**3GPP TSG-SA3 Meeting #106-e *S3-220114r4***

**e-meeting, 14 - 25 February 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **33.501** | **CR** | **1269** | **rev** | **1** | **Current version:** | **17.4.2** |  |
|  | | | | | | | | |
| *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:*** | CR for AF Authorization for accessing network slice quota-usage information | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | S3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNS2\_SEC | | | | |  | ***Date:*** | | | 2022-02-06 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Propose to add in AF Authorization procedures for network slice quota-usage notification/information retrival services to prevent information leakage to third parties. | | | | | | | | |
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| ***Summary of change:*** | | Added a new clause to include authorization procedures for an deployed outside the 3GPP operator domain AF to subscribe/unsubscribe to network slice quota-usage notification services and to retrieve network slice status. Specifically, added the following subclauses: 16.6 AF Authorization for network slice quota-usage information notification/retrieval16.6.1 Introduction16.6.2 General16.6.3 Subscription/unsubscription procedure of NSACF notification service | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Rel-17 network slice quota-usage notification procedure would not meet security requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 16.x(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of changes (All text are new) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 16.X AF Authorization for network slice quota-usage information notification/retrieval

### 16.X.1 Introduction

This clause specifies the AF Authorization procedures when AF subscribes/unsubscribes to network slice quota-usage information and when AF retrieves network slice quota-usage information.

### 16.X.2 General

If an AF is deployed within the 3GPP operator domain, an S-NSSAI is allowed to be sent to the AF. The baseline procedure for notifying the AF slice usage information (e.g. number of UEs and PDU Sessions in the slice indicated by the S-NSSAI) and the procedure for retrieving slice usage information by the AF are defined in TS 23.502 [8].

If an AF is deployed outside the 3GPP operator domain, an S-NSSAI is not allowed to be sent to the AF as required in clasue 5.9.2.3. The procedure for notifying the AF slice usage information (e.g. number of UEs and PDU Sessions in the slice indicated by the S-NSSAI) and the procedure for retrieving slice usage information by the AF are described in clause 16.X.3.

### 16.X.3 Subscription/unsubscription procedure of NSACF notification service

Editor's Note: the procedure shall be aligned with SA2.



Figure 16.X.3-1: Subscription/unsubscription of NSACF notification procedure

0. Authentication and authorization of AF: AF is authenticated and authorized by NRF, ~~or authenticated by~~ NEF or other authorization server based on description in clause 13 or clause 12. A token is generated for AF after authentication or other authorization server. ~~It is noted that the AF token includes claim for the authorized ENSI, mapping from the requested S-NSSAI when the AF is outside the 3GPP operator domain. For the AF is inside the 3GPP operator domain, S-NSSAI is included in the claim of AF token.~~

NOTE: The details for the token claims are defined in stage 3.

1. To subscribe or unsubscribe for the number of UEs or the number of PDU Sessions per network slice notification with the NSACF, the AF sends Nnef\_EventExposure\_Subscribe/Unsubscribe Request (Event ID, Event Filter, Event Reporting information) message to the NEF as described in TS 23.502 [8]. The Event Filter parameter shall be ENSI for an AF deployed outside the 3GPP operator domain. Other parameters are specified in TS 23.502 [8].

2. The NEF confirms with Nnef\_ SliceStatusEventExposure \_Subscribe/Unsubscribe Response message to the AF.

The Event Filter parameter is the mapped ENSI for the AF deployed outside the 3GPP operator domain.

3. The NEF checks whether the AF is authorised for the requested subscription based on the AF token. It needs to check whether the token claims match the AF’s identity and the Event Filter parameter. If authorised, the NEF may query the NRF to find the NSACF responsible for the requested S-NSSAI (NEF needs to map to S-NSSAI based on ENSI for the AF deployed outside the 3GPP operator domain).

4. The NEF forwards the request to the NSACF with Nnsacf\_SliceEventExposure\_Subscribe/Unsubscribe Request (Event ID, Event Filter, Event Reporting information). The Event Filter parameter shall be the mapped S-NSSAI for the AF deployed outside the 3GPP operator domain.

5. The NSACF confirms with Nnsacf\_SliceEventExposure\_Subscribe/Usubscribe Response message to the NEF as in TS 23.502 [8].

6-7.a. The NSACF triggers a notification towards the AF and sends the Nnsacf\_SliceEvent Exposure\_Notify (Event ID, Event Filter, Event Reporting information) message to the NEF as described in TS 23.502 [8].

7b-9. The NEF forwards the message to the AF for single NSACF or aggregates reporting information for multiple NSACFs in the Nnef\_EventExposure\_Notify (Event ID, Event Filter, Event Reporting information) message as described in TS 23.502 [8]. The Event Filter parameter shall be the mapped ENSI from the S-NSSAI for the AF deployed outside the 3GPP operator domain.

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