3GPP TSG SA WG2#164 S2-2408567r01

Maastricht, 19-23 August 2024 (revision of S2-2408567)

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **0250** | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HELP***](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:*** | I-SMF based approach to locally manage EDI | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eEDGE\_5GC\_Ph3 | | | | |  | ***Date:*** | | | 2024-08-09 |
|  |  | | | |  | |  | | |  |
| ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | To address the outcome of KI#1 in approved eEDGE\_5GC\_Ph3 WID SP-240996 on reducing the impact on central 5GC NFs by using I-SMF based approach, retrieval of EDI from NEF to configure EASDF by I-SMF is introduced. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce I-SMF to retrieve EDI from NEF to configure EASDF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing functionality | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.3.4.1, 6.2.3.4.3, 6.2.3.4.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.502 CR 4983 | | |
| ***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

##### 6.2.3.4.1 General

EAS Deployment Information management refers to the capability to create, update or remove EAS Deployment Information from AF and the distribution to the SMF or to the I-SMF in case I-SMF based local traffic offloading applies. The NEF is in charge of the management of EAS Deployment Information which may be stored in UDR.

The EAS Deployment Information indicates how edge services are deployed in each Local part of the DN, the description of EAS Deployment Information is shown in Table 6.2.3.4-1.

Table 6.2.3.4-1 Description of EAS Deployment Information

|  |  |
| --- | --- |
| Parameters | Description |
| AF ID | Addressing information of Application Function responsible for the DNAI in the record.  [Optional]. See NOTE 1. |
| DNN | DNN for the EAS Deployment Information.  [optional] |
| S-NSSAI | S-NSSAI for the EAS Deployment Information.  [optional] |
| External Group Identifier/Internal Group Identifier | Group ID for the EAS Deployment information.  [optional]. See NOTE 2. |
| Application ID | Identifies the application for which the EAS Deployment Information corresponds to.  [optional] |
| FQDN(s) | Supported FQDN(s) for application(s) deployed in the Local part of the DN. |
| DNAI(s) | DNAI(s) for the EAS Deployment information.  [optional] |
| DNS Server Information | list of DNS server identifier (consisting of IP address and port) for each DNAI.  [optional] |
| EAS IP address range Information | IP address(es) of the EASs in the Local part of the DN or the IP address ranges (IPv4 subnetwork(s) and/or IPv6 prefix(es) of the Local part of the DN where the EAS is deployed for each DNAI.  [optional] |
| N6 traffic routing information | Information about how to forward edge traffic in the local part of DN corresponding to DNAI.  [optional] |
| NOTE 1: When an AF ID is provided, all DNAI(s) correspond to the same EHE provider.  NOTE 2: The AF may provide External Group Identifier, and NEF can map the External Group Identifier into Internal Group Identifier according to information received from UDM. For HR-SBO roaming scenario, External Group Identifier and Internal Group Identifier, cannot be used by AF in VPLMN.  NOTE 3: AF ID can be used in case of AF(s) involving different EHE providers, and the source EHE is unaware of other/target EHE specific deployment details. | |

The EAS Deployment Information management procedures are described in this clause, the procedures are independent of any PDU Session, including:

- The procedure for EAS Deployment Information management from AF via the NEF.

- The procedure for EAS Deployment Information management in the SMF or in the I-SMF when I-SMF based local offloading applies.

- The procedure for BaselineDNSPattern management in the EASDF.

NOTE: In order to support EAS discovery when the Edge Hosting Environment is provided by a partner, an SLA is needed between current operator and the partner to provide e.g. the Address(es) and credentials for the DNS servers if the partner hosts the DNS server(s) for the related DNS resolution.

Second CHANGE

##### 6.2.3.4.3 EAS Deployment Information Management in the SMF or I-SMF

The SMF may receive the EAS Deployment Information from NEF via Subscribe /Notify procedure defined in this clause. NEF may have stored the information in UDR.

When I-SMF based local offloading applies, the I-SMF may receive the EAS Deployment Information from NEF as described in this clause.

NOTE: When I-SMF based local offloading applies, both the SMF and I-SMF may receive the EDI from NEF.



Figure 6.2.3.4.3-1: EAS Deployment Information management in the SMF procedure

1-2. As pre-requisite condition, the SMF subscribes to EAS Deployment Information Change Notification from the NEF by sending Nnef\_EASDeployment\_Subscribe message. The SMF may indicate that the current status of EAS Deployment Information shall be notified immediately (if available). The SMF may indicate for which (list of) DNN and/or S-NSSAI and/or application identifier and/or Internal Group Identifier (if available) it subscribes.

3-4. The NEF invokes Nnef\_EASDeployment\_Notify (EAS Deployment Information) to the SMF(s) to which the EAS Deployment Information shall be provided. If there is EAS Deployment Information available and immediate report is required, the NEF notifies the SMF(s) or I-SMF with such information.

For EAS Deployment Information management in the I-SMF based local traffic offloading case, the SMF in clause 6.2.3.4.3 is replaced by I-SMF.

Third CHANGE

##### 6.2.3.4.4 BaselineDNSPattern Management in the EASDF

The SMF receives EAS Deployment Information as described in clause 6.2.3.4.1, and derives BaselineDNSPattern from the EAS Deployment Information. The BaselineDNSPattern is not dedicated to a specific PDU Session.

SMF may create/update/delete the BaselineDNSPattern in the EASDF.

For EAS Deployment Information management when I-SMF based local offloading applies, the I-SMF may create/update/delete the BaselineDNSPattern in the EASDF.



Figure 6.2.3.4.4-1: BaselineDNSPattern management in the EASDF procedure

1. The SMF may triggered to create/update/delete the BaselineDNSPattern.

- When new EAS Deployment Information is received by the SMF.

- When any update of the EAS Deployment Information is received by the SMF.

The BaselineDNSPattern is deducted from the EAS Deployment Information. The BaselineDNSPattern has the form as per clause 6.2.3.2.2.

2. The SMF invokes Neasdf\_BaselineDNSPattern\_Create/Update/Delete service operation of the EASDF to create/update/delete the BaselineDNSPattern. This interaction with the EASDF is a node level procedure, i.e. independent of any PDU Session.

3. The EASDF updates the BaselineDNSPattern and acknowledges the SMF or I-SMF.

For EAS Deployment Information management in HR-SBO roaming scenario, the SMF and EASDF in clause 6.2.3.4.4 are replaced by V-SMF and V-EASDF.

For BaselineDNSPattern Management in the EASDF when I-SMF based local traffic offloading applies, the SMF in clause 6.2.3.4.4 is replaced by I-SMF. In this case, only the I-SMF discovers, selects and configures EASDF as well as BaselineDNSPattern for the locally offloaded traffic.

End of CHANGES