people and things. We combine programmable API’s and cloud computing with our unparalleled Tier 1 Super Network to make it easy for businesses to embed global communications, including voice, SMS and mobile data into their apps, business processes and IoT devices.

Our leading communications Platform-as-a-Service (CPaaS) delivers one of the highest service levels in the industry whilst processing more than 1 billion API calls per month across 6 continents. We provide services to 4 of the top 5 CPaaS companies, and 3 of the top 5 global internet brands with Tier 1 connectivity on which many of their services rely.

CLX Communications (publ) is listed on the Nasdaq in Stockholm.

CM Telecom is a technology company that provides businesses with a single platform to enable (business critical) mobile messaging through push notifications, sms and voice messaging and mobile payments & security.

With offices around the world, CM Telecom serves more than 25,000 businesses including the largest internet companies. CM Telecom’s platform is powered by its own self-designed infrastructure, supported by a 24/7 network operations centre including in-house data centres and fibre networks across Europe.

Deutsche Telekom is one of the world’s leading integrated telecommunications companies, with some 143 million mobile customers, 31 million fixed-network lines, and more than 17 million broadband lines.

We provide fixed-network/broadband, mobile communications, Internet, and IPTV products and services for consumers, and information and communication technology (ICT) solutions for business and corporate customers.

Deutsche Telekom is present in around 50 countries. With a staff of some 230,000 employees throughout the world, we generated revenue of 60.1 billion Euros in the 2013 financial year, over half of it outside Germany.
DIMOCO Messaging provides carrier-grade, high quality messaging products enabling our clients to communicate to their customers on a truly global scale.

We leverage our relationships with Mobile Network Operators and in-country partners to offer clients Direct connectivity while combining local market expertise with fast message delivery.

DIMOCO Messaging holds an MNO license and operates a carrier-grade messaging platform with highest quality industry standards. We offer our clients the best way to optimize communication with their customers and employees by seamless integration to our platform, fully featured high quality products, multiple channels for instant support and advanced reporting and analytics tools.

Eclipsoft

Soluciones Tecnológicas del Nuevo Milenio

The Eclipsoft business group, operating as an integrator of mobile services and working through a strategic alliance with mobile operators in Ecuador Claro, Movistar and CNT. We can bring our services to the large mass of users of cellular technology. We implemented interesting value-added messaging services.

- Technical and maintenance of the platform for sending and receiving messages Support.
- Mediation between the client and the cellular operator.
- Shipping Conciliation SMS messaging messages.
- Monitoring of traffic in the short codes from our customers.
- Mobile applications that can maintain real contact with their customers.

We are leaders in this type of product at the level of banking

And we are innovative in content SMS portals.

iconectiv

At iconectiv, we envision a world without boundaries, where the ability to access and exchange information is simple, secure and seamless. As the authoritative partner of the communications industry for more than 30 years, our market-leading solutions enable the interconnection of networks, devices, and applications for more than two billion people every day. Working closely with private, government and non-governmental organizations, iconectiv has intimate knowledge of the intricacies and complexities of creating, operating and securing the telecommunications infrastructure for service providers, governments and enterprises. iconectiv provides network and operations management, numbering, registry, messaging and fraud and identity solutions to more than 1,200 customers globally.

A US-based company, iconectiv, doing business as Telcordia Technologies, is a wholly owned subsidiary of Ericsson. For more information, visit www.iconectiv.com.

IMImobile

IMImobile is a leading provider of software and services that enables organisations with the ability to harness network, device and channel capabilities to improve service delivery and customer engagement.

We will help you to reduce the cost and complexity of digital service delivery across IT, marketing and customer support, leading to better customer journeys and customer experience.

With deployments in 60 countries, processing billions of digital touch points per month, we are a trusted vendor to blue-chip businesses around the world.

IMImobile is a leading provider of software and services that enables organisations with the ability to harness network, device and channel capabilities to improve service delivery and customer engagement.
Infinite Convergence provides innovative messaging and mobility solutions and next-generation wireless communication technologies to mobile operators and enterprises. Currently supporting more than 130 million subscribers and about 1 trillion messages per year globally,

Infinite Convergence offers, a complete range of scalable Enterprise Messaging Services, Rich Communication Suite, Converged Messaging, Public Safety Messaging, SMS, MMS, and Gateway solutions for businesses and Tier 1 wireless operators globally.

In addition to this, NetSfere is an award-winning, secure enterprise messaging service from Infinite Convergence, which provides enterprises with a private, reliable centrally managed and controlled, cloud-based messaging service.

Formed in 2010 from an alliance between Infinite Computer Solutions (BSE: 533154/NSE: INFINITE) and Motorola (now Nokia), Infinite Convergence has earned a reputation for delivering unparalleled performance and reliability in messaging and mobility. Although we are headquartered in Chicago, we are a truly global company, with a business presence in the USA, Germany, India and Singapore.

Since its start over a decade ago, Infobip has grown into an international business with 50+ offices and proprietary, in-house developed communications platform with the capacity to reach 6 billion mobile devices connected to over 800 telecoms networks.

Innovating at the intersection of internet and telecoms technologies, Infobip creates new opportunities for businesses and their end users to interact on mobile devices and over multiple channels – SMS, voice, push notifications, globally popular chat apps, or email.

Infobip’s geo-distributed infrastructure is maintained by a 300-strong dev and engineering force, and quality tech support with industry’s best response times.

With unsurpassed zero-hop connectivity to telecoms worldwide, and full control over the infrastructure that underpins its services, Infobip is the largest messaging network of its kind and the only full-stack cPaaS globally.

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Infobip is a Managed Service Provider and Systems Integrator. We build and deliver strategic mobile customer engagement solutions for enterprise clients.

Our solutions are trusted and relied-upon by global enterprise customers as an integral component of their business processes. Our customers include global Banks & Financial institutions, Airlines, Retail, Telco, OTT and media organisations across the UK, EMEA, Latin America and world-wide. These organisations have one thing in common – the need to communicate reliably and effectively with their customers.

We understand your delivery promise to your customers. We understand that each message has a direct impact on customer satisfaction and your brand reputation.

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We understand your delivery promise to your customers. We understand that each message has a direct impact on customer satisfaction and your brand reputation.

We’ve been pioneers in value added services and specialised messaging products since 1995, providing universal solutions to scores of corporates, SMS aggregators, and resellers across the world.

At iTouch, we’ve developed an in-house, high performance and world-standard messaging platform certified by leading international banks. It delivers SMS MT, MO and Number Context services covering over 800 operators in 160 countries. And as leading specialists in Africa, we deliver OTP’s, transactional, marketing and service messaging throughout the continent.

A company bent on Innovation since 1995, allow us to introduce our new generation of messaging platforms, MEMS: just as the feature phone led to the smart phone, our team developed SMS to MEMS - iTouch’s very own Multi-Channel Embedded Messaging Service - a world-winner in interactive rich media messaging.

With infinite solutions to today’s challenges, call iTouch to find out how we can help get your messages out faster, further and with complete freedom of mind.
JT are a world class, Tier 1, global communications provider of a full suite of managed products and services.

Our range includes next-generation infrastructure with fixed line, mobile, broadband/ISP, network connectivity and hosting as well as world-leading high-speed fibre broadband services.

With over 120 years’ experience in telecommunications we are dedicated to delivering world-class services. We are a full-service global consumer and business enterprise provider, with services covering domestic fixed line through to leading-edge data hosting for the e-gaming industry.

For more than a decade, Mahindra Comviva has partnered with some of the world’s largest and fastest growing mobile service providers, offering mobility solutions that have accelerated revenue growth, enhanced customer loyalty and delivered greater cost efficiencies. Today, we have an established presence in more than 90 countries, providing over a billion mobile users access to our solutions globally. Our focus has always been on creating value for our partners and customers. We have achieved this through our portfolio of productized solutions that not only enhance the end-user’s mobile experience but also improve our partners’ business performance.

We have enabled this by deploying solutions that exploit legacy investments and have incorporated advanced technology, service delivery and management techniques into its application, platform and service offerings.

As a global leader in mobility solutions, Mahindra Comviva has helped and continues to transform the lives of over a billion people across the globe.

There’s a reason 75% of our customers come back for more. It’s because mobilesquared analysts have been covering mobile since phones were brick-sized, and have tracked the evolution of mobile data every step of the way. We bring this vast knowledge to everything we do. Based on our analysis, we produce reports that create a buzz and forecasts that shape industries.

This is why we are a trusted research partner to some of the biggest names in mobile — from operators to regulators, service providers, vendors, aggregators, and advertisers alike. It’s also because we’re passionate about what we do and that shows in our work. That’s why our clients engage with us, and that’s what makes mobilesquared tick.

With Headquarters in Zug, Switzerland and offices around the world, Mitto’s agile approach, trusted mobile operator relationships and carrier-grade SMS Messaging platform improve conversions and increase the speed and reliability of global mobile communications for the world’s largest OTTs, Enterprise and Mobile Operators.

Our mission is to provide customers with the most reliable, robust SMS Messaging service in the industry. That’s why technology is at the heart of everything we do. Our in-house team of developers make up more than a third of our staff and between them have designed a platform that guarantees our customers’ SMS messages get to the right person, at the right time, in the right place — in the most cost effective way possible.

For more information about Mitto visit www.mitto.ch.
MMDSmart Ltd, the smart messaging pioneer, provides smart communications solutions to organizations of all sizes. Started in 2007 as a voice transit company, its product offering now includes retail and wholesale voice services, Fax over IP and chat solutions, as well as A2P messaging.

Its innovative smart messaging platform, the first results-driven messaging solution, provides unique tools to improve message delivery, drive greater customer engagement and achieve higher conversion rates.

With headquarters in Tel Aviv, regional offices in Hong Kong and Kiev, and a development center in Nizhny Novgorod, Russia, it is focused on providing the highest quality communications solutions and services to its partners and clients around the globe, which include many tier 1 companies from more than 100 countries and more than 300 interconnections.

As it expands its global scope, its initial mission and commitment stays the same; MMDSmart. Connect. Engage. Smile.

Movile is the industry leader for development of mobile content and commerce platforms in Latin America. With products for mobile phones, smartphones and tablets, our work makes people’s lives better and a lot more fun.

Games, on-line education, entertainment apps for adults and kids and many options for buying with confidence and comfort. All of that gets to you through Movile.

For companies, Movile delivers complete products, integrating transactions in M-Commerce, M-Payments and content distribution, fast and with quality.

Millions of people use Movile apps every day. Always enjoying the most practical and reliable way of paying through their mobile devices.

Movile is the company behind the apps that make your life easier.

Vonage (NYSE: VG) is a leading provider of Cloud Communications for Business. Through innovative cloud technology, Vonage delivers more scalable, cost-effective and integrated communications to businesses.

The Company transforms the way people work and businesses operate through a portfolio of cloud-based communications solutions that enable internal collaboration among employees, while also keeping companies closely connected with their customers, across any mode of communication, on any device.

Nexmo, the Vonage API Platform provides tools for voice, messaging and phone verification services, allowing developers to embed contextual, programmable communications into mobile apps, websites and business systems to drive their businesses. Nexmo enables enterprises to reimagine their digital customer experiences by providing them with the tools they need to easily communicate relevant information to their customers in real time, anywhere in the world, through text messaging, chat, social media and voice.

OpenMarket helps the biggest brands in the world use mobile messaging to connect with their customers in the moments when it counts. When they need to be there and be responsive in real-time. When customer experience isn’t just a buzzword: it’s an obsession.

OpenMarket combines a powerful, scalable and reliable platform with a deep understanding of how text messaging can transform business processes. It works closely with clients to deliver timely, useful and context-sensitive mobile messages that surprise and delight their customers around the world at massive scale. OpenMarket calls this the Empathetic Interaction and its changing the way enterprises engage with their customers.

With trusted relationships with mobile operators across the globe, OpenMarket offers faster time to market, and ongoing support for its enterprise customers. OpenMarket is a division of Amdocs and is headquartered in Seattle, Washington, with regional offices in Detroit, London, Sydney, Guadalajara (Mexico) and Pune (India).
R&D Communication represents a high standing reality in the Italian market and in 15 years it has accomplished to be a well renowned technological platform from which to send A2P messaging. The maximum level solutions offered by us permit you to plan and empower your business Marketing and Communication systems.

The strong passion and dedication that we have for the messaging world helped us extend and be efficient as well in the International market and we are now glad to be the Gateway that connects people around the world.

RealNetworks®, Inc. delivers digital entertainment services to consumers via PC, portable music player, home entertainment system or mobile phone.

Real created the streaming media category in 1995 and has continued to lead the market with pioneering products and services, including: RealPlayer®, the first mainstream media player to enable one-click downloading and recording of Internet video; the award-winning Rhapsody® digital music service, which delivers more than 1 billion songs per year; RealArcade®, one of the largest casual games destinations on the Web; and a variety of mobile entertainment services, such as ringback tones, offered to consumers through leading wireless carriers around the world.

Route Mobile Limited (RML), established 2004, is a leading global messaging and voice API company. Headquartered in Mumbai, India, the company has offices in the Middle East, Africa, Asia Pacific and Europe and services over 18,000 customers through a network of more than 300 employees.

Through its portfolio of comprehensive, flexible & innovative solutions including Enterprise as well as 2way Messaging, HLR Number Lookup, SMS Firewall, Interactive Voice Response (IVR), Click 2 Call, Chatbots, Outbound Dialer and SMS Hub, Route Mobile meets and exceeds its customer’s requirements. With over twelve years experience RML provides tailored solutions to enterprises, aggregators, resellers and mobile network operators (MNOs).

Supporting over 850 global network connections, 150 of which direct, RML routes more than 2 billion messages per month. The company is uniquely placed encompassing approved open connectivity, SMS hub provision and SMSCs globally.

SAP Mobile Services, a division of SAP, provides cloud-based engagement services to enterprises that enable them to connect the “last mile” to their customers, cloud-based analytic services that aggregates and analyzes mobile operator data to provide deep consumer insight to brands and retailers, and interconnection services to mobile operators that allows any two people in the world text each other. We operate the world’s largest, most reliable cloud messaging network, reaching 6.11 billion subscribers on 990 operators in 214 countries and processing over 1.8 billion messages per day.

As market leader in enterprise application software, SAP helps companies of all sizes and industries run better. From back office to boardroom, warehouse to storefront, desktop to mobile device – SAP empowers people and organizations to work together more efficiently and use business insight more effectively to stay ahead of the competition. SAP applications and services enable approximately 310,000 business and public sector customers to operate profitably, adapt continuously, and grow sustainably.

For more details about how SAP Mobile Services can transform your business and improve customer experiences in the digital economy visit us on the web at SAP Mobile Services. To learn more about intelligent and interconnected mobile engagements, join the SAP Mobile Services Community.
Telefónica is one of the largest telecommunications companies in the world in terms of market capitalisation and number of customers. With its best in class mobile, fixed and broadband networks, and innovative portfolio of digital solutions, Telefónica is transforming itself into a ‘Digital Telco’, a company that will be even better placed to meet the needs of its customers and capture new revenue growth.

The company has a significant presence in 24 countries and a customer base that amounts more than 315.7 million accesses around the world. Telefónica has a strong presence in Spain, Europe and Latin America, where the company focuses an important part of its growth strategy.

TIMWE Group is a global provider of mobile engagement solutions.

We ensure that mobile operators, governments and many other mobile-driven businesses increase revenue and reach, while reducing their operational costs, by delivering compelling end to end services and bespoke solutions on the cloud and on premise.

At the moment we are catering our clients through three business brands distributed globally: DIGIW – Digital Mobile Solutions, TECHWE – Technology Solutions and GOVWE – Government Solutions.

With over 10 years of international experience and our proprietary, multipurpose mobile engagement platforms, we design, develop and deliver turnkey projects for our customers across all 5 continents.

TIMWE Group operates in 80 countries through 30 offices. Outside of our core Latin American and Middle Eastern markets, we are rapidly consolidating our position across Africa, Eastern Europe and the Asian regions.

Turk Telekom International (TTI) is 100% owned by Turk Telekom and acts as its international business unit handling all international data, wholesale voice business functions and roaming partnerships with all LTE/GSM/CDMA operators and MVNOs globally.

Turk Telekom International provides single account management and unified network operations over the entire Turk Telekom International network which includes 20 countries in Central and Eastern Europe, Turkey, Middle East and the Caucasus, covering a full range of Internet/data services, infrastructure and wholesale voice services to incumbents, alternative carriers, mobile operators, cable TV companies, Internet service providers and corporate customers.

Turk Telekom International offers premium quality telecommunication solutions in the form of: guaranteed SLA-s, local experts, dedicated staff, centralized end-to-end network management, trustworthy and reliable attitude, delivering on commitments, on-time delivery, tailor-made, scalable and cost-effective technical solutions and a proven management team with a full service portfolio. Covering over 40,000 km of fiber optic network and more than 150 interconnections worldwide Turk Telekom International is one of the most important players for the global telecommunications industry.

Twilio is reinventing telecom by merging the worlds of cloud computing, web services and telecommunications. Twilio hosts a telephony infrastructure web service in the cloud, allowing web programmers to integrate phone calls and SMS messages into their applications. Twilio’s simple, powerful API minimizes the learning curve required to build advanced, reliable communications applications, and its Pay-As-You-Go pricing model means customers pay for capacity only when they need it, not before.

The company is funded by Bessemer Venture Partners, Union Square Ventures, Founders Fund, Mitch Kapor and other prominent investors, and is headquartered in San Francisco, CA.
PROGRAMME PARTICIPANTS

TWW is one of Brazil’s main SMS aggregators. We are directly connected to all the Brazilian carriers and MVNO’s. We are specialists in SMS and use only one route. Direct connect.

TWW’s SMS service makes it possible for your company to connect wherever necessary in the Brazilian territory. With a secure and prepared technological infrastructure, we offer personalized service to guarantee the efficiency you want to reach with the results you need. Your company will find a technical team that is dedicated 24 hours a day, 365 days a year to identify adequate solutions, implement tools, integrate your systems and, above all, serve your needs with agility. After all, a quick and effective connection is the key to a successful relationship! We can make your life simple in Brazil.

Ubiquity Group is a global multi-channel messaging platform provider founded in 1999, focusing on ubiquitous communication for large enterprises and providing innovative solutions.

Over the years, Ubiquity has reached and consolidated a leadership position in the Italian market, with 95% of Italian financial institutions trusting Ubiquity as their messaging solutions provider.

In November 2015, Ubiquity became a certified ELITE company of the Italian Stock Exchange. In 2016, Ubiquity became a GSMA member, set up Ubiquity International SA in Switzerland and acquired Solutions Infini, a mobile communications platform market leader in India.

The company has its headquarters in Milan, Italy and an international presence beyond Europe in 10 locations. Ubiquity has 180 employees across Europe, India and the Middle East.

Founded in 2011, Veoo is a global mobile consultancy and leading provider of mobile messaging solutions; providing a cloud communications platform and one-stop-shop for any business looking to implement mobile. With a strong pedigree in mobile payments, mobile engagement and marketing and the online entertainment industry, Veoo is breaking new boundaries and challenging the status quo.

A global player, Veoo already has offices in 26 countries across Europe, Asia, Central America and South America and is set to expand into Northern America, the Philippines and Canada by the end of 2017. With a portfolio of over 150 large-scale customers, Veoo works across a variety of industries including retail, financial services, online entertainment and many more.

Vodafone is one of the world’s largest telecommunications companies and provides a range of services including voice, messaging, data and fixed communications. Vodafone has mobile operations in 26 countries, partners with mobile networks in 49 more, and fixed broadband operations in 17 markets. As of 30 September 2016, Vodafone had 470 million mobile customers and 14 million fixed broadband customers. For more information, please visit: www.vodafone.com.
WAU is Latin America’s largest mobile transaction network, providing a single point of contact for mobile messaging connectivity and billing services to global companies looking to expand their services to Latin America.

With headquarters in Miami, FL, offices in 15 countries and connectivity with over 45 wireless operators, WAU simplifies doing mobile business in Latin America, helping its customers efficiently reach, engage and monetize the region’s burgeoning mobile consumer base.

We are leaders in enterprise mobility in Brazil. Your company needs to be in all places at once. Must reach and impact all public and consumers.

We know the way, the technologies and also the behavior of mobile users and we can assist you in this.

We are in the market for over 12 years and serve thousands of companies from different segments, sending and receiving millions of messages every day. Our history proves our credibility and leadership. Your result is our result.
ABOUT MEF

The Mobile Ecosystem Forum is a global trade body that acts as an impartial and authoritative champion for addressing issues affecting the broadening mobile ecosystem. We provide our members with a global and cross-sector platform for networking, collaboration and advancing industry solutions. The goal is to accelerate the growth of a sustainable mobile ecosystem that drives inclusion for all and delivers trusted services that enrich the lives of consumers worldwide. Established in 2000 and headquartered in the UK, MEF has Regional Chapters across Africa, Asia, Europe, Middle East, North and Latin America.
2FA (Two Factor Authentication)
A process which enables the confirmation of an individual’s claimed identity by using a combination of two different components, namely:
1) something an individual possesses or is inseparable from them, and
2) something the individual knows
For example, a 2FA process for a mobile subscriber might require their being in possession of a mobile device, plus a PIN.

A2P Client or A2P SMS Client
The customer of bulk/wholesale/A2P SMS, the organisation that wishes to communicate with their consumers

A2P SMS (Application to Person)
Messages originated by computer or application and intended for delivery to the subscribers of MNOs. A2P SMS is typically used by enterprise to communicate and share information with their customers, for example, bank balance alerts, retail order or delivery confirmation, appointment reminders and offers. A2P is generally used to send one-way messages but two-way A2P SMS communication is possible in some markets.

AA Agreements
A range of template agreements issued by the GSMA which establish contractual and commercial protocols between originating MNOs, terminating MNOs and messaging providers for the delivery of messages, including:
• AA.12 International Roaming
• AA.13 International Roaming
• AA.14 International Roaming
• AA.19: Commercial agreement for message termination
• AA.60: Commercial agreement for message termination

Access Hacking, Hacking
The act of gaining access to a mobile operating system, app or device by someone without the permission of the owner.

Agregator
A company that provides connectivity between MNOs and messaging providers. See also Tier 1 Aggregator and Tier 2 Aggregator.

Alphanumeric Originator; Alpha Originator, Alpha Tag
See Originator.

Anti-Virus Software
Software designed to protect internet-connected devices, including mobile devices, from malicious software, also known as malware, or viruses. See also SMS Malware.

API (Application Programming Interface)
A set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service

Artificial Inflation of Traffic (AIT)
The act artificially generating messages which are sent by a rogue party to itself in order to generate profit.

Application Service Provider, Application2Person Service Provider (ASP)
A company that manages and distributes software-based services and solutions.

ASCII (American Standard Code for Information Interchange)
A character encoding standard, to represent text in computers, telecommunications equipment, and other devices.

Availability
This describes the reliability or ‘uptime’ of a route in terms of the percentage of time that a connection is fully operational within a specified period of time. A route which has 99.999% availability within a single and continuous 24 hours period is more reliable than a route with 99.9% availability during the same period. See also Redundancy.

Blending
The use of two of more connections within an end to end message delivery chain for the delivery of messages to one destination.

Bulk SMS
A service which enables enterprise to send high volumes of non-premium rate messages quickly and efficiently. Bulk SMS is usually delivered with no charge to the receiving party, but local exceptions do exist.

Bulk Traffic
A term for mass marketing, whereby multiple recipients receive the same message.

Cloud Communications Provider
A company which delivers internet-voice and data communications applications and services.
CNAME (Canonical Name)
A type of resource record in the DNS which specifies that a domain name is an alias for another domain, namely the “canonical” name. All information, including subdomains and IP addresses etc, are defined by the canonical domain.

Connection, SMS Connection, A2P Connection
The technical and commercial infrastructure which enables the delivery of messages through an end to end message delivery chain between a sender and recipient.

D&B Number; DUNS; D-U-N-S (Dunn & Bradstreet Number):
A unique numerical identifier assigned to a single business entity which is recognised worldwide.

Delivery Receipt (DLR)
A receipt to confirm that a message has been successfully sent by a messaging provider or that a message has been successfully delivered to a subscriber’s MNO or handset. See also Message Status.

DNS (Domain Name System):
The Internet's system for converting alphabetic names into numeric IP addresses.

Expired Message
A message which has not been sent by a messaging provider within a specified time.

Firewall
A filtering system which enables MNOs to monitor, detect, block and report suspicious or unauthorised messages destined for delivery through their network and to their subscribers.

FSM (Forward Short Message)
The second of two SS7 requests generated by an SMSC when a message is being sent, the first being an SRI. Both an SRI and an FSM request are required to send a message.

Global Title (GT)
An address used in the SCCP protocol for routing messages through an MNOs network. A Global Title is a unique address which refers to a single destination, though in practice, destinations can change over time.

Grey Route
A connection used for the delivery of enterprise messages, but which is not authorised for that use, for example, where the absence of a commercial agreement for a connection is exploited as a lower cost option at the expense of the terminating MNO.

GSM Network (Global System for Mobile Communication)
An open, digital mobile technology used for transmitting mobile voice and data services.

GSM-7 character encoding
The standard alphabet for SMS messages, written up in the standard GSM 03.38. In languages with more than 128 commonly used symbols, GSM-7 is mandated but local language support is implemented with shift tables or by changing text encoding to (16-bit) UCS-2 encoding.

GSMA
A global membership organisation which represents the interests of MNOs and companies within the broader mobile ecosystem. The GSMA issues technical standards and template agreements which establish contractual and commercial protocols between originating MNOs, terminating MNOs and messaging providers for the delivery of messages. See also AA Agreements.

GUI (Graphical User Interface)
Type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, instead of text-based user interfaces, typed command labels or text navigation.

HLR (Home Location Register)
The database within a GSM Network which stores all mobile subscriber data, including the subscriber’s location (eg, home or roaming), phone status, (eg, on, off, inbox full etc) and their mobile network.

Hop
This refers to the point within an end to end message delivery chain where one partner connects to the next.

Hub
A structure for the international flow and mobile interoperability of SMS between MNOs to intermediate messages and to offer greater coverage, also known as Hubbing. A Hub can be established to connect an MNO’s subsidiary companies to each other, or to other MNOs or MNO Group Hubs for the delivery of enterprise messaging. A P2P Hub is designated for the delivery of P2P messages only.
**Group Hub**
See ‘Hub’.

**IMSI (International Mobile Subscriber Identity)**
A unique number, usually fifteen digits, which identifies a GSM mobile network subscriber.

**Interconnection / Interconnect / Interworking Agreement**
A technical, operational and / or commercial contract between two parties within an end to end message delivery chain which connects an enterprise to their customer for the delivery of messages.

**International Message**
A message which has originated at source from an IP address not registered within the country of delivery

**Latency**
This describes the time taken from the acceptance of a single message into the delivering MNO’s SMSC to a mobile subscriber’s device. It is also commonly used to describe the time taken for a message to travel from the sender to the recipient.

**M2M (Machine to Machine)**
Direct communication between devices using any communications channel, including wired and wireless.

**MAP (Mobile Application Part)**
An SS7 protocol used to access the Home Location Register, Visitor Location Register, Mobile Switching Centre, Equipment Identity Register, Authentication Centre, Short Message Service Centre and Serving GPRS Support Node.

**MAP Global Title Faking**
Manipulation of specific technical parameters or disguising a message sender’s true identity in order to gain access to an MNO’s network to deliver messages which would otherwise be flagged as unauthorised and rejected an MNO.

**Message Status**
Every message which enters a messaging provider’s systems for delivery to a mobile subscriber is assigned a status, the most common of which are:
- Sent: message submitted towards the terminating MNOS SMSC
- Delivered: message delivered to the mobile subscriber’s handset
- Rejected: message rejected by the terminating MNO’s SMSC
- Invalid Number: mobile subscriber’s number is invalid (eg, missing digits)
- Undelivered: message not delivered to the mobile subscriber’s handset
- Expired: message not delivered within the pre-set time period
- No Credits: insufficient prepay credit available to send the message
- Absent Subscriber: handset is off or out of network coverage

See also Delivery Receipt (DLR)

**Messaging Provider**
An enterprise-facing company which sells end to end enterprise mobile messaging solutions. A messaging provider may have one or more technical or commercial roles and will commonly partner with others within the messaging ecosystem, by way of agreements to deliver end-to-end solutions.

**MMS (Multimedia Messaging Service)**
A descendant of SMS, which extends SMS messaging to include longer text, graphics, photos, audio clips, video clips, or any combination of the above, within certain size limits.

**Mobile Network Operator; Mobile Operator (MNO)**
An MNO provides wireless or mobile communication services and owns or controls all of the elements of the network infrastructure necessary to deliver services to a mobile subscriber. All MNOs must also own or control access to a radio spectrum license which has been issued by a regulatory or government body. An MNO typically controls provisioning, billing and customer care, marketing and engineering organisations needed to sell, deliver and bill for services, though these systems and functions can be outsourced.

**Mobile Originated (MO)**
This describes the source of a sent message, ie, the beginning of the end to end message delivery chain. See also Originating Mobile Operator.

**MNO Exclusive Gateway Partner**
A provider which offers the only authorised way to send messages to a specific MNO. Please refer to the MEF Enterprise Mobile Messaging Guide for more information.
**GLOSSARY**

**MNP (Mobile Number Portability)**
This lets a mobile subscriber move from one MNO to another while keeping their number, also known as porting. MNP has made it impossible to determine the mobile network of an MSISDN by its prefix.

**MSISDN (Mobile Station International Subscriber Directory Number)**
The unique mobile phone number attached to a SIM card used in a mobile device.

**MSC (Mobile Switching Centre)**
An MSC routes messages, performs service billing and interfaces with other telecoms networks, such as the public switched telephone network (PSTN). All forms of communication, whether between two mobile phones or between a mobile phone and a landline telephone, travel through the MSC.

**MSU (Message Signal Unit)**
An individual MSU is required for each SRI request, SRI response, FSM request and FSM response when delivering a message.

**Mobile Subscriber, Subscriber, End User**
An individual who is a customer of, and connected to, a domestic MNO’s network for services, including voice calls, SMS, MMS or data.

**Mobile Terminated (MT)**
This describes the destination of a sent message, i.e., the end of the end to end message delivery chain. See also Terminating Mobile Operator.

**MTP (Message Transfer Part)**
Part of the SS7 Network, the MTP is responsible for reliable, unduplicated and in-sequence delivery of messages between partners within the end to end message delivery chain.

**MVNO (Mobile Virtual Network Operator)**
A wireless or mobile communications services provider which does not own the network infrastructure over which it provides services to subscribers. An MVNO will contract with an MNO to obtain bulk access to network services at wholesale rates and then set the retail prices independently. An MVNO may use its own customer service, billing support systems, marketing and sales personnel, or it could engage a third party.

**Off-net**
Describes the environment outside of an MNO’s own network. For example, messages which are delivered Off-Net are sent from one MNO to a second MNO, either nationally or internationally.

**On-net**
Describes the environment inside an MNO’s own network. For example, messages which are delivered On-net never leave the MNOs national or international group network.

**One-time Password (OTP)**
A password which is valid for only one login session or transaction on a device

**Originating Mobile Operator; Originating MNO**
The MNO at the beginning of the end to end message delivery chain which accepts messages from a messaging provider for onward delivery.

**Originator**
The term used to describe the number or word which identifies who a message is from upon receipt. It is also known as a SenderID. An alphanumeric originator enables a brand name to be set as the identified ‘sender’ of a message.

**OTT (Over The Top)**
Instant messaging services which are accessed over the internet.

**P2A SMS (Person to Application)**
Messages originated by a mobile subscriber and intended for delivery to a business, for example, a customer responding to a message received from an enterprise.

**P2P (Person to Person)**
This describes a channel whereby one mobile subscriber creates and sends a message to another mobile subscriber.

**P2P Hub**
See ‘Hub’.

**PDU (Protocol Data Unit)**
Information that is delivered as a unit among peer entities of a network and that may contain control information, such as network address, or user data. In A2P SMS, it is one of the possible modes (the other being text mode) in which applications can send SMS messages.

**PRS (Premium Rate Service)**
Services which enable mobile subscribers to pay for content, data services and VAS via their mobile phone bill or prepay account.
**Reseller**
A company which buys a product or service, repackages and then sell it as its own.

**Phishing, SMS Phishing, SmiShing**
The act of misleading a mobile subscriber by pretending to be a known and trusted party to gain access to online systems, accounts or data such as credit card, banking information or passwords for malicious reasons.

**Roaming**
This describes an environment in which a mobile subscriber has left their home MNO network but retains the ability to access services without a break their connection by being connected to a visited MNO’s network.

**Reach**
This is the breadth of coverage available in terms of how many mobile subscribers can be reached, for example, nationally, across multiple mobile operator networks or internationally. Reach may be determined by the types of connections available to a messaging provider.

**Redundancy**
This is the term for a secondary backup or fail-over route which assures the continuity of services in the event that an available connection fails for any reason. See also Availability.

**Route, Routing**
This describes the path that a message takes along an end to end message delivery chain, through different partners and connections.

**SCCP (Signalling Connection Control Part)**
A network layer protocol that provides extended routing, flow control, segmentation, connection-orientation, and error correction facilities within the SS7 Network. The SCCP relies on the services of MTP for basic routing and error detection.

**SCCP Provider**
A company which manages the SCCP layer protocol.

**SCCP Global Title Faking**
The act of sending a message in a way that deceives the terminating MNO about the true identity of the sender through the misuse of a Global Title.

**Service Provider**
See Messaging Provider.

**Short Code, Short Number**
A special numbers, significantly shorter than a full 11-digit phone number, which can be used to send SMS and MMS messages.

**SIM; SIM Card (Subscriber Identity Module)**
A smart card inserted into a mobile device which carries a unique identification number, stores personal data and prevents operation of the device if removed.

**SLA (Service Level Agreement)**

**SCCP Provider**
A company which manages the SCCP layer protocol.

**SMS (Short Message Services)**
A text messaging service component of phone, web, or mobile communication systems which uses standardised communications protocols to allow fixed line or mobile phone devices to exchange short text messages.

**SMS Roaming Intercept Fraud**
The act of deliberately intercepting a message while a consumer is roaming.

**SIM Farms**
A bank of SIM cards used to deliver messages for which the SIMs are not designated, for example retail SIMs intended for use by individual mobile subscribers which are instead used for the delivery of enterprise messages.

**SIM Swap Fraud**
The act of obtaining control of a mobile number by cancelling the SIM linked to a consumer’s handset and activating a new SIM linked to a different handset, and so causing all calls and texts to be routed to and from a different handset, outside of the control of the consumer.

**SMPP (Short Message Peer to Peer Protocol)**
A proprietary protocol used to send messages within the messaging ecosystem which can support non-GSM SMS protocols and is commonly used for the exchange of messages outside of the SS7 network.
SMSC (Short Message Service Centre)
An element within an MNO’s network which receives messages from mobile network users (enterprise and individual mobile subscribers) and also stores, forwards and delivers messages to mobile network users, as well as maintaining unique timestamps in messages.

SRI (Send Routing Information)
This is the first of two SS7 requests generated by a SMSC when a message is being sent, the second of which is an FSM request. An SRI request is made by the originating MNO’s SMSC to the HLR / VLR to request routing information and determine the IMSI of a mobile subscriber. Both an SRI and FSM request are required to send a message.

SMSC Compromise Fraud
The act of sending messages in a way that exploits an MNO’s SMSC to relay messages without paying.

SMS Malware
Malicious software which is installed on a device without the mobile subscriber’s knowledge or disguised as an innocent app that acts silently in the background to disrupt connectivity, gain access to and gather personal or sensitive information, display unwanted advertising, or access a contact list to further spread the software.

STP (Signal Transfer Point)
A router that relays SS7 Network messages between signalling end and signalling transfer points. STPs are typically provisioned in mated pairs to meet stringent reliability requirements.

Spam
A broad term for an unsolicited message, namely, one which is not wanted by the recipient, whether the message has been sent with good intentions or maliciously.

SMS Originator Spoofing, Spoofing
The act of changing a message originator to someone or something known to the recipient to deliberately hide the sender’s true identity.

SS7 (Signalling System 7)
A set of telephony signalling protocols that enable the sending of SMS messages as well as performing number translation, local number portability, prepaid billing and other mass market services. SS7 is not permitted in some regions.

Telecommunications Technology Provider
A company which provides technological infrastructure to support the flow of voice calls, data or messages between different locations or companies.

Tier 1 Aggregator
A company which has a contract in place directly with a terminating MNO for the delivery of messages.

Tier 2 Aggregator
A company which has a contract in place with a Tier 1 Aggregator in order to connect to a terminating MNO for the delivery of messages.

Tier X Aggregator
A company which does not have a contract in place directly with a terminating MNO, but has contracts with a range of Tiers of Aggregator.

Terminating Mobile Operator; Terminating MNO
The MNO at the end a message delivery chain, to which your customers are subscribed.

Throttling
The control and temporary restriction by an MNO of the flow of messages through its network to enable it to manage capacity effectively within its systems.

Traffic
A common term used to refer to the movement of messages, eg. “the [SMS] traffic has been successfully delivered.”

Throughput
The capability that a MNO or aggregator has to carry a certain volume of messages across their infrastructure within a certain unit of time, for example, 300 SMS per second.

UCP (Universal Computer Protocol)
A standard for transmitting SMS over mobile networks.
GLOSSARY

UCS-2 encoding
Character encoding standard in which characters are represented by a fixed-length 16 bits (2 bytes). It is used as a fallback on many GSM networks when a message cannot be encoded using GSM-7 or when a language requires more than 128 characters to be rendered.

USSD (Unstructured Supplementary Service Data)
A protocol used by GSM mobile phones to communicate with a messaging provider’s computers.

VAS (Value Added Service)
Any non-core mobile services, namely, those beyond standard voice calls and messaging.

VLR (Visitor Location Register)
A database which contains information about mobile subscribers roaming within an MSC’s location area. Its primary role is to minimise the number of queries that MSCs have to make to the HLR.
ACCELERATING YOUR MOBILE OPPORTUNITY