COMMUNICATIONS ALLIANCE LTD

INDUSTRY SPECIFICATION

G557.5:2025

Location Information for Emergency Calls

Part 5: Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP)

G557.5:2025 Location Information for Emergency Calls Part 5: Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP) Industry Specification

First published as G557.5:2014
Second edition as G557.5:2021

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INTRODUCTORY STATEMENT

The ***Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP)*** Specification (G557.5:2025) replaces the ***Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP)*** Specification (G557.5:2021). The Specification defines:

- an interface for the transfer of Push MoLI between a Mobile Carrier and Emergency Call Person Platform (ECPP) for an Emergency Call to 000 or 112 originating from Customer Equipment (CE) that communicates with the Base Transceiver Station (BTS) of a Mobile Carrier while the Emergency Call is in progress; and

- a test plan template to enable a Mobile Carrier to conduct an end-to-end test to validate the delivery of Push MoLI to the ECPP while an Emergency Call to 000 or 112 is in progress.

The purpose of the changes is to:

- Clarify expectations about the presentation of Push MoLI to the Emergency Call Person e.g. when a mobile device initiates an emergency call vs when it registers on a mobile network; and

- Include content to reflect the change in mobile technology generations e.g. the introduction/inclusion of 5G.

Albert Chittenden
Chair
Push MoLI Update *Working Committee*

APRIL 2025

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1 GENERAL

1.1 Introduction

1.1.1 The Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP) Specification (the Specification) provides the technical requirements to enable a Mobile Carrier to deliver Push MoLI to the Emergency Call Person Platform (ECPP) while an Emergency Call to 000 or 112 is in progress.

NOTE: Refer to Section 3 for the technical requirements and to Appendix B for a template for a test plan.

1.1.2 At present, while delivering Emergency Calls XPOI, the Mobile Carrier's network appends a Standardised Mobile Service Area (SMSA) code (refer to G557.2) to provide MoLI. The SMSA code is derived from the SMSA Register (refer to G557.2). These SMSAs can range in size from 2,000 to 500,000 square kilometres and are not granular enough by themselves to assist Emergency Service Organisations (ESOs) to find someone in an emergency.

1.1.3 Due to advances in mobile technology, it is now possible to address this situation through provision of Advanced Mobile Location (AML) (refer to G557.6) as well as provision of mobile network derived Push MoLI about Customer Equipment (CE) that communicates with the Base Transceiver Station (BTS) of a Mobile Carrier with a higher degree of accuracy than that provided by the SMSA based MoLI.

1.1.4 The Australian Communications and Media Authority (ACMA), through its *Telecommunications (Emergency Call Service) Determination 2019* (the Determination) requires that when an ESO asks the Mobile Carrier to provide location information about an Emergency Call a Mobile Carrier must give the ESO "*the most precise location information available about the location of the customer equipment from which the emergency call originated, as soon as practicable after the request is received*".

1.1.5 The development of the Specification has been facilitated by Communications Alliance through a Working Committee comprised of representatives from the telecommunications industry.

1.1.6 The Specification should be read in the context of other relevant codes, specifications and documents, including the other parts of G557.

1.1.7 The Specification should be read in conjunction with related legislation and regulation, including:

(a) the Act; and

(b) the Determination.

1.1.8 If there is a conflict between the requirements of the Specification and any requirements imposed on a Mobile Carrier by legislation, the Mobile Carrier will not be in breach of the Specification by complying with the requirements of the legislation.

1.1.9 Compliance with this Specification does not guarantee compliance with any legislation. The Specification is not a substitute for legal advice.

1.1.10 Statements in boxed text are a guide to interpretation only and not binding as Specification rules.

1.2 Scope

1.2.1 The Specification applies to:

(a) the Emergency Call Person (ECP) for 000 and 112; and

(b) Mobile Carriers.

1.2.2 The Specification does not apply to the ECP for 106.

1.2.3 The Specification defines an interface for the transfer of Push MoLI

(a) between a Mobile Carrier and ECPP, for

(b) an Emergency Call to 000 or 112

(c) originating from a CE that can function in Emergency Call Service (ECS) Access Mode; and

(d) communicates with the BTS of a Mobile Carrier

(e) while the Emergency Call is in progress.

NOTE: CE that cannot make an Emergency Call is out of scope of this document e.g. a 'data only' device.

1.2.4 The Specification does not deal with Push MoLI requirements for Emergency Calls originating from CE that communicates with a BTS of a Mobile Carrier which does not have any CID or a SAC/LAC including a closed mode femtocell CE.

NOTE: Mobile Carriers do not assign a unique identifier to their BTS which are CE. However, where a Mobile Carrier is able to supply Push MoLI for Emergency Calls from BTS which are CE, it should do so consistent with this Specification.

1.2.5 The Specification does not deal with Push MoLI requirements for Emergency Calls:

(a) to 106;

(b) from services which are not PMTS;

(c) from VoIP services that are PMTS but operate independently of a Location Management Function (LMF) (e.g. 'over the top' of an underlying mobile data service, such as Wi-Fi based voice services);

(d) from CE for which the Mobile Carrier is unable to determine the unique CLI, e.g. no SIM, or SIM not authorised to roam on the visited PLMN;

(e) International Authorised Roamers (outbound).

NOTE: An inbound International Authorised Roamers making an Emergency Call will typically have their CLI forwarded to the ECP, so Push MoLI can be associated with the Emergency Call.

1.2.6 The Specification does not deal with situations where a Mobile Carrier is technically unable to provide Push MoLI due to a matter beyond its control, including:

(a) when the network(s) of the Mobile Carrier are experiencing major faults such as the failure of a GMLC, a E-SMLC, a LMF or data links to ECPP; or

(b) there is a level of Emergency Call traffic above the forecast of a Mobile Carrier.

NOTE: When a Mobile Carrier is unable to provide Push MoLI, the MoLI based on G557.2, G557.4 and G557.6 would still be available.

1.2.7 The Specification does not deal with the specification and testing of Push MoLI requirements between the ECP and ESOs.

1.3 Objectives

The objective of the Specification is to define an interface for the transfer of Push MoLI between a Mobile Carrier and ECPP for an Emergency Call to 000 or 112 originating from CE that communicates with the BTS of a Mobile Carrier while the Emergency Call is in progress.

NOTES:

1. Push MoLI should only be presented to the ECP for a device making an Emergency Call.

2. Push MoLI should not be presented for a device making an emergency network registration that is not associated with an Emergency Call.

1.4 Specification review

The Specification will be reviewed after 5 years and every 5 years subsequently, or earlier in the event of significant developments that affect the Specification or a chapter within the Specification.

2 ACRONYMS, DEFINITIONS AND INTERPRETATIONS

2.1 Acronyms

For the purposes of the Code:

4G

means the fourth generation of mobile phone technologies.

5G

means the fifth generation of mobile phone technologies.

ACM

means Address Complete Message.

ACMA

means the Australian Communications and Media Authority.

AML

means Advanced Mobile Location.

BTS

means Base Transceiver Station.

CE

means Customer Equipment.

CID

means Cell Identifier.

CLI

means Calling Line Identification.

CSP

means Carriage Service Provider.

DMSH

means Degrees Minutes Seconds Hemisphere.

ECP

means Emergency Call Person.

ECPP

means Emergency Call Person Platform.

E-SMLC

means Evolved Serving Mobile Location Centre.

ESO

means Emergency Service Organisation.

FQDN

means Fully Qualified Domain Name.

GMLC

means Gateway Mobile Location Centre.

HTTP

means Hypertext Transfer Protocol.

HTTPS

means Secure Hypertext Transfer Protocol.

ID

means Identifier.

IMSI

means International Mobile Subscriber Identity.

LCS

means Location Client Service.

LMF

means Location Management Function.

LTE

means Long Term Evolution.

MLP

means Mobile Location Protocol.

MoLI

means Mobile Location Information.

MSISDN

means Mobile Services Integrated Services Digital Number.

NI-LR

means Network Induced Location Request.

OMA

means Open Mobile Alliance.

PLMN

Means Public Land Mobile Network.

PMTS

means Public Mobile Telecommunications Service.

RAN

means Radio Access Network.

SAC/LAC

means Service Area Code/Location Area Code.

SIM

means Subscriber Identity Module.

SIP

means Session Initiation Protocol.

SMSA

means Standardised Mobile Service Area.

TLS

means Transport Layer Security.

USIM

means Universal SIM.

UTC

means Coordinated Universal Time.

VoIP

means Voice over the Internet Protocol.

VoLTE

means Voice over LTE.

VoNR

means Voice over New Radio.

VPN

means Virtual Private Network.

XML

means Extensible Markup Language.

XPOI

means across the point of interconnect.

2.2 Definitions

For the purposes of the Code:

Act

means the *Telecommunications Act 1997 (Cth)*.

Authorised Roamer

means a subscriber whose PLMN is present in roaming agreements at the gateway station to which the subscriber is attempting to reregister.

NOTE: Refer to ETSI TS 101 376-3-19.

Base Transceiver Station

means a Carrier's Network Equipment with a CID or SAC/LAC as the unique identifier.

Carriage Service Provider

has the meaning given by section 87 of the Act.

Carrier

has the meaning given by section 7 of the Act.

Customer Equipment

has the meaning given by section 21 of the Act.

Degrees Minutes Seconds Hemisphere
means a coordinate for latitude or longitude where:

(a) Degrees is an integer in the range 0 to 360;

(b) Minutes is an integer in the range 0 to 60;

(c) Seconds is a real number of 5 digits with 3 decimal points in the range 00.000 to 60.000; and

(d) Hemisphere is a single letter, either N, S, E or W.

NOTE: The value of 'Hemisphere' for Emergency Calls within Australia is expected to be either 'E' or 'S' only. All four compass points are possible values, for consistency with OMA TS-MLP V3.3.

Determination

means the *Telecommunications (Emergency Call Service) Determination 2019 (Cth)*.

ECP Platform

means the platform of the Emergency Call Person for 000 and 112.

Emergency Call

has the meaning given by the Determination.

Emergency Call Person

has the meaning given by section 7 of the Act.

Emergency Call Person for 000 and 112

has the meaning given by the Determination.

NOTE: At time of publication, the ECP for 000 and 112 is Telstra.

Emergency Call Person for 106

has the meaning given by the Determination.

NOTE: At time of publication, the ECP for 106 is Concentrix Services Pty Ltd (ACN 166 171 991).

Emergency Service Organisation

has the meaning given by the Determination.

Evolved Serving Mobile Location Centre (E-SMLC)

(a) has the meaning given by 3GPP 23.271, or

(b) means a platform, or group of platforms, used by a Mobile Carrier to resolve or provide Push MoLI for 4G voice telephony services to the GMLC.

First Delivery Attempt Duration

means the elapsed time (t_1-t_0) between:

(a) when an Emergency Call is first detected by the MSS as recorded by the MSS (t_0); and

(b) the time of sending XML code from the GMLC/E-SMLC to the ECPP for a first delivery attempt (t_1).

Gateway Mobile Location Centre (GMLC)

(a) has the meaning given by 3GPP TS 23.078, or

(b) means a platform, or group of platforms, used by a Mobile Carrier to resolve or provide Push MoLI for 4G voice telephony services to the ECPP.

Inner Radius

has the meaning given by Sec 5.3.34 of OMA TS-MLP V3.3 and is an integer in metres.

Location Platform

means an:

(a) Evolved Serving Mobile Location Centre (E-SMLC);

(b) Location Management Function (LMF); or

(c) Gateway Mobile Location Centre (GMLC).

Location Management Function

has the meaning given by 3GPP TS 23.271 and/or 3GPP TS 23.273.

Mobile Carrier

means a Carrier that owns or operates a controlled network or controlled facility used to supply a PMTS.

Network Induced Location Request

has the meaning given by 3GPP TS 23.271.

Outer Radius

has the meaning given by Sec 5.3.59 of OMA TS-MLP V3.3 and is an integer in metres.

Public Mobile Telecommunications Service

has the meaning given by section 32 of the Act.

Push MoLI

means MoLI associated with an Emergency Call that is pushed from the Mobile Carrier to the ECP.

Radius

has the meaning given by Sec 5.3.67 of OMA TS-MLP V3.3 and is an integer in metres.

Subscriber Identity Module

means a physically removable module which is used in the authentication procedures and contains the subscriber identity as well as other subscriber data.

NOTE: An embedded Subscriber Identity Module or eSIM is an identity module stored in an embedded Universal Integrated Circuit Card.

Second Delivery Attempt Duration

means the elapsed time (t_2-t_1) between:

(a) the time of sending XML code from the GMLC to ECPP for the first delivery attempt (t_1).

(b) the time of sending XML code from the GMLC to ECPP a second delivery attempt (t_2).

StartAngle

has the meaning given by Sec 5.3.83 of OMA TS-MLP V3.3 and is an integer in degrees.

StopAngle

has the meaning given by Sec 5.3.85 of OMA TS-MLP V3.3 and is an integer in degrees.

Universal Integrated Circuit Card (UICC)

means a physically secure device, an IC card (or 'smart card'), that can be inserted and removed from the terminal. It may contain one or more applications. One of the applications may be a USIM.

Universal Subscriber Identity Module

means an application residing on the UICC used for accessing services provided by mobile networks, which the application is able to register on with the appropriate security.

Voice over LTE

means a packet voice service over IP based upon LTE for access and IMS for call completion

2.3 Interpretations

In the Specification, unless the contrary appears:

(a) headings are for convenience only and do not affect interpretation;

(b) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;

(c) words in the singular includes the plural and vice versa;

(d) words importing persons include a body whether corporate, politic or otherwise;

(e) where a word or phrase is defined, its other grammatical forms have a corresponding meaning;

(f) mentioning anything after include, includes or including does not limit what else might be included;

(g) words and expressions which are not defined have the meanings given to them in the Act; and

(h) a reference to a person includes a reference to the person's executors, administrators, successors, agents, assignees and novatees.

3 SOLUTION REQUIREMENTS AND OVERVIEW

3.1 Introduction

3.1.1 The responsibility for producing Push MoLI lies with the Mobile Carrier on whose PLMN the Emergency Call to 000 or 112 originates. This includes Emergency Calls made by national inbound Authorised Roamers. In the case of a national inbound Authorised Roamer, the responsibility for producing Push MoLI lies with the visited PLMN not the home PLMN.

3.1.2 At the time of publication, the basic Push MoLI expected to be consistently available from all Mobile Carriers are the latitude and longitude values of the first BTS associated with an Emergency Call to 000 or112 plus a radius value (for coverage area of that BTS) i.e. Circular Area shape.

3.1.3 Alternate information with more precision than the Circular Area shape (such as CircularArc area shape (inner and outer radius, start and stop angles) or Polygon shape related to the cell coverage area associated with an Emergency Call to 000 or 112) is typically not expected to be consistently available from all Mobile Carriers. However, this alternate information may be made available on an optional basis in specific circumstances by some Mobile Carriers depending upon the technical capabilities of their respective networks.

3.1.4 Alternate information with more precision than the Circular Area shape (such as Point or Elliptical area) related to the geographic or physical location of the CE from which the Emergency Call to 000 or 112 originated) is typically not expected to be consistently available from all Mobile Carriers. However, this alternate information may be made available on an optional basis in specific circumstances by some Mobile Carriers depending upon the technical capabilities of their respective networks.

3.2 Solution Requirements

3.2.1 The telecommunications link between a Mobile Carrier and the ECP for 000 and 112 shall be via a secure transport layer (refer to Figure 1).

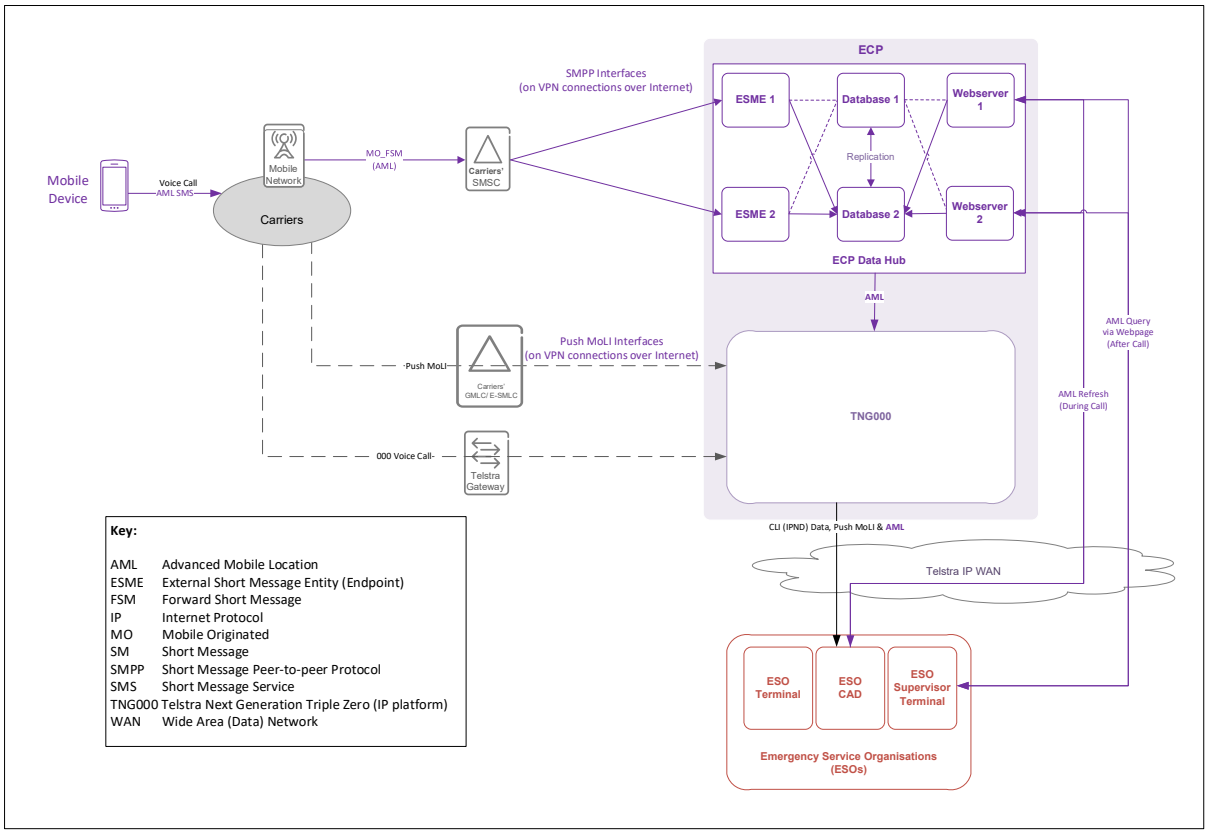

FIGURE 1

Inter Carrier AML and Push MoLI Architecture for Australia

3.2.2 Refer to Tables 1 to 11 for a list of solution requirements for Push MoLI.

3.2.3 Refer to sections 3.3 and 3.4 for details of the recommended and alternate ECPP failover processes, respectively.

3.2.4 Refer to Figure 2 for a simplified ECPP failover process flow.

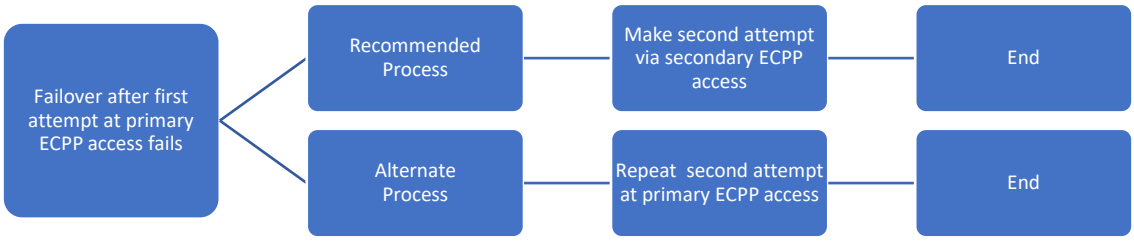

FIGURE 2

Failover Process Flow for ECPP Access on an Emergency Call

3.3 Recommended ECPP Failover Process

3.3.1 The Location Platform (e.g. GMLC, LMF) is to attempt delivery of Push MoLI data to an ECPP server for each Emergency Call.

NOTES:

1. Push MoLI should only be presented to the ECP for a device making an Emergency Call.

2. Push MoLI should not be presented for a device making an emergency network registration that is not associated with an Emergency Call.

3.3.2 If, within 3 seconds, the first attempt by the Location Platform to deliver Push MoLI data to an ECPP server fails, then the Location Platform is to make a second attempt to deliver Push MoLI data to the secondary ECPP server.

3.3.3 After the second delivery attempt, no further delivery attempt is required for that Emergency Call.

NOTES:

1. It has been estimated that an Emergency Call will take approximately 6 seconds to reach the ECP terminal, followed by the terminal application query to the ECPP server for Push MoLI data.

2. To allow for a three second timeout between the first delivery attempt and the second delivery attempt, the target timeout duration for the first delivery attempt (t1-t0) should be less than or equal to three seconds.

3. While Mobile Carriers will make best endeavours to meet the 3 seconds target for the delivery of Push MoLI, it may not be possible for every Emergency Call due to factors such as:

(a) extra time required to setup the data tunnel between -the Location Platform and ECPP if the session has remained inactive or has been broken; and

(b) the number of sessions supported by the GMLC. Refer to Appendix A for more information on how each Mobile Carrier needs to dimension the number of sessions required on its Location Platform as per the number of simultaneous Emergency Calls in its network.

(c) transmission delays in the cases of:
(i) long terrestrial distances between a remote BTS site and a MSS; or
(ii) a remote BTS site connected to a MSS via satellite backhaul link(s).

4. The ECP operates two ECPP servers.
The Location Platform may access any available ECPP server of these two ECPP servers for the delivery of Push MoLI for an Emergency Call.
The ECPP server which is accessed for the first Push MoLI delivery attempt for a specific Emergency Call by the Location Platform is treated as the primary ECPP server by the Location Platform.
The other ECPP server is treated as the secondary ECPP server by the Location Platform for the second Push MoLI delivery attempt if a retry is required.

3.3.4 Examples of failures (refer Appendix D) that would result in failover include:

(a) Unable to connect to ECPP server;

(b) Unsuccessful response from ECPP server; and

(c) No response from ECPP server within the timeout period.

3.4 Alternate ECPP Failover Process

3.4.1 The Location Platform is to attempt delivery of Push MoLI data to the primary ECPP server for each Emergency Call.

3.4.2 If, within 3 seconds, the first attempt of the Location Platform to deliver Push MoLI data to the primary ECPP server fails, then the Location Platform is to make a second attempt to deliver Push MoLI data to the primary ECPP server.

3.4.3 After the second delivery attempt, no further delivery attempt is required for that Emergency Call.

NOTE: Refer to the notes under clause 3.3.3.

3.4.4 Examples of failures (refer Appendix D) that would result in failover include:

(a) Unable to connect to ECPP server;

(b) Unsuccessful response from ECPP server; and

(c) No response from ECPP server within the timeout period.

TABLE 1

Mobile Carrier Requirements for Push MoLI

Component Name	Description	Requirements
Mobile Subscriber ID (msid)	Field with a mobile subscriber ID (e.g. a mobile phone number) sent by the Location Platform to the ECPP server as the CLI for the associated Emergency Call. The ECP Terminal application queries the ECPP server using the mobile subscriber ID of an Emergency Call as a unique CLI key to extract the associated Push MoLI data.	Refer to OMA TS-MLP V3.3 Sec 5.3.51 msid. Mobile Carrier to deliver the mobile subscriber ID to the ECPP server as either: - a 9 digit national mobile number; - a 10 digit national mobile number including a leading zero; - a 10 digit national local number (Note 2); or - a full 15 digit international (i.e. E.164) MSISDN (Note 3). Note 1: ECPP stores national number data as 10 digit number (i.e. with a leading 0) and international number data as 15 digit number. Note 2: Some Fixed-to-Mobile convergence voice telephony services are PMTS but are based on a 10 digit national local number instead of a national mobile number. Note 3: Where an Emergency Call is made under emergency camping or from a CE where only the IMEI is sent by the CE to the Mobile Carrier, the Location Platform solutions will be unable to deliver the mobile subscriber ID to the ECPP server and a dummy CLI will be delivered in lieu to the ECPP server.
Date and Time	Field with year, month, date, hour, minute and second. Time zone may be included, as an offset from UTC or if not included defaults to UTC.	Refer to OMA TS-MLP V3.3 Sec 5.3.90 time. Date and time of sending XML code from the GMLC to ECPP as recorded in the XML code timestamp. The GMLC time must be synchronised to UTC.
Geodetic Datum	Field for the datum, WGS84.	Refer to OMA TS-MLP V3.3 Sec 5.3.10.2 srsName.

Component Name	Description	Requirements
Shape	Field with a shape of the identified area. This shape can be either Circular Area or Point or CircularArc Area or Polygon or Elliptical Area.	Refer to OMA TS-MLP V3.3: Sec 5.3.15 Circular Area, Sec 5.3.61 Point, Sec 5.3.14 CircularArc Area, Sec 5.3.62 Polygon; or Sec 5.3.24 Elliptical Area Note: Also refer to corresponding Tables 2, 3, 4, 5 or 6.

TABLE 2

Additional Mobile Carrier Requirements for Push MoLI where Shape field is Circular Area (Centre and Radius only) (refer Figure 3)

Attribute Name	Description	Requirements
Latitude Coordinate X	Field with the latitude of the first BTS from where the Emergency Call originated in DMSH e.g. 24 52 33.052S.	Refer to OMA TS-MLP V3.3 Sec 5.3.98 X.
Longitude Coordinate Y	Field with the longitude of the first BTS from where the Emergency Call originated (in DMSH) e.g. 152 21 28.231E.	Refer to OMA TS-MLP V3.3 Sec 5.3.99 Y.
Radius	If using Shape value of "Circular Area", then this is a field with radius of the cell coverage, in metres e.g. 2000 m.	Refer to OMA TS-MLP V3.3 Sec 5.3.67 radius.

TABLE 3

Additional Mobile Carrier Requirements for Push MoLI where Shape field is Point (Centre only) (refer Figure 3)

Attribute Name	Description	Requirements
Latitude Coordinate X	Field with the latitude of the approximate location of the CE from where the Emergency Call originated (in DMSH). e.g. 24 52 33.052S.	Refer to OMA TS-MLP V3.3 Sec 5.3.98 X.
Longitude Coordinate Y	Field with the longitude of the approximate location of the CE from where the Emergency Call originated (in DMSH) e.g. 152 21 28.231E.	Refer to OMA TS-MLP V3.3 Sec 5.3.99 Y.

TABLE 4

Additional Mobile Carrier Requirements for Push MoLI where Shape field is 'CircularArc Area' (refer Figure 4)

Attribute Name	Description	Requirements
Latitude Coordinate X	Field with the latitude of the first BTS from where the Emergency Call originated (DMSH) e.g. 24 52 33.052S.	Refer to OMA TS-MLP V3.3 Sec 5.3.98 X.
Longitude Coordinate Y	Field with the longitude of the first BTS from where the Emergency Call originated (DMSH) e.g. 152 21 28.231E.	Refer to OMA TS-MLP V3.3 Sec 5.3.99 Y.
Inner Radius	If using Shape value of "CircularArc Area", then this is a field with inner radius of the cell coverage, in metres e.g. 500 m.	Refer to OMA TS-MLP V3.3 Sec 5.3.34 inRadius and Sec 5.3.14 CircularArc Area.
Outer Radius	If using Shape value of "CircularArc Area", then this is a field with outer radius of the cell coverage, in metres e.g. 1000 m.	Refer to OMA TS-MLP V3.3 Sec 5.3.59 outRadius and Sec 5.3.14 CircularArc Area.
Start Angle	If using Shape value of "CircularArc Area", then this is a field with start angle, in degrees measured from True North.	Refer to OMA TS-MLP V3.3 Sec 5.3.83 startAngle and Sec 5.3.14 CircularArc Area.
Stop Angle (Included Angle)	If using Shape value of "CircularArc Area", then this is a field with stop angle between the first and second defined radius in degrees.	Refer to OMA TS-MLP V3.3 Sec 5.3.85 stopAngle and Sec 5.3.14 CircularArc Area.

TABLE 5

Additional Mobile Carrier Requirements for Push MoLI where Shape field is 'Polygon' (refer Figure 5)

Attribute Name	Description	Requirements
Polygon Coordinate X	Field with the latitude of a polygon coordinate for the cell coverage from where the Emergency Call originated (in DMSH) e.g. 24 52 33.052S.	Refer to OMA TS-MLP V3.3 Sec 5.3.98 X.
Polygon Coordinate Y	Field with the longitude of a polygon coordinate for the cell coverage from where the Emergency Call originated (in DMSH) e.g. 152 21 28.231E.	Refer to OMA TS-MLP V3.3 Sec 5.3.99 Y.

NOTE: The number of vertices used to define a polygon is a minimum of 3 and maximum of 15. For each Push MoLI event, the number of pairs of X and Y coordinates passed across the Mobile Carrier-ECPP interface is a minimum of 4 and maximum of 16. Refer to clause 5.7.5.5 of OMA TS-MLP V3.3 which states in part "The last coordinate must be coincident with the first coordinate and at least four coordinates are required (the three to define a ring plus the fourth duplicated one)." *and* "… to conform to [23.032] the maximum number of points allowed in an exterior boundary is 15."

TABLE 6

Additional Mobile Carrier Requirements for Push MoLI where Shape field is 'Elliptical Area' (refer Figure 6)

Attribute Name	Description	Requirements
Latitude Coordinate X	Field with the latitude of the approximate location of the CE from where the Emergency Call originated (in DMSH) e.g. 24 52 33.052S.	Refer to OMA TS-MLP V3.3 Sec 5.3.98 X.
Longitude Coordinate Y	Field with the longitude of approximate location of the CE from where the Emergency Call originated (in DMSH) e.g. 152 21 28.231E.	Refer to OMA TS-MLP V3.3 Sec 5.3.99 Y.
Angle	If using Shape value of "Elliptical Area", then this is a field with the angle of rotation of an ellipse, in degrees measured clockwise between True North and Semi-Major Axis.	Refer to OMA TS-MLP V3.3 Sec 5.3.5 angle and Sec 5.7.5.3 Ellipsoid point with uncertainty ellipse.
Semi-Major Axis (r1)	If using Shape value of "Elliptical Area", then this is a field with the length of the Semi-Major Axis of an ellipse, in metres, as shown in figure 6.	Refer to OMA TS-MLP V3.3 Sec 5.3.75 semiMajor and Sec 5.7.5.3 Ellipsoid point with uncertainty ellipse.
Semi-Minor Axis (r2)	If using Shape value of "Elliptical Area", then this is a field with the length of the Semi-Minor Axis of an ellipse, in metres, as shown in figure 6.	Refer to OMA TS-MLP V3.3 Sec 5.3.76 semiMinor and Sec 5.7.5.3 Ellipsoid point with uncertainty ellipse.

TABLE 7

Requirements for Mobile Carrier Access to ECPP Servers

Component Name	Description	Requirements
Primary ECPP Server Access	Access to the ECPP server designated as the Primary ECPP server by the ECP.	Required - refer to Sec 3.3 and 3.4
Secondary ECPP Server Access	Back up access to the second ECPP server designated as the Secondary ECPP server by the ECP.	Optional - refer to Sec 3.3 and 3.4.
Delivery Attempt	Location Platform to attempt delivery of Push MoLI data to the Primary ECPP server for each Emergency Call.	Required - refer to Sec 3.3 and 3.4.
ECPP Failover Process	Failover process for ECPP server access by a Mobile Carrier for each Emergency Call.	Required - refer to Sec 3.3 and 3.4.
Primary Access Session Capability	Number of simultaneous Sessions between the Location Platform and the Primary ECPP server.	Each Mobile Carrier needs to dimension the number of sessions required on its Location Platform as per the number of simultaneous Emergency Calls in its network - refer Appendix A.
Secondary Access Session Capability	Number of simultaneous sessions between the Location Platform and the Secondary ECPP server (applies to Mobile Carriers implementing the "recommended" process in Sec 3.3).	Each Mobile Carrier needs to dimension the number of sessions required on its Location Platform as per the number of simultaneous Emergency Calls in its network- refer Appendix A.
Session Hold Time	Maximum holding time per Session.	6 seconds (3 seconds Primary Access + 3 seconds Secondary/ Primary Access, if required).

TABLE 8

Mobile Carriers' Requirements for Data Delivery, Failover processes, Data Format and Data Structure

Component Name	Description	Requirements
Number of delivery attempts	Number of attempts to deliver Push MoLI to ECPP server for an Emergency Call.	Maximum of two attempts.
First Delivery Attempt Duration	Duration for the first delivery attempt of Push MoLI to ECPP server for an Emergency Call.	Less than or equal to 3 seconds. Refer to Sections 3.3 and 3.4.
Second Delivery Attempt Duration	Duration for the second delivery attempt of Push MoLI to ECPP server for an Emergency Call.	Less than or equal to 3 seconds. Refer to Sections 3.3 and 3.4.
Total duration for delivery attempt(s)	Total duration for multiple attempts to deliver Push MoLI to ECPP server for an Emergency Call.	Less than or equal to 6 seconds. Refer to Sections 3.3 and 3.4.
XML format	Format of Mobile Carrier Push MoLI data delivered to ECPP server. (Refer to Note).	Refer to OMA TS-MLP V3.3.
XML code	Data structure for communicating Push MoLI between a Mobile Carrier and ECPP server. (Refer to Note).	Refer to OMA TS-MLP V3.3 Document Type Definition.

NOTE: Refer to Appendix C for examples of XML format and XML code.

TABLE 9

ECP Requirements for Push MoLI Data performance

Component Name	Description	Requirements
Send time	Mobile Carrier Push MoLI Data Location Platform send time as recorded in the XML code timestamp	The ECPP server records the send time as part of the customer call records. Date and time of sending XML code from the Location Platform to ECPP server as recorded in the XML code timestamp.
Received time	ECPP server Push MoLI data received time.	The ECPP server records the received time as part of the customer call records. The ECPP server time must be synchronised to UTC.
Querying time	ECPP server Push MoLI data querying time. Note: This time is the same as the arrival time of the Emergency Call at the ECPP terminal.	The ECPP server records the querying time as part of the customer call records. The ECPP server time must be synchronised to UTC.
Query result	A 'successful query' is where Push MoLI data is found in a query of ECPP server from the ECPP Terminal, when the ECP Terminal receives an Emergency Call, using the unique mobile subscriber ID for the Emergency Call as the key. An 'unsuccessful query' is a query that is not a successful query.	The ECPP Terminal records the query result (i.e. either a successful query or an unsuccessful query) as part of the customer call records.

NOTES:

1. This table addresses the availability of Push MoLI data delivered from a Mobile Carrier network, while the Emergency Call is in progress.

2. Emergency Calls will be delivered via the ECPP voice network to the ECPP terminal and Push MoLI data will be directly delivered to the ECPP server over the Mobile Carrier – ECPP interface.

TABLE 10

Requirements for Data Transport between Mobile Carriers and ECPP Servers

Component Name	Description	Requirements
Network Connectivity	For communicating Push MoLI between a Mobile Carrier and ECPP servers (see Appendix A).	IP Sec VPN over the Internet for data layer security between a Mobile Carrier's GMLC and ECPP servers. Separate VPNs will be established between: - a Mobile Carrier's Model Location Platform and Model ECPP servers; and - a Mobile Carrier's Production Location Platform and Primary Production ECPP servers. A Mobile Carrier implementing the recommended failover process in section 3.3 may establish a VPN between its Production Location Platform and Secondary Production ECPP server.
Data Transport	The transport layer mapping to be used to transfer the Push MoLI data between Location Platform and ECPP servers.	Push MoLI will use the default HTTP transport mapping defined in OMA TS-MLP V3.3 A 200 (i.e. 'OK' status code in RFC 2616) response will be used by ECPP servers `to indicate a successful response. A 5xx (i.e. 'server error' status code in RFC 2616), response will be used by ECPP servers to indicate an unsuccessful response requiring retry of Push MoLI data delivery by a Location Platform. The HTTPS mapping must be used if the Push MoLI data contains real location information for a real user. The HTTP mapping may only be used in the case of testing using Push MoLI test data not related to real users.

Component Name	Description	Requirements
Port Choice	ECPP TCP/IP Port to be used for Push MoLI communication by the Location Platform.	For HTTPS, Push MoLI will use Port 50006 (for production). For HTTP, Push MoLI will use Port 50005 (for testing). Notes: 1. The default ports specified in OMA TS-MLP V3.3 will not be supported for Push MoLI. 2. All Mobile Carriers will need to use the same ECPP ports as above. 3 No Mobile Carrier specific ports will be made available on ECPP.
URLs	URLs to be used by the Location Platform for addressing the two ECPP servers.	The ECP will advise each Mobile Carrier the URLs to be used for the two ECPP servers. Note: These URLs may be changed at some future time. Any change to the URLs will be done as a planned change with each Mobile Carrier, allowing adherence to each Mobile Carrier's requirements for change management control in accordance with their associated Telstra Operations and Maintenance (OAM) documents to support Push MoLI.
HTTPS	ECPP security requirements for the HTTPS connection between the Location Platform and the ECPP server.	TLS1.2 or higher will be used to establish a secure connection between a client (i.e. Carrier GMLC) and the server (i.e. ECPP server); Certificate based client (i.e. GLMC) – server (i.e. ECPP server) mutual (i.e. two way) authentication will be used; The ECPP server certificate will be signed by a globally trusted certificate authority; Telstra will manage the certificates, renewal and revocation process; and The client (i.e. the Location Platform) is not required to support server (i.e. ECPP server) certificate revocation lists.

NOTES:

1. Refer to Appendix A for more information on the delivery of Push MoLI between a Mobile Carrier and ECPP servers.

2. Refer to the 'DigiCert Certificate Policy for Symantec Trust Network (STN)' for more information on the processes to sign, manage, renew and revoke certificates.

3. For best practices and procedures on managing and implementing certificates, Carriers should contact their respective certificate providers.

4. Updates to the processes to sign, manage, renew and revoke certificates will be managed by via the bilateral operations and maintenance agreements between Telstra and the Mobile Carrier.

3.5 Solution Overview

Figure 3 below illustrates how the Push MoLI is determined when an Emergency Call is in progress. The steps in Figure 2 are:

(a) A mobile user calls 000 or 112. The Emergency Call is picked up by a BTS of a Mobile Carrier and flagged as an Emergency Call to the MSS. (step 1)

(b) The IMS or E-CSCF routes the Emergency Call to Telstra (as the ECP for 000 and 112) in line with the current Emergency Call routing procedure along with SMSA based MoLI (refer to G557.2). (step 2)

(c) At or before receipt of the signalling message in accordance with XPOI from Telstra, the E-SMLC or LMF derives location information based upon either a Network Induced Location Request (NI-LR) or any other method and forwards it to the Location Platform. Location information includes data specified in Table 1 requirements.

(d) The Location Platform acknowledges receipt of the location information to the E-SMLC/LMF and delivers the Push MoLI to the ECPP Server via the IP Sec VPN connection (step 5);

    (i) The E-SMLC/LMF sends another message to the GMLC, which includes an indication of the Emergency Call termination; and

    (ii) The Location Platform acknowledges the E-SMLC/LMF notification.

NOTE: Some Location Platform solutions also send an Emergency Call release notification to the ECPP server.

(e) The ECPP Server stores the Push MoLI in a table.

(f) The ECP Terminal application queries the ECPP Server using the mobile subscriber ID (refer Table 1) as a unique key and extracts the CLI data with the Push MoLI. (step 6)

(g) The ECP Terminal conferences the call with the caller requested ESO. (step 7a)

(h) The ECP Terminal sends the CLI data with the Push MoLI to the ESO via Telstra's wide area network as per the current process. (step 7b)

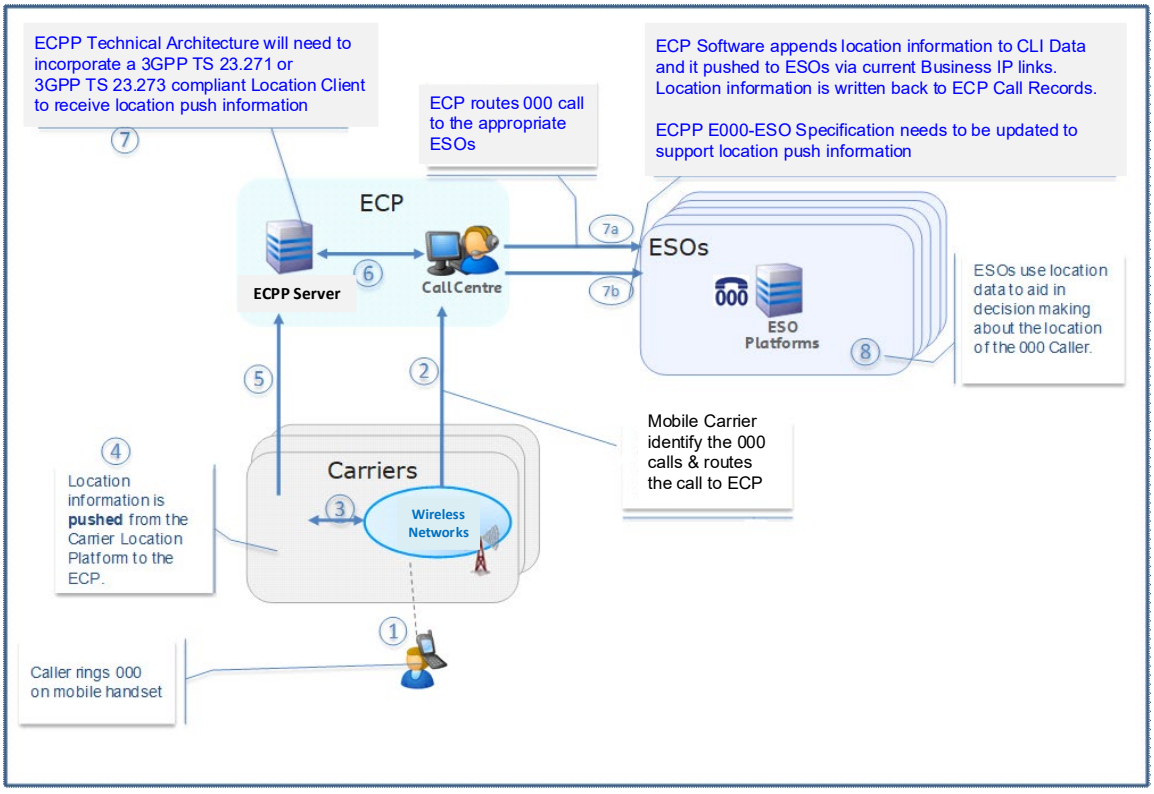

FIGURE 3

End to End Push MoLI Data Overview

4 PUSH MOBILE LOCATION DATA SHAPES AND FIELDS

4.1 Circular Area Shape

4.1.1 For Circular Area shape, the ECPP server will store the following information:

(a) CircularArea -> Shape,

(b) Mobile Subscriber ID,

(c) UTC_TIME_STAMP,

(d) Centre; X[latitude of the BTS],

(e) Centre Y[longitude of the BTS],

(f) Outer Radius in meters, and

(g) Geodetic Datum.

4.1.2 Refer to Figure 3 for a pictorial view of the Push MoLI where Circular Area shape information is only the centre point coordinates and an outer radius (for ECPP server recording purpose).

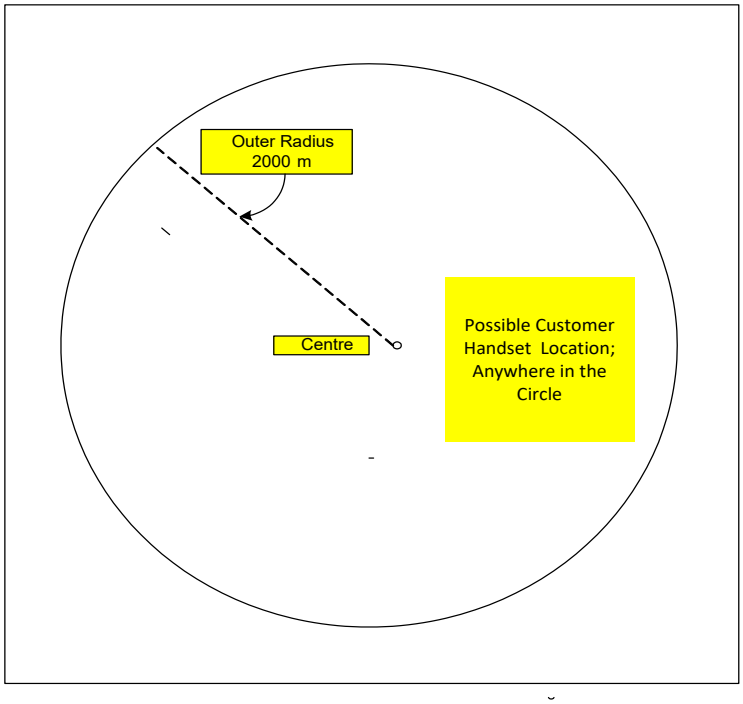

FIGURE 4

Pictorial View of Push MoLI with point coordinates and Outer radius

4.2 CircularArc Area Shape

4.2.1 For CircularArc Area shape, the ECPP server will store the following information:

(a) CircularArc Area -> Shape,

(b) Mobile Subscriber ID,

(c) UTC_TIME_STAMP,

(d) Centre; X[latitude of the BTS],

(e) Centre Y[longitude of the BTS],

(f) Inner Radius in meters,

(g) Outer Radius in meters,

(h) Start Angle in degrees,

(i) Stop Angle in degrees, and

(j) Geodetic Datum.

4.2.2 Refer to Figure 5 for a pictorial view of the Push MoLI where CircularArc Area shape information is available.

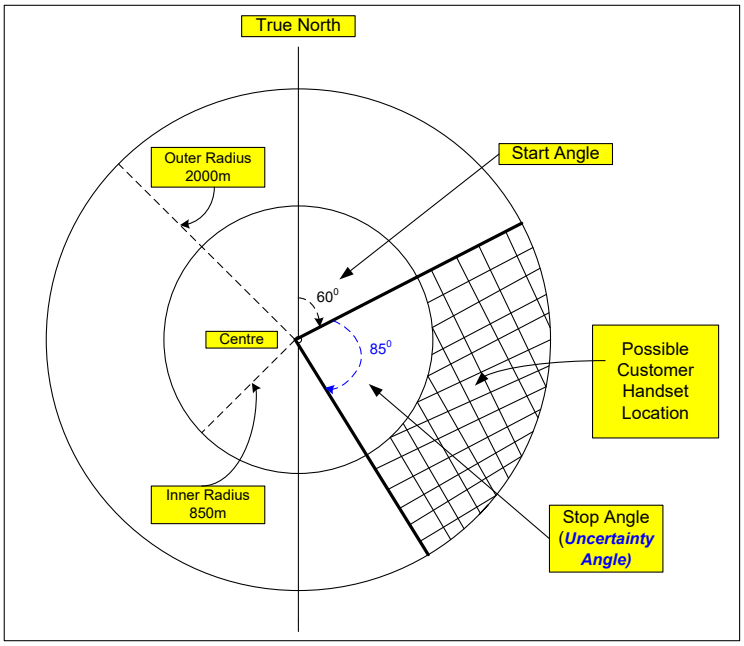

FIGURE 5

Pictorial View of Push MoLI with point coordinates, radii and angles

4.3 Point Shape

For Point shape, the ECPP server will store the following information:

(d) Point -> Shape,

(e) Mobile Subscriber ID,

(f) UTC_TIME_STAMP,

(g) Centre; X[latitude of the CE],

(h) Centre Y[longitude of the CE] and

(i) Geodetic Datum.

4.4 Polygon Shape

4.4.1 For Polygon shape, the ECPP server will store the following information:

(a) Polygon -> Shape,

(b) Mobile Subscriber ID,

(c) UTC_TIME_STAMP,

(d) Point 1 of the Polygon; X[latitude],

(e) Point 1 of the Polygon Y[longitude],

(f) Point 2 of the Polygon; X[latitude],

(g) Point 2 of the Polygon Y[longitude],

(h) Point 3 of the Polygon; X[latitude],

(i) Point 3 of the Polygon Y[longitude],

(j) Point 4 of the Polygon; X[latitude],

(k) Point 4 of the Polygon Y[longitude],

(l) Point 5 of the Polygon; X[latitude],

(m) Point 5 of the Polygon Y[longitude],

(n) Point 6 of the Polygon; X[latitude],

(o) Point 6 of the Polygon Y[longitude], and

(p) Geodetic Datum.

NOTE: A polygon can consist of between 3 and 15 Vertices points (inclusive). These Points are derived from cell coverage area.

4.4.2 Refer to Figure 6 for a pictorial view of the Push MoLI where Polygon information is available.

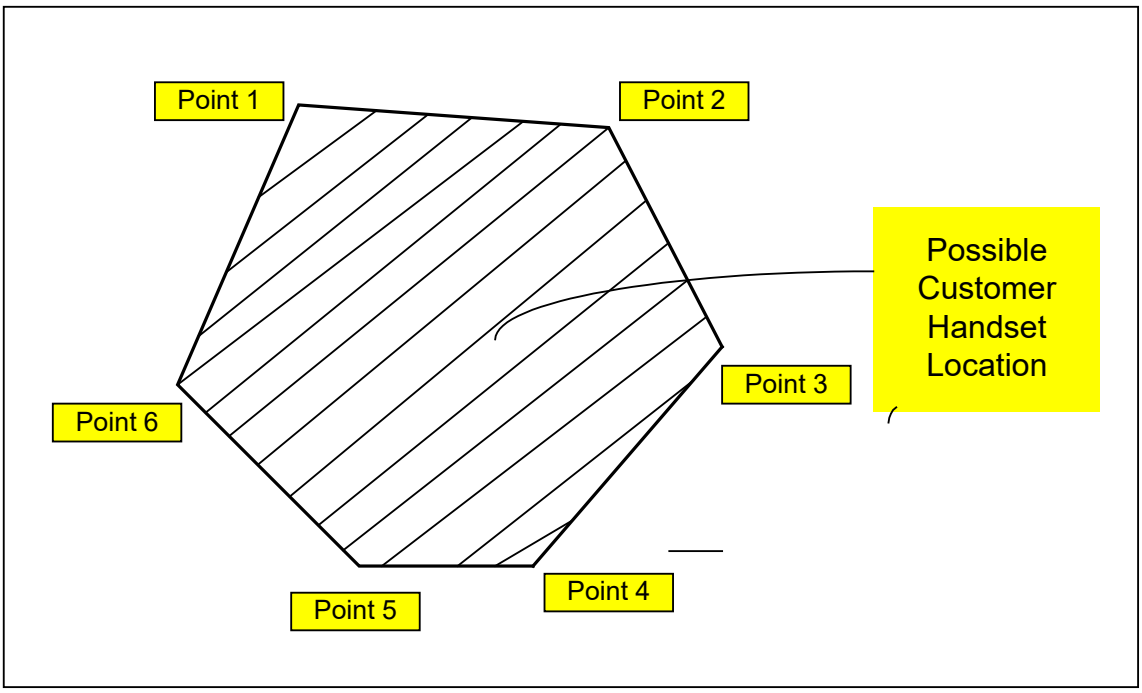

FIGURE 6
Pictorial View of Push MoLI with Polygon coordinates

4.5 Elliptical Area Shape

4.5.1 For the Elliptical Area shape, the ECPP server will store the following information:

(a) Elliptical Area -> Shape,

(b) Mobile Subscriber ID,

(c) UTC_TIME_STAMP,

(d) Centre; X[latitude of the CE],

(e) Centre Y[longitude of the CE],

(f) Semi-Major axis of length (r1) in meters,

(g) Semi-Minor axis of length (r2) in meters,

(h) Angle in degrees, and

(i) Geodetic Datum.

4.5.2 Refer to Figure 7 for a pictorial view of the Push MoLI where elliptical area information is available.

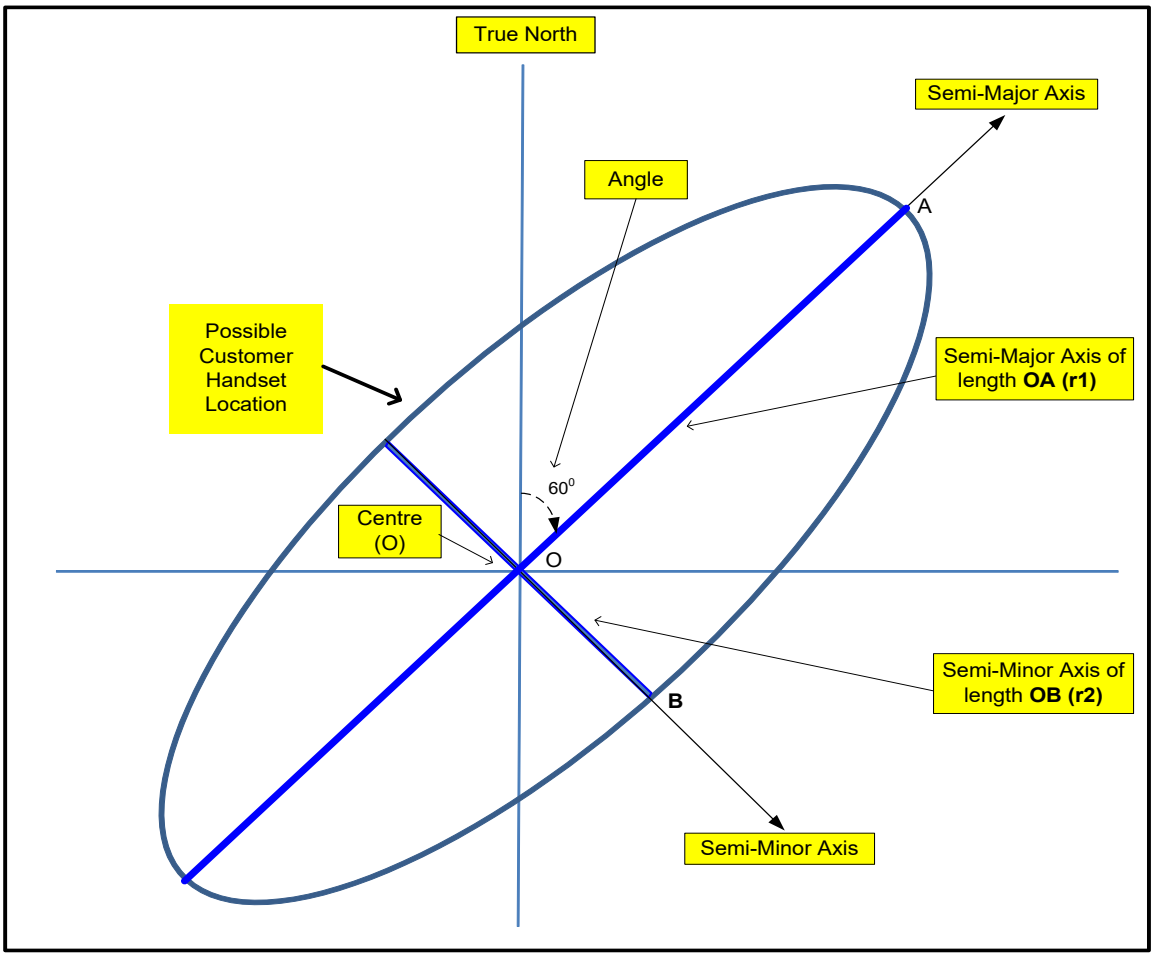

FIGURE 7

Pictorial View of Push MoLI with Polygon coordinates

5 REFERENCES

Publication	Title
Australian Standard	
AS/CA S042.1	Requirements for connection to an air interface of a Telecommunications Network - Part 1: General https://www.commsalliance.com.au/Documents/all/Standards/s042.1
International Specifications and Standards	
3GPP TS 23.002	Technical Specification Group Services and System Aspects; Network architecture https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=728
3GPP TS 23.078	Technical Specification Group Services and System Aspects; Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 4; Stage 2 http://www.3gpp.org/DynaReport/23078.htm
3GPP TS 23.271	Technical Specification Group Services and System Aspects; Functional stage 2 description of Location Services (LCS) https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=834
3GPP TS 23.273	5G System (5GS) Location Services (LCS); Stage 2 https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3577
ITU-T E.164 (11/2010)	The international public telecommunication numbering plan https://www.itu.int/ITU-T/recommendations/rec.aspx?rec=10688
OMA TS-MLP V3.3	OMA Mobile Location Protocol (MLP) Version 3.3, dated 19 July 2011 https://www.openmobilealliance.org/release/MLS/V1_2-20091001-C/OMA-TS-MLP-V3_3-20091001-C.pdf
IETF RFC 2660	The Secure HyperText Transfer Protocol https://datatracker.ietf.org/doc/html/rfc2660

IETF RFC 3261	SIP: Session Initiation Protocol https://datatracker.ietf.org/doc/html/rfc3261
IETF RFC 5246	The Transport Layer Security (TLS) Protocol Version 1.2 https://datatracker.ietf.org/doc/html/rfc5246
IETF RFC 9112	HTTP/1.1 https://datatracker.ietf.org/doc/html/rfc9112
WGS84	World Geodetic System 1984 (WGS84) https://earth-info.nga.mil/index.php?dir=wgs84&action=wgs84
Industry Guidelines and Specifications	
G557:2025	Standardised Mobile Service Area and Location Indicator Specifications and Guidelines Part 1: Index Part 2: Standardised Mobile Service Area and Location Indicator Register Part 3: Location Independent Communications Service Location Indicator for Emergency Services Signalling Specification Part 4: Mobile Location Information (MoLI) Processes for Emergency Calling and Rescue Coordination Part 5: Push Mobile Location Information (MoLI) Interface to Emergency Call Person Platform (ECPP) Part 6: Advanced Mobile Location http://commsalliance.com.au/Documents/all/guidelines/g557
Other Industry Documents	
DigiCert Certificate Policy for Symantec Trusted Network	DigiCert Certificate Policy for Symantec Trust Network (STN). Version 2.11 https://www.digicert.com/wp-content/uploads/2019/04/STN_CP-2.11.pdf
Legislation and Regulation	
Telecommunications Act 1997 https://www.legislation.gov.au/C2004A05145/latest/text	

Telecommunications (Emergency Call Service) Determination 2019

https://www.legislation.gov.au/F2019L01509/latest/text

APPENDIX

A PUSH MOLI: ECPP SERVER – MOBILE CARRIER DATA TRANSMISSION

Each Mobile Carrier needs to dimension the number of sessions required on its Location Platform as per the number of simultaneous Emergency Calls in its network for its Location Platform to send Push MoLI data to ECPP server as shown in Figure 8.

NOTES:

1. Mobile Carriers implementing the "alternate process" in Sec 3.4 are not required to establish data links between their GMLC and the Secondary ECPP server.

2. The dimensions of connections between the ECP for 000 and 112 and a Mobile Carrier are subject to agreement between the ECP for 000 and 112 and that Mobile Carrier.

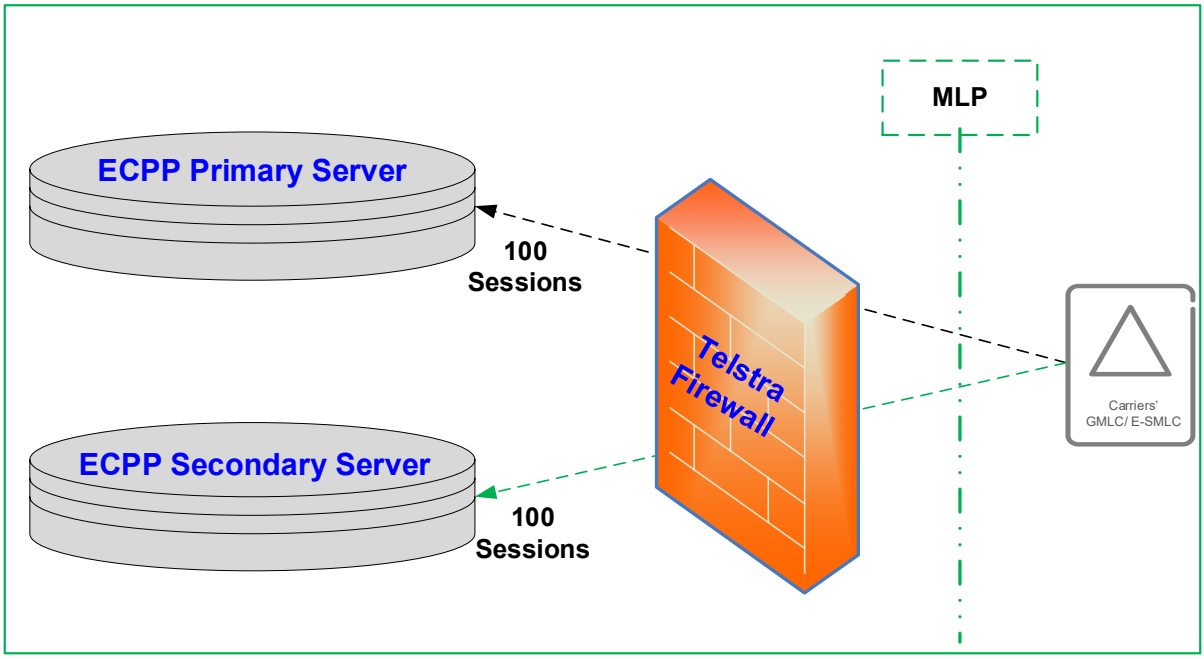

FIGURE 8
Push MoLI: ECPP Server – Mobile Carrier Data Transmission

APPENDIX

B Examples of Sample XML Codes for Push MoLI

B1 Circular Area Shape

B.1.1 Sample XML code for Push MoLI that includes Circular Area shape information with centre coordinates and a radius is:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE svc_result SYSTEM "MLP_SVC_RESULT_320.DTD">
<svc_result ver="3.2.0"><emerep ver="3.0.0">
<eme_event eme_trigger="EME_ORG">
<eme_pos pos_method="CELL">
<msid type="MSISDN" enc="ASC">041234xxxx</msid>
<pd>
<time utc_off="+0000">20210321161715</time>
<shape>
<CircularArea srsName="www.epsg.org#4283">
<coord>
<X>33 49 07S</X>
<Y>151 00 26E</Y>
</coord>
<radius>500</radius>
</CircularArea>
</shape>
<lev_conf>0</lev_conf>
</pd>
</eme_pos>
</eme_event>
</emerep>
</svc_result>
```

B2 CircularArc Area Shape

B.2.1 Sample XML code for Push MoLI that includes CircularArc Area shape information with point coordinates, radii and angles is:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE svc_result SYSTEM "MLP_SVC_RESULT_320.DTD">
<svc_result ver="3.2.0">
<emerep ver="3.0.0">
<eme_event eme_trigger="EME_ORG">
<eme_pos pos_method="CELL">
<msid type="MSISDN" enc="ASC">041234xxxx</msid>
<pd>
<time utc_off="+1100">20210321162415</time>
<shape>
<CircularArcArea srsName="www.epsg.org#4326">
<coord>
<X>36 22 23S</X>
<Y>145 24 26E</Y>
</coord>
<inRadius>850</inRadius>
<outRadius>2000</outRadius>
<startAngle>60</startAngle>
<stopAngle>85</stopAngle>
</CircularArcArea>
</shape>
<lev_conf>0</lev_conf>
</pd>
</eme_pos>
</eme_event>
</emerep>
</svc_result>
```

NOTE: Where point, radii and angle information is not available, the Mobile Carrier will supply Circular Area shape information – refer to the examples in C.1.1.

B3 Point Shape

B.3.1 Sample XML code for Push MoLI that includes Point shape information is:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE svc_result SYSTEM "MLP_SVC_RESULT_320.DTD">
<svc_result ver="3.2.0">
<emerep ver="3.0.0">
<eme_event eme_trigger="EME_ORG">
<eme_pos pos_method="CELL">
<msid type="MSISDN" enc="ASC">041234xxxx</msid>
<pd>
<time utc_off="+1100">20210322160855</time>
<shape>
<Point srsName="www.epsg.org#4283">
<coord><X>33 49 07S</X><Y>151 00 26E</Y></coord>
</Point>
</shape>
<lev_conf>0</lev_conf>
</pd>
</eme_pos>
</eme_event>
</emerep>
</svc_result>
```

NOTE: Where point information is not available, the Mobile Carrier will supply Circular Area shape information – refer to the examples in C.1.1.

B4 Polygon Shape

B.4.1 Sample XML code for Push MoLI that includes Polygon shape information is:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE svc_result SYSTEM "MLP_SVC_RESULT_320.DTD">
<svc_result ver="3.2.0"><emerep ver="3.0.0">
<eme_event eme_trigger="EME_ORG">
<eme_pos pos_method="CELL">
<msid type="MSISDN" enc="ASC">041234xxxx</msid>
<pd>
<time utc_off="+1100">20210321154055</time>
<shape>
<Polygon srsName="www.epsg.org#4326">
<outerBoundaryIs>
<LinearRing>
<coord><X>36 21 50.234S</X><Y>145 24 38.018E</Y></coord>
<coord><X>36 22 23S</X><Y>145 24 26E</Y></coord>
<coord><X>36 22 48S</X><Y>145 23 59E</Y></coord>
<coord><X>36 21 55S</X><Y>145 23 36E</Y></coord>
<coord><X>36 21 05S</X><Y>145 23 40E</Y></coord>
<coord><X>36 20 48S</X><Y>145 24 10E</Y></coord>
<coord><X>36 21 09S</X><Y>145 24 28E</Y></coord>
</LinearRing>
</outerBoundaryIs>
</Polygon>
</shape>
<lev_conf></lev_conf>
</pd>
<esrd></esrd>
<esrk></esrk>
```

```
</eme_pos>

</eme_event>

</emerep>

</svc_result>
```

NOTE: Where Polygon information is not available, the Mobile Carrier will supply Circular Area shape information – refer to the examples in C.1.1.

B5 Elliptical Area Shape

B.5.1 Sample XML code for Push MoLI that includes Elliptical Area shape information is:

```
<?xml version="1.0" ?>

<!DOCTYPE svc_result SYSTEM "MLP_SVC_RESULT_320.DTD">

<svc_result ver="3.2.0">

<emerep ver ="3.0.0">

<eme_event eme_trigger="EME_ORG">

<eme_pos>

<msid  enc="ASC">041234xxxx</msid>

<pd>

<time utc_off="+1100">20210321162715</time>

<shape>

<EllipticalArea srsName="www.epsg.org#4326">

<coord>

<X>33 28 14.719S</X>

<Y>151 06 27.123E</Y>

</coord>

<angle>305</angle>

<semiMajor>134</semiMajor>

<semiMinor>121</semiMinor>

<angularUnit>Degrees</angularUnit>

<distanceUnit>meter</distanceUnit>
```

```
</EllipticalArea>

</shape>

</pd>

<esrd type="NA">00002</esrd>

<esrk type="NA">0481669</esrk>

</eme_pos>

</eme_event>

</emerep>

</svc_result>
```

NOTES:

1: Where Elliptical area information is not available the Mobile Carrier will supply Circular Area shape information – refer to the examples in C.1.1.

2. Some GMLC solutions will inject a default dummy numeric value which may be other than zero (e.g. 65 or 57) in the lev-conf parameter for elliptical area information which needs to be ignored by the ECP and ESO.

APPENDIX

C Sequence Diagrams

C.1.1 General call flow – Emergency call initiated from MS

Refer to Figure 9 for a high-level call flow for an Emergency Call with Push MoLI, covering both the call setup to the ECP and the Push MoLI delivery to ECPP server. Transfer of the call to an ESO is not included in the flow; from the Mobile Carrier's point of view, the responsibility is delivery of the Emergency Call and associated Push MoLI delivery to the ECP; delivery to the ESO is the responsibility of the ECP.

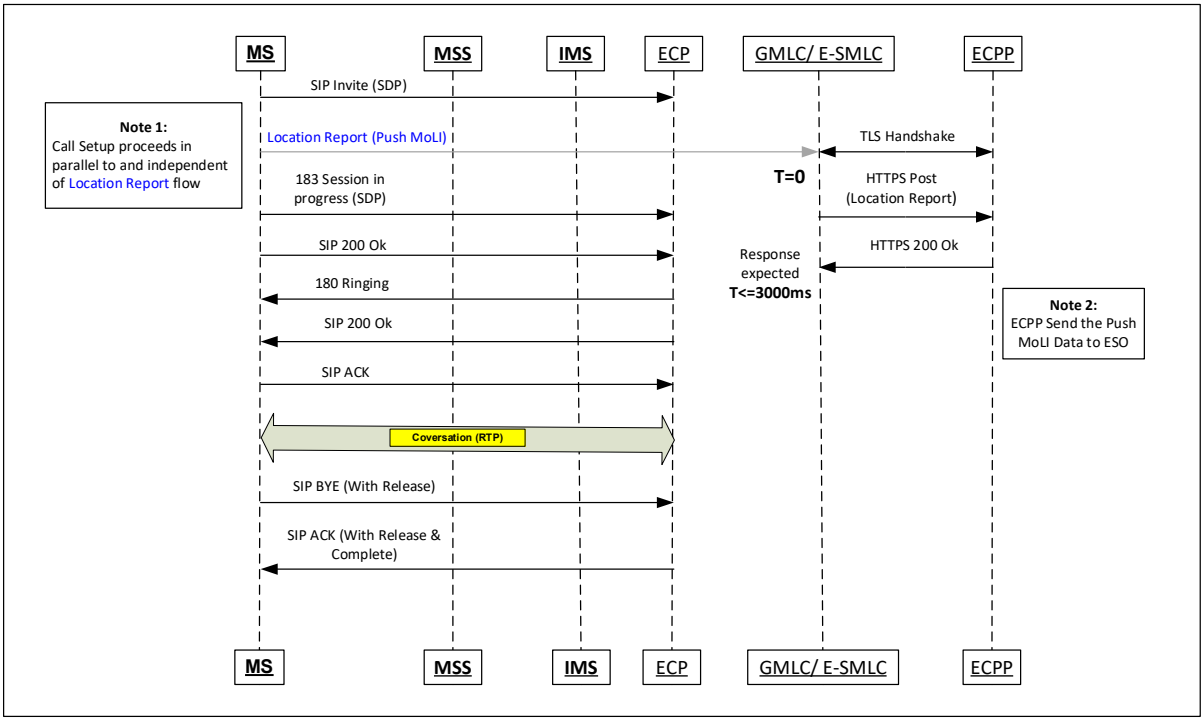

FIGURE 9

High level call flow for an Emergency Call with Push MoLI

C.1.2 **GMLC to ECPP Server Failover Scenarios**

Connection failure to Primary ECPP Server

(a) For Mobile Carriers implementing the "recommended process" in Section 3.3:
If the Location Platform is unable to connect to the primary ECPP server, or if for any reason the connection fails, the Location Platform will attempt to deliver Push MoLI to the secondary ECPP server instead. Note that there would be no further attempt at Push MoLI delivery if the attempt to the secondary ECPP server fails for any reason.

(b) For Mobile Carriers implementing the "alternate process" in Section 3.4:
If the Location Platform is unable to connect to the primary ECPP server, or if for any reason the connection fails, the Location Platform will make a second attempt to deliver Push MoLI to the primary ECPP server. Note that there would be no further attempt at Push MoLI delivery if the second attempt to the primary ECPP server fails for any reason.

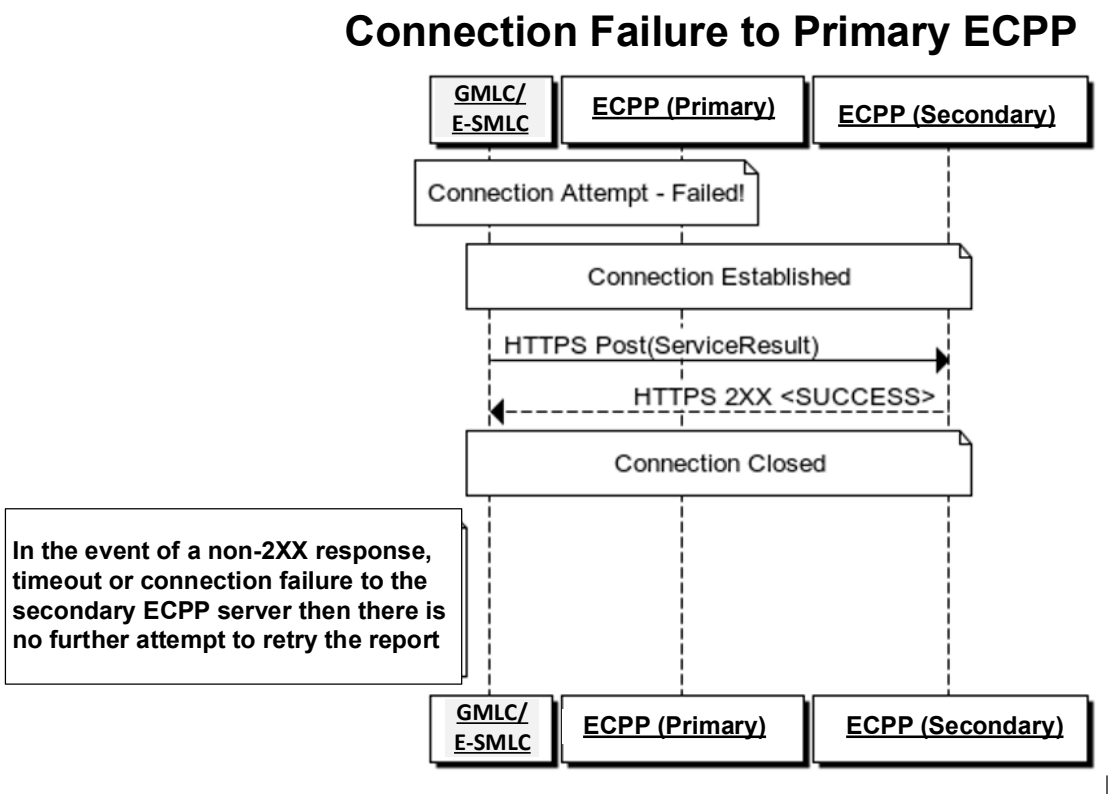

FIGURE 10
Connection Failure to Primary ECPP Server

Connection Failure to Primary ECPP – Alternate Failover

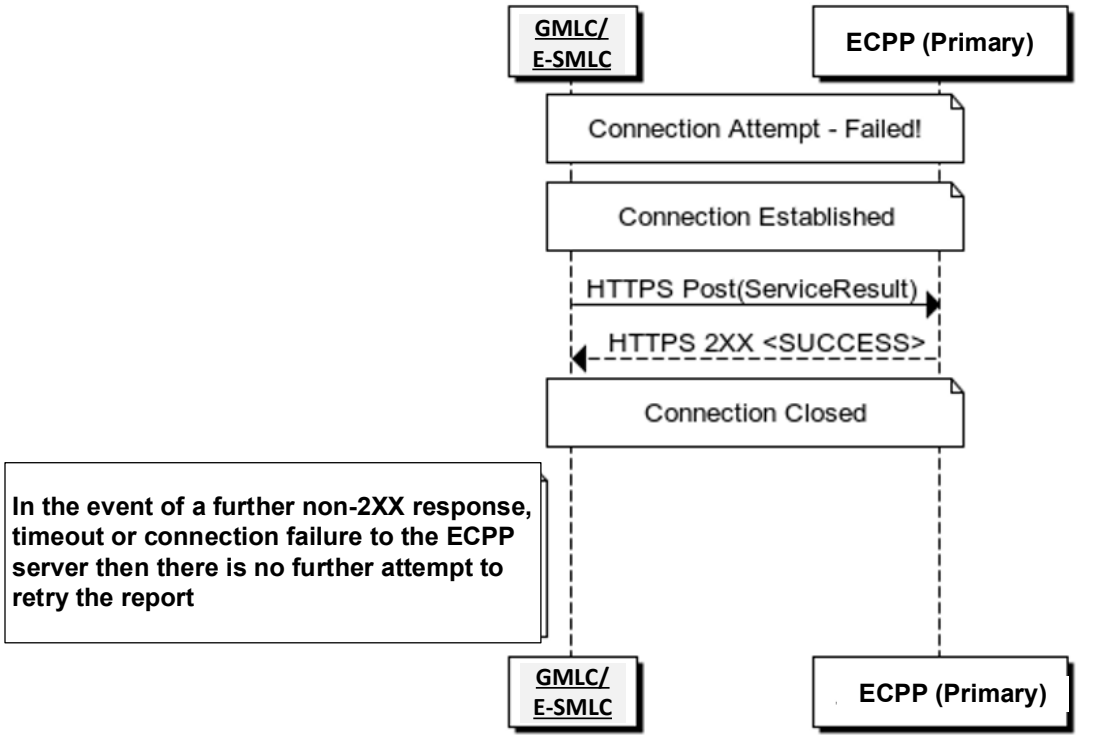

FIGURE 11

Connection Failure to Primary ECPP Server – Alternate Failover

Unsuccessful response from ECPP Server

(a) For Mobile Carriers implementing the "recommended process" in Section 3.3:
In the event of failure in the processing of Push MoLI data, ECPP server will flag the error to the Location Platform using any HTTP 5XX response code for requiring retry. Such a response from the primary ECPP server would result in the Location Platform attempting to deliver Push MoLI to the secondary ECPP server. Note that there would be no further attempt for Push MoLI delivery if the attempt to the secondary server fails.

(b) For Mobile Carriers implementing the "alternate process" in Section 3.4:
In the event of failure in the processing of Push MoLI data, ECPP will flag the error to the Location Platform using any HTTP 5XX response code. Such a response from the primary ECPP server would result in the Location Platform making a second attempt to deliver Push MoLI to the primary ECPP server. Note that there would be no further attempt at Push MoLI delivery if the second attempt to the primary ECPP server fails for any reason.

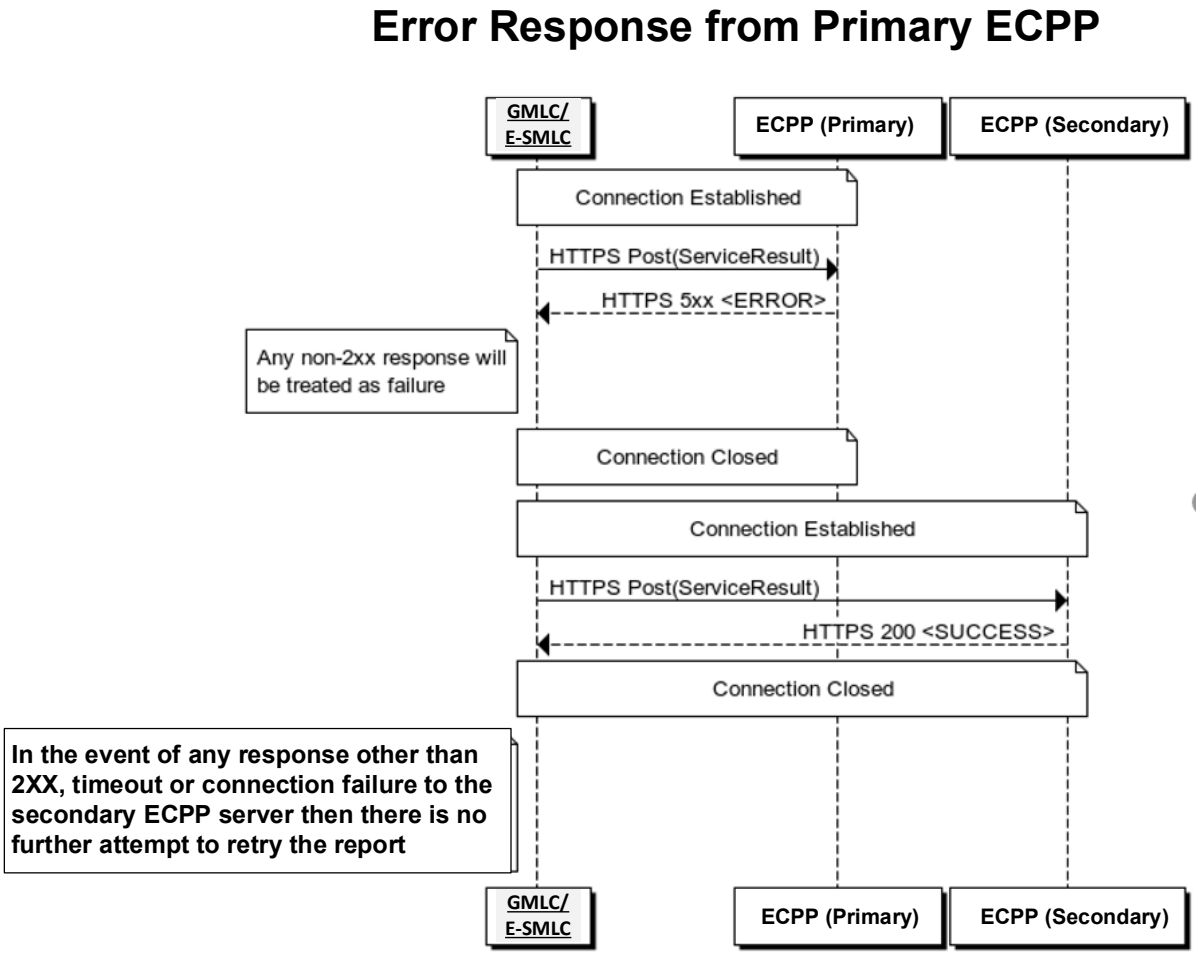

FIGURE 12
Error Response from Primary ECPP Server

Error Response from Primary ECPP – Alternate Failover

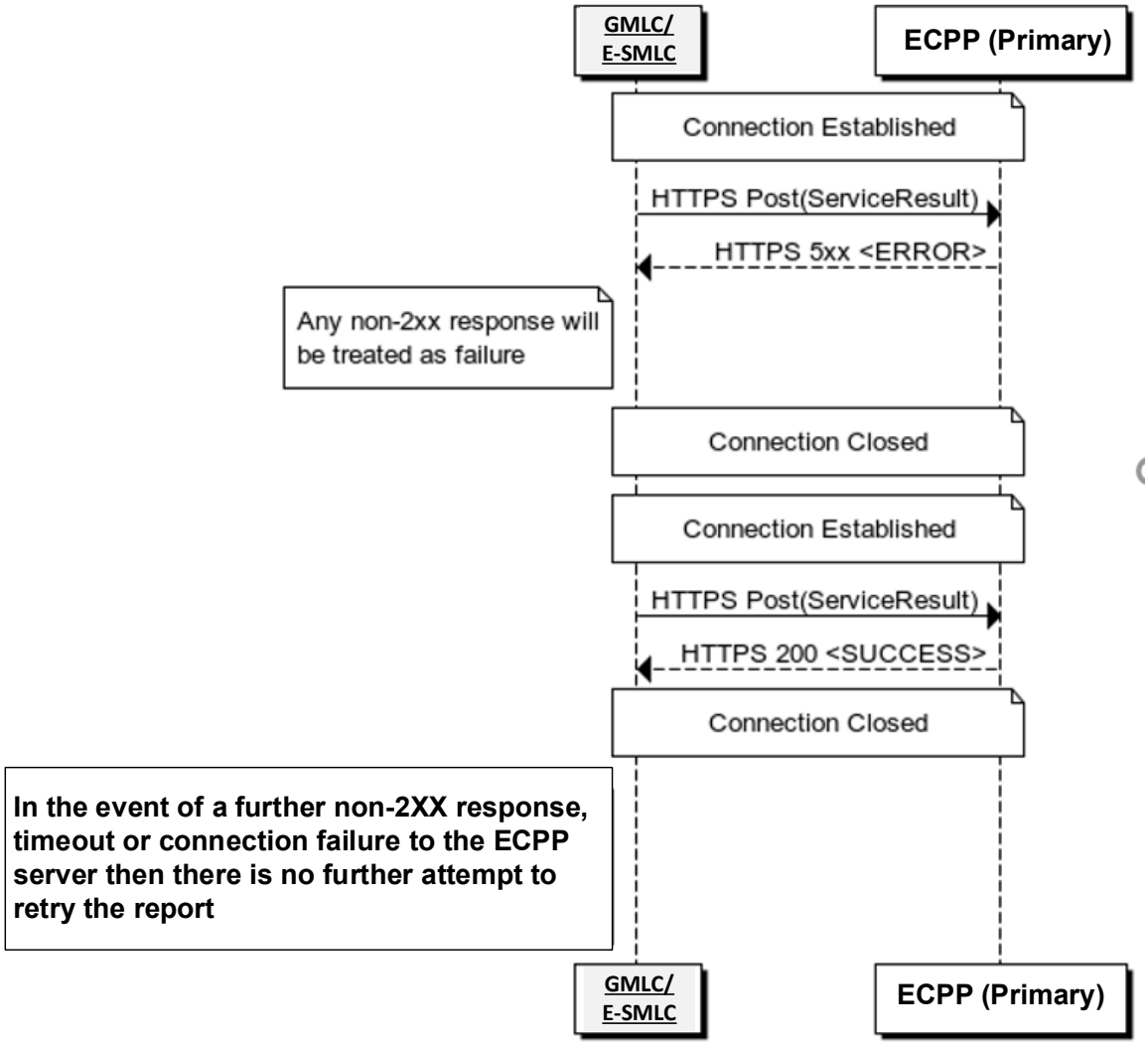

FIGURE 13

Error Response from Primary ECPP Server – Alternate Failover

Timeout on response from ECPP

(a) For Mobile Carriers implementing the "recommended process" in Section 3.3:
The Location Platform will monitor for a response from the primary ECPP server within a period of 3 seconds from when Push MoLI is initially sent by the Location Platform. If a response is not seen within this period, the Push MoLI delivery will be reattempted by the Location Platform to the secondary ECPP server. Note that there would be no further attempt at Push MoLI delivery if the attempt to the secondary ECPP server fails for any reason.

(b) For Mobile Carriers implementing the "alternate process" in Section 3.4:
The Location Platform will monitor for a response from the primary ECPP server within a period of 3 seconds from when Push MoLI is initially sent by the Location Platform. If a response is not seen within this period, the Push MoLI delivery will be reattempted by the Location Platform to the primary ECPP server. Note that there would be no further attempt at Push MoLI delivery if the second attempt to the primary ECPP server fails for any reason.

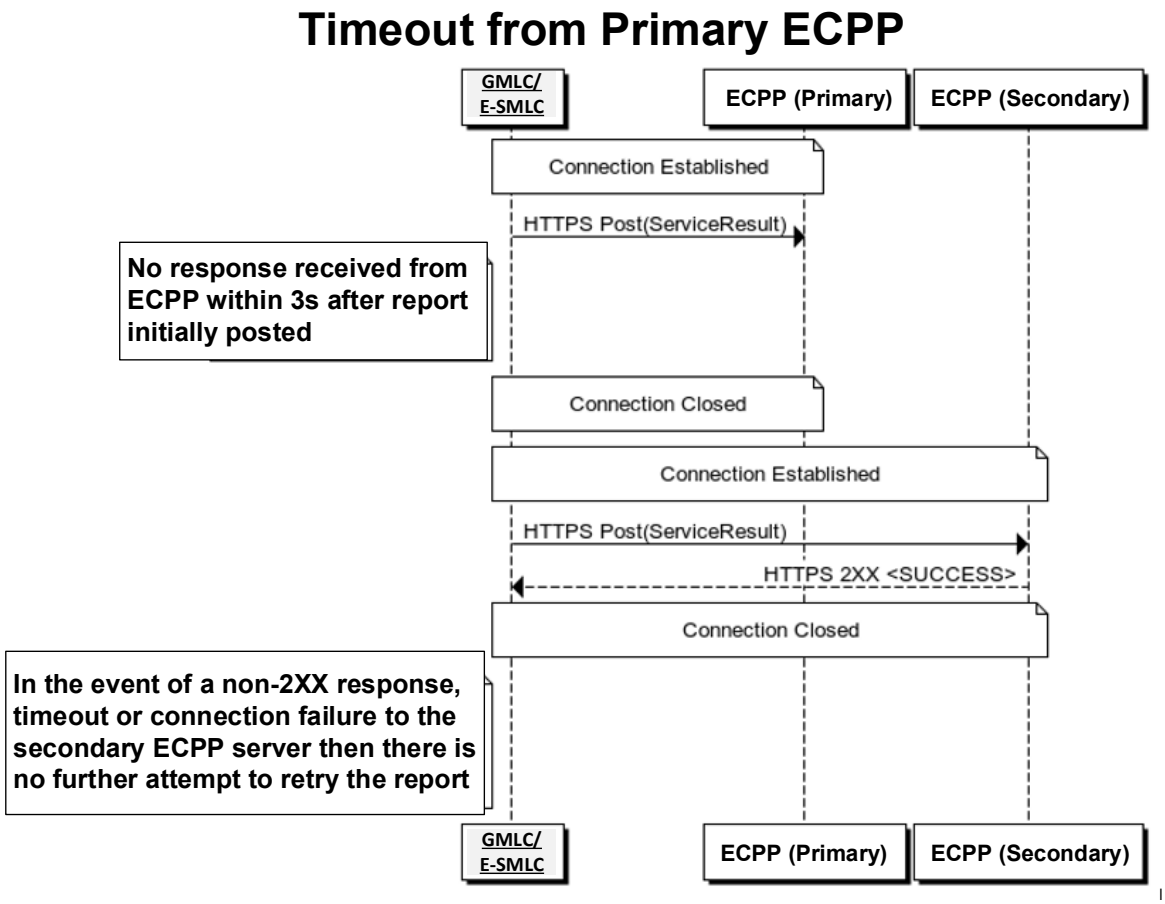

FIGURE 14
Timeout from Primary ECPP Server

Timeout from Primary ECPP – Alternate Failover

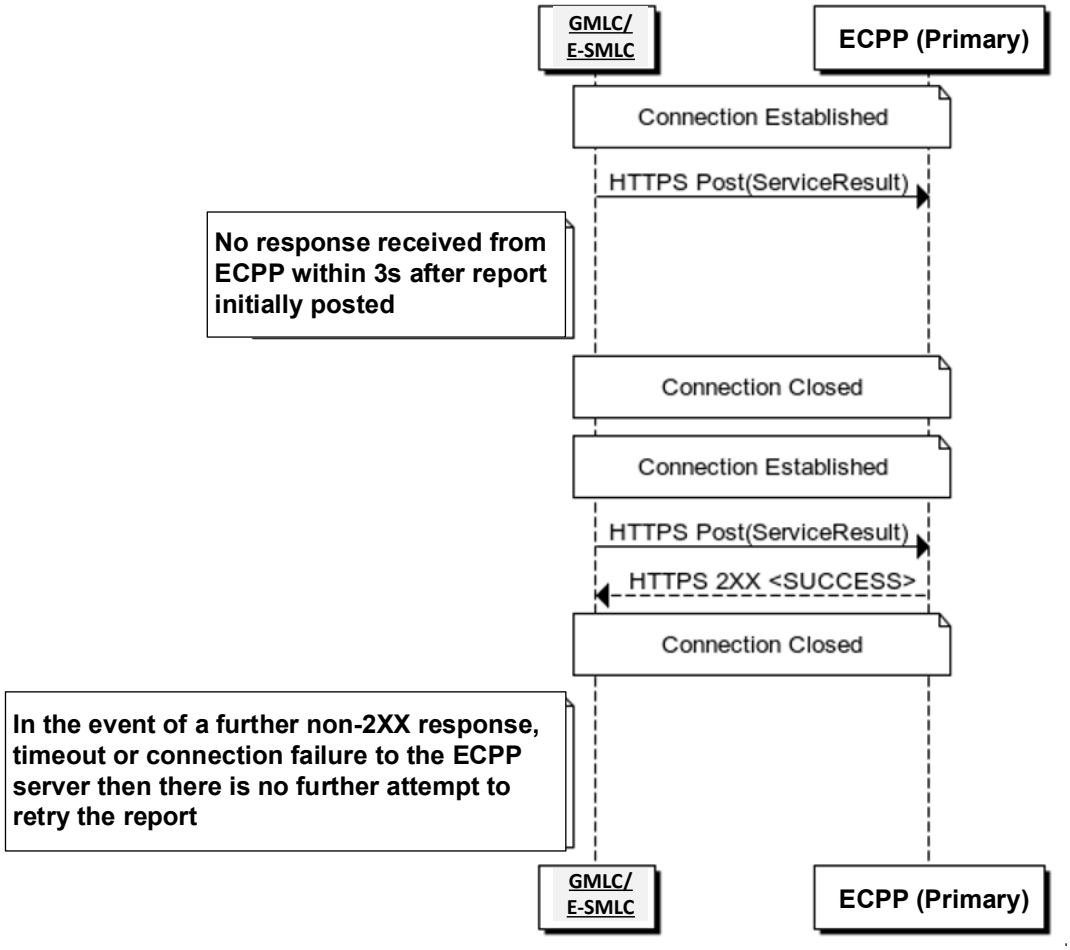

FIGURE 15

Timeout from Primary ECPP Server – Alternate Failover

PARTICIPANTS

The Working Committee responsible for the revisions made to this Specification consisted of the following organisations and their representatives:

Organisation	Membership	Representative
Australian Communications and Media Authority (ACMA)	Non-voting	Vivian Tee
Individual	Non-voting	Sam Mangar
Optus	Voting	James Dam
Telstra	Voting	Jane Elkington
Telstra	Non-voting	Kandiah Arulventhan
Telstra	Non-voting	David Brown
Telstra	Non-voting	Karin Manning
Telstra Wholesale	Non-voting	Adrian Virdun
TPG Telecom	Voting	Albert Chittenden

This Working Committee was chaired by Albert Chittenden. James Duck of Communications Alliance provided project management support.

Communications Alliance was formed in 1997 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

In pursuing its goals, Communications Alliance offers a forum for the industry to make coherent and constructive contributions to policy development and debate.

Communications Alliance seeks to facilitate open, effective and ethical competition between service providers while ensuring efficient, safe operation of networks, the provision of innovative services and the enhancement of consumer outcomes.

It is committed to the achievement of the policy objective of the *Telecommunications Act 1997* - the greatest practicable use of industry self-regulation without imposing undue financial and administrative burdens on industry.

Published by:
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