**SA WG2 Meeting #156eS2-230**

**Elbonia, April 17th – 21st, 2023 (revision of S2-230138)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.503** | **CR** |  | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *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:*** | AMF/PCF Policy Control Trigger for TNGF/N3IWF selection enhancement based on support of S-NSSAI needed by UE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai-Bell | | | | | | | | | |
| ***Source to TSG:*** | S2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5WWC\_Ph2 | | | | |  | ***Date:*** | | | 2023-04-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TR 23.700-17 conclusion states that:  The AMF may trigger the UE Policy Association Establishment procedure to provide the UE with updated WLANSP if the selected SSID (TNGF) does not support the slices requested by UE. The AMF requests the PCF to receive a notification when the PCF has completed the WLANSP update; once the AMF has received this notification from the PCF, the AMF can issue a registration reject.  However, there is no such trigger case available for AMF to trigger PCF to update WLANSP or ANDSP rules | | | | | | | | |
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| ***Summary of change:*** | | Update the “ANDSP determination due to wrong TNGF” trigger in 23.503 Table 6.1.2.5-1. | | | | | | | | |
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| ***Consequences if not approved:*** | | Fail to support AMF/PCF Policy Control Trigger for TNGF/N3IWF selection enhancement based on support of S-NSSAI needed by UE | | | | | | | | |
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| ***Clauses affected:*** | | 6.1.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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

#### 6.1.2.5 Policy Control Request Triggers relevant for AMF

The Policy Control Request Triggers relevant for AMF and 3GPP access type are listed in table 6.1.2.5-1 and define the conditions when the AMF shall interact again with PCF after the AM Policy Association Establishment or UE Policy Association Establishment.

The PCF provides Policy Control Request Triggers to the AMF indicating a specific UE (i.e. SUPI or PEI) in the Policy Association establishment and modification procedures defined in the TS 23.502 [3]. The Policy Control Request Triggers are transferred from the old AMF to the new AMF when the AMF changes.

The PCR triggers are not applicable any longer at termination of the AM Policy Association or termination of UE Policy Association.

Table 6.1.2.5-1: Policy Control Request Triggers relevant for AMF and 3GPP access type

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| --- | --- | --- |
| Policy Control Request Trigger | Description | Condition for reporting |
| Location change (tracking area) | The tracking area of the UE has changed. | PCF (AM Policy, UE Policy) |
| Change of UE presence in Presence Reporting Area | The UE is entering/leaving a Presence Reporting Area. | PCF (AM Policy, UE Policy) |
| Service Area restriction change | The subscribed service area restriction information has changed. | PCF (AM Policy) |
| RFSP index change | The subscribed RFSP index has changed. | PCF (AM Policy) |
| Change of the Allowed NSSAI | The Allowed NSSAI has changed. | PCF (AM Policy) |
| Generation of Target NSSAI | The Target NSSAI has been generated. | PCF (AM Policy) |
| UE-AMBR change | The subscribed UE-AMBR has changed. | PCF (AM Policy) |
| UE-Slice-MBR change | The subscribed UE-Slice-MBR has changed. | PCF (AM Policy) |
| PLMN change | The UE has moved to another operators' domain. | PCF (UE Policy) |
| SMF selection management | UE request for an unsupported DNN or UE request for a DNN within the list of DNN candidates for replacement per S-NSSAI. | PCF (AM Policy) |
| Connectivity state changes | The connectivity state of UE is changed. | PCF (UE Policy) |
| NWDAF info change | The NWDAF instance IDs used for the UE or associated Analytics IDs used for the UE and available in the AMF have changed. | PCF (AM Policy) |
| wrong trusted non-3GPP access | UE has connected to a wrong trusted non-3GPP access that does not match its subscribed S-NSSAI(s) | PCF (UE Policy) |
| wrong untrusted non-3GPP access | UE has connected to a wrong untrusted non-3GPP access that does not match its subscribed S-NSSAI(s) | PCF (UE Policy) |

NOTE: In the following description of the Policy Control Request Triggers relevant for AMF and 3GPP access type, the term trigger is used instead of Policy Control Request Trigger where appropriate.

If the Location change trigger are armed, the AMF shall activate the relevant procedure which reports any changes in location as explained in clause 5.6.11 of TS 23.501 [2] by subscribing with the Npcf\_AMPolicyAssociation service or Npcf\_UEPolicyAssociation service. The reporting is requested to the level indicated by the trigger (i.e. Tracking Area). The AMF reports that the Location change trigger was met and the Tracking Area identifier.

If the Change of UE presence in Presence Reporting Area trigger is armed, i.e. the PCF subscribed to reporting change of UE presence in a Presence Reporting Area, including a list of PRA ids. In addition, for "UE-dedicated Presence Reporting Area" a short list of TAs and/or NG-RAN nodes and/or cells identifiers is included. Then, the AMF shall activate the relevant procedure which reports any Change of UE presence in Area of Interest as explained in clause 5.6.11 of TS 23.501 [2]. The reporting is requested for the specific condition when target UE moved into a specified PRA. The AMF reports the PRA Identifier(s) and indication(s) whether the UE is inside or outside the Presence Reporting Area(s) to the PCF.

The Service Area restriction change trigger and the RFSP index change trigger shall trigger the AMF to interact with the PCF for all changes in the Service Area restriction or RFSP index data received in AMF from UDM. The reporting includes that the trigger is met and the subscribed Service Area restriction or the subscribed RFSP index provided to AMF by UDM, as described in clause 6.1.2.1.

The Change of the Allowed NSSAI trigger shall trigger the AMF to interact with the PCF if the Allowed NSSAI has been changed. The reporting includes that the trigger is met and the new Allowed NSSAI. The PCF may update RFSP index and/or SMF selection management related policy control information (described in clause 6.5) in the AMF based on the Allowed NSSAI.

The Generation of a Target NSSAI trigger shall trigger the AMF to interact with the PCF. The reporting includes that the trigger is met and the generated Target NSSAI. The PCF may generate RFSP index associated with the Target NSSAI.

The UE-AMBR change trigger shall trigger the AMF to interact with the PCF for all changes in the subscribed UE-AMBR data received in AMF from UDM. The reporting includes that the trigger is met and the subscribed UE-AMBR provided to AMF by UDM, as described in clause 6.1.2.1.

The Slice-UE-MBR change trigger shall trigger the AMF to interact with the PCF for all changes in the Subscribed UE-Slice-MBR for each subscribed S-NSSAI in the NSSAI with a Subscribed UE-Slice-MBR received at the AMF from UDM. The reporting includes that the trigger is met, the Subscribed UE-Slice-MBR value. The AMF shall provide both the S-NSSAI of the VPLMN and the mapped S-NSSAI of the HPLMN, alongside the related Subscribed UE-Slice-MBR. The V-PCF is configured with the UE-Slice-MBR for the mapping of the S-NSSAI of the HPLMN and the S-NSSAI of the VPLMN.

If the PLMN change trigger is armed, the AMF shall report it to the PCF to trigger the update of V2X service authorization parameters to the UE as defined in clause 6.2.2 of TS 23.287 [28] and to trigger the update of ProSe authorization parameters to the UE as defined in clause 6.2.2 of TS 23.304 [34]. The reporting includes the event with the serving PLMN ID.

If the SMF selection management trigger is set, then the AMF shall contact the PCF when the AMF detects that the UE requested an unsupported DNN and the PCF indicated DNN replacement of unsupported DNNs in the Access and mobility management related policy control information (see clause 6.5). The PCF shall select a DNN and provide the selected DNN to the AMF.

If the SMF selection management trigger is set, then the AMF shall contact the PCF when the UE requested a DNN within the list of DNN candidates for replacement for the S-NSSAI indicated in the Access and mobility management related policy control information (see clause 6.5). The PCF shall select the DNN and provide the selected DNN to the AMF.

If the Connectivity state changes trigger is set, then the AMF shall notify the PCF when the UE connectivity state is changed e.g. from IDLE to CONNECTED. The AMF then reset the trigger.

The NWDAF info change trigger shall trigger the AMF to interact with the PCF when the list of NWDAF Instance IDs used for the UE or associated Analytics IDs used for the UE at the AMF are changed in the AMF.

The AMF indicates a PCRT corresponding to wrong trusted non-3GPP access or to a wrong untrusted non-3GPP access when the UE has connected to a non-3GPP access that is not supporting the configured NSSAI. This triggers the PCF to update the relevant policies (e.g. WLANSP or ANDSP) on the UE

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