**3GPP TSG-WG SA2 Meeting #143E e-meeting *S2-210xxxx***

**Elbonia, February 24 – March 09, 2021 (revision of S2-210xxxx)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **23.288** | **CR** |  | **rev** | **0** | **Current version:** | **16.6.0** |  |
|  |
| *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:***  |  Implementation of Support For Discovering and Tracking Entities in Area of Interesting in TS23.288  |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | eNA\_Ph2 |  | ***Date:*** | 2021-02-24 |
|  |  |  |  |  |
| ***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 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)* |
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| ***Reason for change:*** | Consolidate in TS 23.288 the conclusions about the tracking and discovery of entities agreed in TR 23.700-91 Clause 8.11.2 |
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| ***Summary of change:*** | Including in TS 23.288 a new set of sections that describes the discovery of entities and information of NRF, AMF, and SMF so that NWDAF or DCCF can efficiently determine entities and information that are associated with an area of interest required by an analytics ID. |
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| ***Consequences if not approved:*** | Enhancements of R17 are not properly captured in TS 23.288. |
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| ***Clauses affected:*** | All new: 6.2.S, 6.2.Z.r |
|  |  |
|  | **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 change - ALL NEW TEXT\* \* \* \*

### 6.2.S Dedicated Procedures for Data Collection

Tracking and discovery of entities defines the process of gathering information or NFs associated with UEs or an area of interest. Clause 6.2.2.1 describes the basic mechanisms for tracking and discovering NFs serving UEs. Clause 6.2.S.r defines the principles for data collection services for tracking and discovery entities in an area of interest.

#### 6.2.S.r Data Collection Services for Area of Interest

The data collection service for an area of interest is used by NWDAF or DCCF to retrieve association information about NFs, Network Slice Information, and session related information that are serving or are mapped to an area of interest (a list of TAs or cells).

The data collection service for an area of interest has the following objectives:

- discovering NFs serving in an area of interest and retrieving behaviour data for the UEs or groups of UEs, and to retrieve global UE information that are present in the area of interest.

- discovering NFs serving in an area of interest and retrieving non UE specific information, such as network slice information and session related information for further filtering the data retrieved from AMF and SMF to the specific network or session related events in the area of interest.

The services listed in Table 6.2.S.r-1 are used to retrieve

Table 6.2.S.r-1: NF Services consumed by NWDAF or DCCF to determine association information for an area of interest

| Type of association information | NF to be contacted by NWDAF, DCCF | Service | Reference in TS 23.502 [3] |
| --- | --- | --- | --- |
| AMF serving AoI | NRF | Nnrf\_NFDiscoveryNnrf\_NFManagement StatusSubscribe | 5.2.7.35.2.7.2.5 |
| SMF serving AoI |
| Network Slice Information mapped to AoI | AMF | Namf\_EventExposure | 5.2.2.3 |
| Applications, DNNs, DNAIs mapped AoI | SMF | Nsmf\_EventExposure | 5.2.8.3 |

In order to determine AMFs and SMFs serving in an area of interest (in terms of TAs), the NF requesting such information (NWDAF or DCCF) shall invoke Nnrf\_NFDiscovery including in the search request the AMF and SMF NF Type and the list of TAs related to the area of interest. NRF sends to Nnrf\_NFDiscovery service consumer the AMF and SMF NF Profiles that contain at least one of the TAs indicated in the discovery query request.

In order to keep a consistent network map for data collection for the area of interest, NWDAF or DCCF subscribes to Nnrf\_NFManagement StatusSubscribe service operation including a list of TAs and the NF Type as defined in TS 23.502 [3] Clause 5.2.7.2.5.

NRF detects changes in NF profiles related to the indicated list of TAs by NWDAF or DCCF. The possible changes detected by NRF are: changes in TAs of stored NF Profiles, or new NF profiles are included in NRF with the TAs indicated in the subscription to such NRF service operation, or NF profiles are removed. NRF notifies NWDAF or DCCF with the NF Profiles related to changes in the indicated list of TAs.

NWDAF or DCCF process the received notifications from NRF and adds (or remove) the changes in AMFs and SMFs serving in area of interest enclosed in the notification in the network map for data collection. Such updated network map is used by NWDAF or DCCF to collect the required data for analytics generation.

When analytics filter information of requested analytics IDs includes S-NSSAIs and area of interest (a list of TAs or cells), NWDAF or DCCF shall collect data from AMFs based on the updated network slice information. Network slice information is, for each AMF the list of associated TAs and for each TA its associated access type, list of cells, and list of available or restricted S-NSSAIs.

After determining the AMFs serving in an area of interest using NRF services, NWDAF or DCCF subscribe to Namf\_EventExposure service offered by AMF to retrieve a the event ID "Available Network Slice Information" in Area of Interest. The target of the event ID is a list of S-NSSAIs or “any S-NSSAI” and the event filer is a list of TAs or Cells related to the area of interest of the analytics ID subscription or request.

When AMF detects changes related to its list of TAs, and for each TA the available, or restricted S-NSSAIs, or the access type, or list of cells associated with a TA indicated in the event subscription, AMF uses the Namf\_EventExposure\_Notify service operation to provide to NWDAF or DCCF the updated information of the "Available Network Slice Information" in area of interest.

NWDAF or DCCF shall subscribe to further events exposed by AMF to support analytics generation only if the S-NSSAIs are available at such AMF for the area of interest (list of TA or cells).

When analytics ID request or subscription includes the analytics filter information for Applications, DNNs, DNAIs and an area of interest per TA granularity, NWDAF or DCCF shall first discover the SMF serving the area of interest via NRF. If SMF supports the exchange of UE Location parameter when SMF interacts with AMF via Nsmf\_PDUSession\_Create / Update / CreateSMContext / UpdateSMContext due to session establishment, modification, or release, service request, or handover procedures, NWDAF or DCCF can directly consume SMF events using the event target set to "any PDU session", and event filers with the same parameters of the analytics filter information, i.e. list of Application IDs, and/or DNNS, and/or DNAI, and the area of interest related to the requested analytics ID.

SMF is then capable of mapping the PDU sessions associated with TAs and, access type. This map is used for the comparison with the event subscriptions from NWDAF. If there are any changes in PDU sessions in the area of interest, for the Application ID, and/or DNN, and/or DNAI subscribed by NWDAF or DCCF, SMF notifies the detected changes to NWDAF via Nmsf\_EventExposure\_Notify service operation.

NWDAF or DCCF process the received notifications from SMF and adds the changes in the association of Application IDs, and/or DNNs, and/or DNAIs serving an area of interest enclosed in the notification in the network map for data collection.

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