**3GPP TSG-CT WG3 Meeting #134 *C3-242419***

**Changsha, China, 15th – 19th April, 2024 (Revision of C3-24xxxx)**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.513** | **CR** | **0547** | **rev** | **-** | **Current version:** | **18.5.0** |  |
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| *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:***  | Completion of of HR-SBO functionality in the flows |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | EDGE\_Ph2 |  | ***Date:*** | 2024-03-20 |
|  |  |  |  |  |
| ***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 canbe 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:*** | TS 23.502 has been updated to provide the details about the information that the AF provides to the V-NEF in the HR-SBO scenarios and the related actions. The flows need to be updated accordingly. |
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| ***Summary of change:*** | Clause 5.5.3.1 is updated to distinguish existing procedures for HR-SBO procedures.Clause 5.5.3.4 is updated to indicate that the NEF derives the roamer(s) information (since UE identities are not always available) and to add a note to indicate that not all the involved entities are shown. It is also updated to introduce the possible information to be sent to the UDR and to remove the ENs related to the incomplete procedures.V-AF is replaced by AF, to align with stage 2 terminology. |
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| ***Consequences if not approved:*** | Incomplete functionality. Misalignment with stage 2. |
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| ***Clauses affected:*** | 5.5.3.1; 5.5.3.4. |
|  |  |
|  | **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:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

#### 5.5.3.1 General

As described in 3GPP TS 23.501 [2] clause 5.6.7 and clause  5.6.16, an AF may send requests to influence SMF routing decisions and influence on N6-LAN traffic steering respectively for User Plane traffic of PDU Sessions. The AF may also provide in its request subscriptions to SMF events (e.g. UP path change).

The following cases are included in this clause:

 AF requests targeting an individual UE address: for non-roaming or LBO scenarios, such requests are routed (by the AF or by the (V-)NEF) to an individual (V-)PCF using the BSF or by configuration as described in clause 5.5.3.2.

NOTE 1: Such requests target an on-going PDU Session. Whether the AF needs to use the NEF or not depends on local deployment.

 AF requests targeting PDU Sessions that are not identified by an UE address: For such requests the AF shall contact the NEF and the NEF stores the AF request information in the UDR. For non-roaming or LBO scenarios, (V-)PCF(s) that have subscribed to the modification of the AF request information receive a corresponding notification from the (V-)UDR. This is described in clause 5.5.3.3.

NOTE 2: Such requests can target on-going or future PDU Sessions.

NOTE 3: For non-roaming or LBO scenarios, the 5GC functions used in the procedures to influence (V-)SMF routing decisions are assumed to all belong to the same PLMN (HPLMN in non-roaming case or VPLMN in the case of a PDU Session in LBO mode) or to the same SNPN. The 5GC functions used in the procedures to influence on N6-LAN traffic steering are assumed to belong to the Home PLMN or Home SNPN (the AF can have an agreement with the Home PLMN), i.e. this case applies to non-roaming and Home Routed roaming scenarios.

NOTE 4: The roaming scenarios for SNPNs are not supported in this Release.

NOTE 5: AF requests invoked from an AF located in the HPLMN for home routed roaming scenario are not supported.

NOTE 6: For details of Nnef\_TrafficInfluence\_Create/Update/Delete/AppRelocationInfo service operations refer to 3GPP TS 29.522 [24].

NOTE 7: For details of the Nudr\_DataRepository\_Create/Update/Delete service operations refer to 3GPP TS 29.519 [12] and 3GPP TS 29.504 [27].

NOTE 8: For details of the Nsmf\_EventExposure\_Notify/AppRelocationInfo service operations refer to 3GPP TS 29.508 [8].

NOTE 9: For details of the Npcf\_PolicyAuthorization\_Create/Update/Delete service operations refer to 3GPP TS 29.514 [10].

NOTE 10: For details of the Npcf\_SMPolicyControl\_UpdateNotify service operation refer to 3GPP TS 29.512 [9].

NOTE 11: For details of the Nbsf\_Management\_Discovery service operation refer to 3GPP TS 29.521 [22].

NOTE 12: For details of the Nnef\_TrafficInfluenceData\_Create/Update/Terminate and Nnef\_UEId/fetch service operations invoked by the 5GC (i.e. not invoked by an AF) refer to 3GPP TS 29.591 [67].

 AF requests targeting PDU Sessions that support HR-SBO: when such requests are performed by the AF in the VPLMN (i.e. when there is an SLA with the VPLMN), the AF shall contact the V-NEF and the V-NEF stores the AF request information in the V-UDR. The procedure is described in clause 5.5.3.4. Otherwise (i.e. there is no SLA with the VPLMN), the AF in the HPLMN shall contact the H-PCF (directly or via H-NEF) as described in clause 5.5.3.2. In this case the PCC rules convey VPLMN DNAI(s) information to be provided to the V-SMF.

For such requests the AF shall contact the NEF and the NEF stores the AF request information in the UDR

\*\*\* 2nd Change \*\*\*

#### 5.5.3.4 AF request on PDU Sessions supporting HR-SBO

If the AF in VPLMN request to influence the traffic routing of PDU Sessions supporting HR-SBO (e.g., for the purpose of subscription to UP path management events on HR-SBO Sessions in VPLMN), the traffic influence procedure is performed as depicted in Figure 5.5.3.4-1.



Figure 5.5.3.4-1: Processing AF requests on PDU Sessions supporting HR-SBO

1. The AF requests to influence traffic routing is the same as steps 1 to step 5 of of Figure 5.5.3.3-1. The V-NEF determines in step 2 in that figure that the HPLMN is different from the PLMN the V-NEF belongs to. The V-NEF derives the roamer(s) information associated to the HR-SBO scenariofrom the AF request information as defined in 3GPP TS 29.522 [24] before storing it in the V-UDR. This step can occur at any time before step 10.

NOTE: Depending on the information provided by the AF, the V-NEF can interact with the NRF and then UPF or with the H-NEF to obtain all the required information needed to be stored in the V-UDR. These interactions are not shown in the flow for readability purposes.

Editor's note: How roamers will be identified in TrafficInfluData is FFS.

2. The V-SMF may include the HR-SBO support indication in Nsmf\_PDUSession\_Create/Update request as described in 3GPP TS 29.502 [52].

3-4. If the "HR-SBO" feature is supported and the HR-SBO support indication was received from the V-SMF in step 2, the H-SMF may include the HR-SBO support indication in the SM policy association as defined in clauses 4.2.2.2 and 4.2.4.2 of 3GPP TS 29.512 [9].

 When the H-SMF provides the HR-SBO support indication to the H-PCF, the H-PCF of the PDU Session may provide the VPLMN Specific Offloading Policy for the local part of the DN in VPLMN clause 4.2.6.1 of 3GPP TS 29.512 [9].

5. The H-SMF may include the VPLMN Specific Offloading Policy in Nsmf\_PDUSession\_Create/Update response as described in 3GPP TS 29.502 [52].

6-7. When the H-SMF provides the HR-SBO support indication to the H-PCF, the H-PCF of the PDU Session may also provide the VPLMN Specific Offloading Policy for the local part of the DN in VPLMN in Npcf\_SMPolicyControl\_UpdateNotify request.

8-9. The H-SMF may include the VPLMN Specific Offloading Policy in Nsmf\_PDUSession\_Update request as described in clause 5.2.2.3 of 3GPP TS 29.502 [52].

10-11. The V-SMF may subscribe to notification of AF request by invoking Nnef\_TrafficInfluenceData\_Subscribe service from V-NEF as defined in clause 4.4.2.2 of 3GPP TS 29.591 [67].

12-13. If the V-NEF receives the subscription from the V-SMF in step 10, the V-NEF subscribes to notification of AF traffic influence request changes by invoking Nudr\_DataRepository\_Subscribe service operation by sending an HTTP POST request to the "Influence Data Subscription" resource. The UDR sends an HTTP "201 Created" response to acknowledge the subscription.

14-15. The UDR invokes the Nudr\_DataRepository\_Notify service operation to V-NEF that has subscribed to changesof AF traffic influence request by sending the HTTP POST request to the callback URI "{notificationUri}", and the V-NEF sends a "204 No Content" response to the UDR.

16-17. The V-NEF may send notification to the V-SMF which has subscribed to changes of AF traffic influence request by invoking Nnef\_TrafficInfluenceData\_Notify service operation to the V-SMF as defined in clause 4.4.2.4 of 3GPP TS 29.591 [67].

18. This step is the same as the step 3a in Figure 5.5.3.2-1.

\*\*\* End of Changes \*\*\*