**3GPP TSG-WG SA2 Meeting #140E e-meeting  *S2-200xxxx***

**Elbonia, August 19 – September 02, 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.502** | **CR** |  | **rev** |  | **Current version:** | **16.5.0** |  |
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| *For* [***HELP***](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:*** | Procedures of utilizing backhaul information during the PDU session modification procedure | | | | | | | | | |
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| ***Source to WG:*** | TNO | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSAT\_ARCH | | | | |  | ***Date:*** | | | 2020-07-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | Dynamically changing QoS limitations in the backhaul can be used as a trigger for the UPF to let the SMF initiate a PDU Session Modification procedure. | | | | | | | | |
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| ***Summary of change:*** | | Adaptation of PDU session modification procedure to account for changing QoS limitations in the backhaul. | | | | | | | | |
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| ***Consequences if not approved:*** | | In case 5GC is not aware of changing QoS limitations might result in the degradation of QoS provided to the end-user. | | | | | | | | |
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| ***Clauses affected:*** | | 7.10 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* Begin of Change \*\*\*

#### 4.3.3.2 UE or network requested PDU Session Modification (non-roaming and roaming with local breakout)

The UE or network requested PDU Session Modification procedure (non-roaming and roaming with local breakout scenario) is depicted in figure 4.3.3.2-1.



Figure 4.3.3.2-1: UE or network requested PDU Session Modification (for non-roaming and roaming with local breakout)

\*\*\* End of Change \*\*\*

#### 4.3.3.2 UE or network requested PDU Session Modification (non-roaming and roaming with local breakout)

\*\*\* Begin of Change \*\*\*

1f. (AMF initiated modification) If the UE supports CE mode B and use of CE mode changes from restricted to unrestricted or vice versa in the Enhanced Coverage Restriction information in the UE context in the AMF and the UE has already established PDU sessions, then the AMF shall trigger a PDU session modification to the SMFs serving the UE's PDU sessions when the AMF determines that NAS-SM timer shall be updated due to the change of Enhanced Coverage Restriction and include the extended NAS-SM indication only if use of CE mode B is now unrestricted in the Enhanced Coverage Restriction information in the UE context in the AMF.

(UPF initiated modification) The UPF initiates the PDU Session Modification procedure by the transmission of an N4 Association Update Request (QoS limitations list).

Based on the extended NAS-SM timer indication, the SMF shall use the extended NAS-SM timer setting for the UE as specified in TS 24.501 [25].

1g. In the case of UPF initiated modification, the SMF shall respond to the UPF with an N4 Association Update Response.

\*\*\* End of Change \*\*\*

#### 4.3.3.2 UE or network requested PDU Session Modification (non-roaming and roaming with local breakout)

\*\*\* Begin of Change \*\*\*

2. The SMF may need to report some subscribed event to the PCF by performing an SMF initiated SM Policy Association Modification procedure as defined in clause 4.16.5.1. This step may be skipped if PDU Session Modification procedure is triggered by step 1b or 1d. If dynamic PCC is not deployed, the SMF may apply local policy to decide whether to change the QoS profile.

The SMF reports the QoS limitations to the PCF, if the Policy Control Request Trigger 'Requested PDB cannot be fulfilled' is set. The PCF may make policy decision based on the QoS limitation and provides updated policies to the SMF. The PCF policy decision can be either i) provide PCC Rules with updated 5QI with changed 5G QoS characteristics PDB if the Application can adjust to different QoS profiles, or ii) remove the PCC Rules if the Application cannot adjust to different QoS profile, the removal of PCC Rules may lead to termination of the PDU session in the SMF. The possible QoS profiles suitable for an Application is defined in the PCF based on the Alternative service requirements provided by the Application as described in clause in TS 23.502 [3] clause 4.15.6.6 or if no Application requested QoS then the possible QoS profiles are locally configured in the PCF.

Steps 2a to 7 are not invoked when the PDU Session Modification requires only action at a UPF (e.g. gating).

\*\*\* End of Change \*\*\*

#### 4.3.3.2 UE or network requested PDU Session Modification (non-roaming and roaming with local breakout)

\*\*\* Begin of Change \*\*\*

3b. For SMF requested modification or UPF initiated modification, the SMF invokes Namf\_Communication\_N1N2MessageTransfer ([N2 SM information] (PDU Session ID, QFI(s), QoS Profile(s), [Alternative QoS Profile(s)], Session-AMBR, [CN Tunnel Info(s)], QoS Monitoring indication, QoS Monitoring reporting frequency, [TSCAI(s)]), N1 SM container (PDU Session Modification Command (PDU Session ID, QoS rule(s), QoS Flow level QoS parameters if needed for the QoS Flow(s) associated with the QoS rule(s), QoS rule operation and QoS Flow level QoS parameters operation, Session-AMBR))).

\*\*\* End of Change \*\*\*