**3GPP TSG-WG SA2 Meeting # 166 *S2-2411578rev-1***

**Orlando, FL, USA, 18 - 22 November 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.272** | **CR** | **0976** | **rev** | **-** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Priority at HSS and SMS-GMSC | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Peraton Labs, CISA ECD, AT&T, Verizon, T-Mobile USA | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MPS4msg | | | | |  | ***Date:*** | | | 2024-11-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | SMS-GMSC may also handle the SMS with priority when it receives a priority indication from the SC. Clarify that the HSS handles responses with priority based on MPS for Messaging indication. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | First change:  The SMS-GMSC handles the SMS with priority if the MPS for Messaging indication is set (enabled) or if a priority indication is received from the SC with the SMS.  Second change:  The HSS should only set Diameter priority and DSCP on responses on the S6a and S6c interfaces with values that are appropriate for MPS if the MPS for Messaging indication is set (enabled). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | A priority SMS from the SC may lose its priority at the receiving side.  HSS responses are not delivered with priority. | | | | | | | | |
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| ***Clauses affected:*** | | C.4.X (new), C.8.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

## C.4.X SMS-GMSC

The SMS-GMSC needs to:

- Support MPS priority treatment (e.g. determining the DRMP value in the messages related to SMS delivery) for SMS delivery based on the MPS for Messaging indication from the HSS, or based on a priority indication with the SMS message from the SC, if any.

NOTE: How the SC provides the priority indication to the SMS-GSMC is outside the scope of this specification.

\* \* \* Second change \* \* \* \*

## C.8.1 Request for registration

An MME supporting SMS in MME that needs to perform a registration with HSS shall follow the following procedure to become registered by the HSS also for SMS.

The following sequence shows the request for registration with the HSS for SMS in MME.



Figure C.8.1-1: MME registration for SMS

1. The UE initiates combined attach or combined TA/LA Update to an MME. A UE that only supports NB-IoT (see TS 23.401 [2]) may issue an EPS attach or TA Update instead of a combined attach or combined TA/LA Update.

2. The MME sends a Location Update Request (SMS in MME feature flag, MME address for MT-SMS routing, RegistrationForSMSRequest, "SMS-only" Indication) message to HSS. SMS in MME feature flag indicates that the MME is capable of SMS transfer without the need of establishing an SGs association with an MSC. The "SMS-only" Indication is included if it has been included in the request from the UE. The MME includes one of the following RegistrationForSMSRequest values based on the criteria shown in Table C.8.1-1.

Table C.8.1-1: Registration For SMS Request values

|  |  |
| --- | --- |
| Value | Description |
| SMS in MME Required | - MME does not support SGs; or  - The MME can be configured to use this value when the UE indicates "SMS only" or when known that the subscription is "PS and SMS only".  NOTE 1 |
| SMS in MME Not Preferred | - The MME can be configured to use this value when the UE indicates "SMS only" or when known that the subscription is "PS and SMS only"  - The MME can be configured to use this value when the UE does not indicate "SMS only" (i.e. requests CSFB) and the MME has no subscriber data yet (when MME is configured to use SGs for "SMS and PS only" subscription).  NOTE 2 |
| No Preference for SMS in MME | - The MME has no preference configured to use SMS in MME or SGs, but both options are available from MME perspective.  NOTE 2 |

NOTE 1: If this is set the HSS cannot determine whether the SGs is available.

NOTE 2: If this value is set it means that the MME supports SGs. UE might or might not indicate "SMS-only".

3. If the HSS supports SMS in MME and the subscription includes SMS:

a) if one or more of the following is true:

- Network Access Mode is PS only; or

- the MME indicates "SMS in MME Required";

then the HSS shall register the MME for SMS;

b) if the MME indicates "No Preference for SMS in MME" and Network Access Mode is not equal to PS only but one or more of the following are true:

- the UE indicated "SMS-only";

- the subscription is limited to PS domain services and SMS service via the CS and the PS domain ("PS and SMS only");

then the HSS should register the MME for SMS;

NOTE 3: The HSS can decide not to register the MME for SMS since it knows that the MME supports SGs but the normal behaviour would be to register for SMS and avoid an SGs association.

c) if the MME indicates "SMS in MME Not Preferred" and Network Access Mode is not equal to PS only then the HSS should not register the MME for SMS;

NOTE 4: The HSS can decide to register the MME for SMS based on the "PS and SMS only" setting and also on other factors including the UE indication for "SMS-Only", it is however assumed the normal behaviour would be not to register for SMS.

d) otherwise the HSS shall not register the MME for SMS.

If HSS registered the MME for SMS, the HSS stores the MME address for MT SMS.

4. If the HSS accepts to register the MME identity as an MSC identity for terminating SMS services then the HSS cancels the MSC/VLR registration from the HSS.

5. The HSS sends a Location Update Answer (indication whether the MME has been registered for SMS, subscription data including the Network Access Mode and "PS and SMS only" indications, SMS subscription data, MPS for Messaging indication, SMS in MME feature flag) message to MME.

If the HSS does not register the MME for SMS, it shall indicate that the MME has not been registered for SMS and not include any SMS subscription data.

SMS in MME feature flag indicates that the HSS is capable of supporting the SMS in MME feature.

The MME stores the returned data and checks the result of registering the MME for SMS.

If the registration for SMS was not accepted, the MME does following:

a. For a PS-only subscription (i.e. the Network Access Mode in the subscription equals "PS-only"), the MME shall not establish any SGs association (no SMS services are provided to the UE).

b. For a "PS and SMS only" subscription where SMS can be provided over CS (i.e. the Network Access Mode equals "PS+CS" and the subscription parameter "PS and SMS only" is set), the MME tries to establish SGs for SMS.

c. For a PS and CS subscription where also other CS services are allowed (i.e. Network Access Mode equals "PS+CS" and the subscription parameter "PS and SMS only" is not set), the MME tries to establish SGs for SMS and other CS services.

If the registration for SMS was accepted:

- The HSS uses the Insert Subscriber Data procedure to inform the MME of changes in MPS for Messaging indication.

- If the MPS for Messaging indication is set (enabled), the HSS sets Diameter priority and DSCP on responses on the S6a and S6c interfaces with values that are appropriate for MPS.

- The SMS-GMSC obtains the MPS for Messaging indication in the Send Routing Information for SM from the HSS. If the MPS for Messaging indication is set (enabled), and /or when the SC sends a message with a priority indication (see clause C.4.X), the SMS-GMSC sets the Diameter priority and DSCP for SMS messages to values that are appropriate for MPS.

- MME and SMS-GMSC set the Diameter priority and DSCP for SMS messages on the SGd interface to values that are appropriate for MPS.

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