**SA WG2 Meeting #165 S2-2410755**

**14 - 18 October 2024, Hyderabad, India rev of 0200 re 2419329**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **23.501** | **CR** | **5547** |  | **5** | **Current version:** | **19.1.0** |  |
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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:***  | UDR enhancement supporting Device Identifier of non-3GPP Devices connecting behind a UE/5G-RG |
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| ***Source to WG:*** | Xiaomi |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | UIA\_ARC |  | ***Date:*** | 2024-10-15 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | Summarize the enhancement on UDR function description to support following feature as captured in SP-240971: *For non-3GPP devices requiring QoS differentiation, it will be specified that:* * *Device Identifiers and their corresponding QoS/Policies associated with a UE/5G-RG subscription are provisioned into the UDR. This provisioning can be done by AF.*
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| ***Summary of change:*** | Enhancing UDR to support: * Storage and retrieval of Device Identifiers of non-3GPP devices connecting behind a UE/5G-RG and the corresponding QoS/Policies associated with a UE/5G-RG subscription.
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| ***Consequences if not approved:*** | The UIA feature is not captured in Rel-19 |
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| ***Clauses affected:*** | 6.2.11; 6.2.5.0 |
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|  | **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 of Change \* \* \*

### 6.2.11 UDR

The Unified Data Repository (UDR) supports the following functionality:

- Storage and retrieval of subscription data by the UDM.

- Storage and retrieval of policy data by the PCF.

- Storage and retrieval of structured data for exposure.

- Application data (including Packet Flow Descriptions (PFDs) for application detection, AF request information for multiple UEs, 5G-VN group information for 5G-VN management; the information related to Non-3GPP Device Identifiers).

- Storage and retrieval of NF Group ID corresponding to subscriber identifier (e.g. IMPI, IMPU, SUPI).

The Unified Data Repository is located in the same PLMN as the NF service consumers storing in and retrieving data from it using Nudr. Nudr is an intra-PLMN interface.

NOTE 1: Deployments can choose to collocate UDR with UDSF.\* \* \* Second of Changes \* \* \*

#### 6.2.5.0 NEF functionality

The Network Exposure Function (NEF) supports the following independent functionality:

- Exposure of capabilities and events:

 NF capabilities and events may be securely exposed by NEF for e.g. 3rd party, Application Functions, Edge Computing as described in clause 5.13.

 NEF stores/retrieves information as structured data using a standardized interface (Nudr) to the Unified Data Repository (UDR).

- Secure provision of information from external application to 3GPP network:

 It provides a means for the Application Functions to securely provide information to 3GPP network, e.g. Expected UE Behaviour, 5G-VN group information, time synchronization service information and PDU Set handling service specific information and the information of Non-3GPP Device Identifiers. In that case the NEF may authenticate and authorize and assist in throttling the Application Functions.

- Translation of internal-external information:

 It translates between information exchanged with the AF and information exchanged with the internal network function. For example, it translates between an AF-Service-Identifier and internal 5G Core information such as DNN, S-NSSAI, as described in clause 5.6.7.

 In particular, NEF handles masking of network and user sensitive information to external AF's according to the network policy.

- Redirecting the AF to a more suitable NEF/L-NEF e.g. when serving an AF request for local information exposure and detecting there is a more appropriate NEF instance to serve the AF's request.

- The Network Exposure Function receives information from other network functions (based on exposed capabilities of other network functions). NEF stores the received information as structured data using a standardized interface to a Unified Data Repository (UDR). The stored information can be accessed and "re-exposed" by the NEF to other network functions and Application Functions, and used for other purposes such as analytics.

- A NEF may also support a PFD Function: The PFD Function in the NEF may store and retrieve PFD(s) in the UDR and shall provide PFD(s) to the SMF on the request of SMF (pull mode) or on the request of PFD management from NEF (push mode), as described in TS 23.503 [45].

- A NEF may also support a 5G-VN Group Management Function: The 5G-VN Group Management Function in the NEF may store the 5G-VN group information in the UDR via UDM as described in TS 23.502 [3].

- Support management of ECS Address Information.

- Support management of relationship between DNAI and EAS Address Information.

- Exposure of analytics:

 NWDAF analytics may be securely exposed by NEF for external party, as specified in TS 23.288 [86].

- Retrieval of data from external party by NWDAF:

 Data provided by the external party may be collected by NWDAF via NEF for analytics generation purpose. NEF handles and forwards requests and notifications between NWDAF and AF, as specified in TS 23.288 [86].

- Support of Non-IP Data Delivery:

 NEF provides a means for management of NIDD configuration and delivery of MO/MT unstructured data by exposing the NIDD APIs as described in TS 23.502 [3] on the N33/Nnef reference point. See clause 5.31.5.

- Charging data collection and support of charging interfaces.

- Support of Member UE selection assistance functionality:

- NEF may provide one or more list(s) of candidate UE(s) (among the list of target member UE(s) provided by the AF) and additional information to the AF based on the parameters contained in the request from the AF as described in clause 5.46.2. NEF supports the translation of the member UE selection filtering criteria parameters received from the AF to the corresponding event or analytics filters that can be understood by the 5GC NFs for events or analytics related data collection. NEF interacts with 5GC NFs using existing services in order to collect the corresponding data and then derive the list(s) of candidate UE(s) and other assistance information as described in clause 4.15.13 of TS 23.502 [3].

- Support of Multi-member AF session with required QoS for a set of UEs identified by a list of UE addresses:

- Details are specified in clause 4.15.6.13 of TS 23.502 [3].

- Support of UAS NF functionality:

 Details are defined in TS 23.256 [136].

- Support of EAS deployment functionality:

 Details are defined in TS 23.548 [130].

- Support of SBI-based MO SM transmit for MSISDN-less MO SMS:

 Details are defined in TS 23.540 [142].

- Support PDU Set Handling as defined in clause 5.37.5.

- Support management of common EAS and common DNAI:

 Details are defined in TS 23.548 [130].

A specific NEF instance may support one or more of the functionalities described above and consequently an individual NEF may support a subset of the APIs specified for capability exposure.

NOTE: The NEF can access the UDR located in the same PLMN as the NEF.

The services provided by the NEF are specified in clause 7.2.8.

For external exposure of services related to specific UE(s), the NEF resides in the HPLMN. Depending on operator agreements, the NEF in the HPLMN may have interface(s) with NF(s) in the VPLMN.

When a UE is capable of switching between EPC and 5GC, an SCEF+NEF is used for service exposure. See clause 5.17.5 for a description of the SCEF+NEF.

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