**3GPP TSG-SA WG6 Meeting #38-e S6-201717-rev1**

**e-meeting, 31st August – 8th September 2020 (revision of S6-20xxxx)**

**Source: one2many**

**Title: Pseudo-CR on capabilities of UE without 5GMSGS client**

**Spec: 3GPP TR 23.700-24-v0.7.0**

**Agenda item: 8.6**

**Document for: Approval**

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**1. Introduction**

The present key issue studies UE capabilities in case a 5GMSGS client is not present (i.e. a legacy UE). It notably studies if such a UE can send a 5GMSGS message.

**2. Reason for Change**

New text for studying a key issue.

**3. Conclusions**

**4. Proposal**

It is proposed to agree the following changes to 3GPP TR 23.700-v0.7.0.

\* \* \* First Change \* \* \* \*

## 5.X Key Issue X: Capabilities of UE without 5GMSGS client

### 5.x.1 Description

#### 5.x.1.1 UE types

This key issue studies capabilities of a UE that does not support a 5GMSGS client.

For the purpose of the key issue all UEs that are part of the application service support an Application client or a native legacy client and these clients use the MSGin5G service to exchange messages (i.e. payload).

As shown in figure 5.x.1-1, a UE supports an Application client or a legacy client and may also support a 5GMSGS client. A UE that supports a 5GMSGS client supports all functionality that will be specified for the MSGin5G service (5GMSGS UE). The present key issue studies what functionality can be supported by a UE that does not support a 5GMSGS client (legacy UE).



Figure 5.x.1-1: UE types

#### 5.x.1.2 Legacy UEs that support Cell Broadcast

A legacy UE that supports Cell Broadcast can only receive the payload and any other IEs such as Sender ID or Delivery Status cannot be supported. If the recipient UE requires such IEs then these IEs could be sent as part of the payload at the application layer, but the payload is out of scope. Cell Broadcast is downlink-only, hence such a legacy UE can only be a terminating UE. Message segmentation and reassembly is provided by the Cell Broadcast service but cannot be supported at the 5GMSGS layer due to the lack of a 5GMSGS client.

**Conclusion**: A legacy UE can only receive the payload IE from the 5GMSGS message via Cell Broadcast.

#### 5.x.1.3 Legacy UEs that support SMS

A legacy UE that supports SMS can send payload to a recipient which is identified by an MSISDN. Since the SMSC needs to deliver the SMS payload to the legacy Gateway, the final recipient of the payload cannot be identified in the MSGin5G service. Only if the legacy UE knows the MSISDN of the final recipient can the payload be sent, but this bypasses the MSGin5G service.

**Conclusion**: A legacy UE cannot initiate sending an unsolicited message to another UE via SMS in the MSGin5G service, unless a recipient ID of the final destination (e.g. Application server) is pre-coded in the legacy 3GPP Gateway.

NOTE: The above conclusion applies to sending unsolicited messages and not to solicited messages in a response to reception of earlier received SMS payload.

A legacy UE that supports SMS can receive the payload and the MSISDN of the sender, but other IEs cannot be supported. If the recipient UE requires such IEs then these IEs could be sent as part of the payload at the application layer, but the payload is out of scope. The MSISDN of the sender may be the MSISDN of the legacy Gateway or of the sending UE if the legacy Gateway maps (spoofs) sender ID to the MSISDN of the sender UE.

**Conclusion**: A legacy UE can receive the payload IE and the sender ID (as MSISDN).

After a legacy UE has received payload via SMS with the MSISDN of the legacy Gateway as sender, it can send a response via SMS to the legacy Gateway. The legacy Gateway needs to assume that such a message is a response to the last SMS message of earlier sent SMS messages. Since the legacy Gateway is unaware if a response message is forthcoming, the legacy Gateway will have to wait to send the next SMS message until it may assume that a response to the last message is no longer forthcoming. The legacy Gateway has stored the sender ID of the initiator of the last SMS message; hence the legacy Gateway can forward the response message to the sender UE (or Application server). The implication is that the next message may be delayed if the legacy Gateway waits for a response and the 500 ms latency requirement [R-5.1.2-001] from TS 22.262 [2] may not be met.

A response SMS can be sent directly to the sender UE if the legacy Gateway has included (spoofed) the MSISDN from sender UE or the response SMS can be sent via the legacy Gateway if the legacy Gateway has included its own MSISDN. The legacy Gateway has no information to make this decision.

**Conclusion**: A legacy UE can send a response message via SMS if the legacy Gateway assumes that a response is a response to the last sent SMS, but this feature could be left for implementation..

#### 5.x.1.4 Legacy UEs that support NIDD

Editor’s Note: Hopefully, Catalina can say something about NIDD.

### 5.x.2 Identified Gaps

None.

\* \* \* End of changes \* \* \* \*