**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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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:*** | Using UPF Exposure in UE communications procedure | | | | | | | | | |
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| ***Source to WG:*** | , Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UPEAS | | | | |  | ***Date:*** | | | -09-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | |  |
|  | *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)* | |
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| ***Reason for change:*** | | The UE communications procedure in 23.288 clause 6.7.3.4 has been updated to use the UPF exposure service for UE communication analytics. | | | | | | | | |
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| ***Summary of change:*** | | Updated the UE communication signalling flow to use the UPF exposure service. | | | | | | | | |
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| ***Consequences if not approved:*** | | Not fullfilled stage 2 requirements. | | | | | | | | |
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| ***Clauses affected:*** | | 5.7.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact any OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

5.7.7 UE Communication Analytics

This procedure is used by the NF to obtain UE communication analytics, which is calculated by the NWDAF based on the information collected from the AMF, SMF, UPF, and/or AF. If the NF is an AF which is untrusted, the AF will request analytics via the NEF as described in clause 5.2.3.2.

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**Figure 5.7.7-1: Procedure for UE Communication analytics**

1a. In order to obtain the UE communication analytics, the NF may invoke Nnwdaf\_AnalyticsInfo\_Request service operation as described in clause 5.2.3.1.

1b-1c. In order to obtain the UE communication analytics, the NF may invoke Nnwdaf\_EventsSubscription\_Subscribe service operation as described in clause 5.2.2.1.

2a-2b. The NWDAF may invoke Namf\_EventExposure\_Subscribe service operation as described in clause 5.3.2.2.2 of 3GPP TS 29.518 [18] to retrieve one or more Type Allocation codes, UE connection management state, UE access behaviour trends and UE location trends from AMF. The AMF responds to the NWDAF an HTTP "201 Created" response.

3a-3b. If step 2a and step 2b are performed, the AMF may invoke Namf\_EventExposure\_Notify service operation as described in 3GPP TS 29.518 [18] clause 5.3.2.4. The NWDAF responds to the AMF an HTTP "204 No Content" response.

4a-4b. The NWDAF may invoke Nsmf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "SMF Notification Subscriptions" to request the information of the UE and/or N4 session related data to calculate the analytics. The SMF responds to the NWDAF an HTTP "201 Created" response.

5a-5b. If step 4a and step 4b are performed, the SMF may invoke Nsmf\_EventExposure\_Notify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 4a. The NWDAF responds to the SMF an HTTP "204 No Content" response.

6a-6b. The NWDAF may invoke Nsmf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "SMF Notification Subscriptions" as described in 3GPP TS 29.508 [6] to subscribe via the SMF to UPF information for a specific UE. The SMF subscribes to the UPF on behalf of the NWDAF using the Nupf\_EventExposure\_Subscribe service operation as described in 3GPP TS 29.564 [40] and, after having received the successful response from the UPF, it responds to the NWDAF with an HTTP "201 Created" response.

7a-7b. If step 6a and step 6b are performed, the UPF may invoke Nupf\_EventExposure\_Notify service operation as described in 3GPP TS 29.564 [40] by sending an HTTP POST request to the NWDAF identified by the notification URI provided in step 6a. The NWDAF responds to the UPF an HTTP "204 No Content" response.

8a-8b. If the AF is trusted, the NWDAF may invoke Naf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "Application Event Subscriptions" to request the service data from AF directly. The AF responds to the NWDAF an HTTP "201 Created" response.

9a-9b. If step 8a and step 8b are performed, the AF may invoke Naf\_EventExposure\_Notify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 8a. The NWDAF responds to the AF an HTTP "204 No Content" response.

10a-10d. If the AF is untrusted, the NWDAF may invoke Nnef\_EventExposure\_Subscribe service operation to the NEF by sending an HTTP POST request targeting the resource "Network Exposure Event Subscriptions" and then the NEF invokes Naf\_EventExposure\_Subscribe service operation by sending an HTTP POST request targeting the resource "Application Event Subscriptions". The AF responds to the NEF an HTTP "201 Created" response and then the NEF responds to the NWDAF an HTTP "201 Created" response.

11a-11d. If step 10a to step 10d are performed, the AF may invoke Naf\_EventExposure\_Notify service operation by sending an HTTP POST request to the NEF identified by the notification URI received in step 8b and the NEF invokes Nnef\_EventExposure\_Notify service operation by sending an HTTP POST request to the NWDAF identified by the notification URI received in step 8a. The NWDAF responds to the NEF an HTTP "204 No Content" response and then the NEF responds to the AF an HTTP "204 No Content" response.

12. The NWDAF calculates the requested UE communication analytics based on the data collected from AMF, SMF, UPF and/or AF.

13a. If step 1a is performed, the NWDAF responds to the Nnwdaf\_AnalyticsInfo\_Request service operation as described in clause 5.2.3.1.

13b-13c. If step 1b and step 1c are performed, the NWDAF may invoke Nnwdaf\_EventsSusbcription\_Notify service operation as described in clause 5.2.2.1.

14a-14b. The same as step 3a and step 3b.

15a-15b. The same as step 5a and step 5b.

16a-16b. The same as step 7a and step 7b.

17a-17b. The same as step 9a and step 9b.

18a-18d. The same as step 11a and step 11d.

19. The same as step 12.

20a-20b. The same as step 13b and step 13c.

NOTE 1: For details of Nsmf\_EventExposure\_Subscribe/Notify service operations refer to 3GPP TS 29.508 [6].

NOTE 2: For details of Naf\_EventExposure\_Subscribe/Notify service operations refer to 3GPP TS 29.517 [12].

NOTE 3: For details of Nnef\_EventExposure\_Subscribe/Notify service operations refer to 3GPP TS 29.591 [11].

NOTE 4: For details of Nnwdaf\_EventsSubscription\_Subscribe/Unsubscribe/Notify or Nnwdaf\_AnalyticsInfo\_Request service operations refer to 3GPP TS 29.520 [5].

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