**3GPP SA WG2 Meeting #168S2-2504148**

7-11 April 2025, Goteborg, Sweden (revision of S2-2502922)

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.501** | **CR** | **6167** | **rev** | **1** | **Current version:** | **19.3.0** |  |
|  | | | | | | | | |
| *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:*** | Support for Network initiated Slice Replacement Termination | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI19\_SliceSel | | | | |  | ***Date:*** | | | 2025-03-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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)* | |
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| ***Reason for change:*** | | Handle the case when, after succesfull slice replacment, the UE enters in a TA or AoS where the Alternative slice is not supported or there is a change in the subscription where the Alternative slice is removed. | | | | | | | | |
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| ***Summary of change:*** | | Both of the above conditions are treated by the AMF in an identical fashion to a UE requesting termination of a slice replacement. | | | | | | | | |
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| ***Consequences if not approved:*** | | The specification is not completed. | | | | | | | | |
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| ***Clauses affected:*** | | 5.15.5.2.2a | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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

##### 5.15.5.2.2a AF Requested modification of the Set of Network Slice(s) for a UE

In non-roaming cases, an authorized AF or an AF subject to authorization via the NEF, may request to replace a certain S-NSSAI (Replaced S-NSSAI) for a UE with another S-NSSAI (Alternative S-NSSAI) which is part of the UE subscription. The request in either case is sent to the PCF for the UE handling the impacted subscriber. Similarly, an authorized AF or an AF subject to authorization via the NEF, may request to terminate the replacement then request to use the Replaced S-NSSAI instead of the Alternative S-NSSAI for a UE again. The PCF notifies the AF may subscribe to Notification on the outcome of the AF requested Network Slice Replacement. The network slice associated with the Alternative S-NSSAI is assumed in this specification to have NS-AoS to be covering at least the NS-AoS of the network slice associated with the Replaced S-NSSAI.

Only a single AF can request the modification of the Set of Network Slice(s) for one replaced S-NSSAI.

NOTE 1: It is assumed that in the area where the AF requested Network Slice Replacement feature described in this clause is expected to operate, the AMFs supports AF requested Network Slice Replacement notifications handling from the PCF. How the AF obtains the S-NSSAI to be replaced and the Alternative S-NSSAI is out of scope of this specification.

NOTE 2: Application of this feature over non-3GPP access is not further specified.

The PCF for the UE based on operator policies considers the AF request. Consequently the PCF for the UE triggers the Network Slice Replacement at the AMF as defined in TS 23.503 [45].The PCF sends Slice replacement management in the access and mobility management policies to the AMF per implicitly subscription, as described in TS 23.503 [45]. The Slice replacement management policy includes the Replaced S-NSSAI and the corresponding Alternative S-NSSAI as provided in the AF request, PCRT to request Notification on outcome of Network Slice Replacement request, together with a Network Slice Replacement Type. The Network Slice Replacement Type indicates that the Network Slice Replacement is requested by an AF. The AMF handles the procedure as following:

- The AMF shall not handle the Network Slice Replacement procedure as described in clause 5.15.19.

- If the Alternative S-NSSAI is not within the UE subscription, or is not supported in the UE Registration Area, the AMF shall notify the PCF that the Network Slice Replacement is not triggered with a cause value. The PCF further notifies the AF.

- If the Alternative S-NSSAI is within the UE subscription and is supported uniformly in the UE Registration Area, the replacement is successful and AMF includes the Alternative S-NSSAI in the Allowed NSSAI (if not present). In addition:

a) The AMF removes the Replaced S-NSSAI from the Allowed NSSAI and add the Replaced S-NSSAI into the Rejected S-NSSAI by a UE Configuration Update procedure.

Editor's note: It is FFS whether the Replaced S-NSSAI should be removed from the Configured NSSAI.

b) The AMF and UE release the PDU sessions that were using the Replaced S-NSSAI.

c) The AMF stores in the UE context the access and mobility management policy information as received from PCF and transfers to new AMF during inter AMF mobility.

d) After performing the above steps a) to c), the AMF reports to the PCF the outcome of the network slice replacement (e.g. the S-NSSAI has been replaced by an Alternative S-NSSAI) as defined in TS 23.503 [45]. The PCF further notifies the AF.

NOTE 2: Operator policies in the PCF ensures that the UE is configured with a URSP rule that contains the Alternative S-NSSAI to establish a new PDU Session. These policies should not cause the selection of the RSDs with the Alternative S-NSSAI with priority over the RSDs with the Replaced S-NSSAI for the same traffic (i.e. for traffic matching the same TD).

The trusted AF or a NEF may send request to PCF for the UE to terminate the Network Slice Replacement. In this case the PCF for the UE sends access and mobility management policies to the AMF, as described in TS 23.503 [45]. The AMF updates the Allowed NSSAI to include the Replaced S-NSSAI and remove the Replaced S-NSSAI from the Rejected S-NSSAI by a UE Configuration Update procedure. The UE may request to register the Replaced S-NSSAIs again next time the UE sends a Requested NSSAI.

After the AF successfully initiated a Network Slice Replacement for a UE, there can be a change in the UE subscription and the Alternative S-NSSAI is no longer subscribed. In this case, the AMF performs access and mobility management policy corresponding to an AF request received from PCF, to terminate Network Slice Replacement for the UE. The AMF notifies the PCF about the Network Slice Replacement termination indicating the reason for termination and the PCF informs the trusted AF or NEF accordingly.

End of CHANGES