**3GPP TSG-CT WG3 Meeting #134 *C3-242055***

**Changsha, China, 15 - 19 April 2024**

**3GPP TSG-CT WG4 Meeting #122C4-241264**

**Changsha, P.R.China; 15th – 19th April 2024**

**3GPP TSG-CT WG1 Meeting #148C1-242086**

**Changsha, China, 15 – 19 April 2024**

**Source: Huawei**

**Title: Revised WID on CT Aspects of Edge Computing Phase 2**

**Agenda item: 18.1.1 (CT1), 18.1.2 (CT3), 5.1 (CT4)**

**Document for: Endorsement**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Revised WID on CT Aspects of Edge Computing Phase 2

Acronym: EDGE\_Ph2

Unique identifier: 980005

Potential target Release: Rel-18

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | X |  | X |  | X |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Feature |
| X | Building Block |
|  | *Work Task* |
|  | Study Item |

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| EDGE\_Ph2 | S2 | 970026 | Edge Computing Phase 2 |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 940059 | Study on Edge Computing Phase 2 | Corresponding study for architecture enhancements and procedures (SA2) |
| 950023 | Study on Security Enhancement of support for Edge Computing — phase 2 | Corresponding study for security aspects of Edge Computing phase 2 (SA3) |
| 990039 | Security Aspects of Support for Edge Computing in 5GC phase 2 | Security aspects of Edge Computing phase 2 (SA3) |

# 3 Justification

The stage 2 study on Edge Computing Phase 2 is captured in 3GPP TR 23.700-48 and TR 33.739, the related normative work is specified normative aspects of the following in 3GPP TS 33.501, TS 23.548, TS 23.501, TS 23.502 and TS 23.503:

- The support of accessing an EHE in a VPLMN when roaming, including the scenario using a PDU Session with a PSA in the HPLMN and the scenario using a LBO PDU Session

- The support of Fast and efficient network exposure improvements

- The support of policies for finer granular sets of UEs

- The support of influencing UPF and EAS (re)location for collections of UEs

- The support of providing improvements related to GSMA OPG for EHE operated by a separate party

- The support of allowing an AF to obtain and maintain a mapping table between IP address/IP range and DNAI

- The support of security enhancement of support for edge computing phase 2

The 3GPP CT WGs need to do the normative work to complete the stage 3 work in Rel-18.

# 4 Objective

The objective of the work item is to develop the stage 3 specifications for the stage 2 requirements agreed under the stage 2 work item EDGE\_Ph2. The following areas of work are expected to be covered:

**CT4:**

- SMF Selection Subscription data updates to include the indication for HR-local traffic routing allowed and Session Management Subscription data updates to include the indication for HR-local traffic routing authorized

- Impacts to SMF to define a new feature for the discovery and selection of a V-SMF and an H-SMF supporting local traffic routing for HR PDU sessions

- Impacts to H-SMF to provide HR-local traffic offloading authorization information (e.g. Home Routed Session Breakout (HR-SBO) authorized indication, offload identifier, Vplmn Offloading Information including allowed FQDN ranges), DNS server address of HPLMN and HPLMN address information to V-SMF

- Impacts to V-SMF to send the HR-SBO authorization request indication, the stored list of offload identifiers, V-EASDF address or local DNS server address to the H-SMF

- Impacts to V-SMF/V-EASDF to support the HR-local traffic routing on creation of DNS context with HPLMN ID, unspecified address or mapped UE IP address and N6 traffic routing information

- Impacts to source AMF to provide HR-SBO allowed indication to the target AMF on HO procedure.

- Impacts to V-SMF/H-SMF to support UL CL/BP and local UPF insertion in HR roaming

- Impacts to AMF/V-SMF/H-SMF to support sending of target DNAI information from H-SMF to AMF

- Impacts to V-SMF to send EAS rediscovery Indication and the EAS information to be refreshed for EAS re-discovery to H-SMF to indicate that the EAS rediscovery is requested

- Impacts to UDM/UDR to support the storage of subscription data of ECS Address Configuration Information (EACI) per PLMN ID and providing the EACI per PLMN ID by using the parameter provisioning procedure

- Impacts to V-SMF to send or update the VPLMN EACI obtained from V-AF to the H-SMF

- Impacts to UDR for granular UE set, common EAS/DNAI and DNAI-EAS mapping

- Impacts to SMF/EASDF to support 5GC selection/AF selection of the common DNAI for UE collection or 5GC selection of a common EAS for a collection of UEs for both multiple SMFs and single SMF cases

- Impacts to H-SMF to send Internal Group Identifier(s) for group of UE(s) to the V-SMF

- Impacts to V-SMF to send V-EASDF security information to H-SMF

- Updates to support optional ECS authentication methods.

**CT3:**

- Impacts to H-PCF to send to H-SMF roaming offload policy to indicate traffic which is authorized to perform local traffic routing in VPLMN

- Impacts to AF/H-NEF/H-SMF on providing the target DNAI to support AF triggered EAS Re-discovery

- Impacts to AF deployed in the VPLMN on providing the EACI in the VPLMN to the V-SMF via the V-NEF for HR case

- Impacts to AF/NEF/UDR/PCF to support combination of Group Ids or any UE, and (service information and/or "Subscriber categories")

- Impacts to PCF/SMF/NEF/AF to identify the collections of UEs using common EAS/DNAI

- Impacts to SMF/NEF/PCF/AF to provide common EAS/DNAI to support using common EAS/DNAI determined by AF or 5GC for traffic routing or EAS discovery

- Impacts to SMF/NEF/AF to support Edge Relocation within the same hosting PLMN's EHEs

- Impacts to NEF/UDR/AF on mapping information between EAS IP/IP range and DNAI

- Impacts on Nnef\_TrafficInfluence service to support AF may provide common DNAI/EAS for the UE collection

- Potential updates to support optional ECS authentication methods.

- Potential updates to fetch internal UE Id and related information for roaming UE.**CT1:**

- Updates to support optional ECS authentication methods.

The following two aspects need further SA2 work under FS\_eUEPO and FS\_XRM SIDs and will be included in the related WIDs:

* URSP enhancement to support the scenarios where the EHE is accessed via an LBO PDU Session depends on further SA2 work on FS\_eUEPO.
* Fast and efficient network exposure improvements via the Local UPF/NEF depends on further SA2 work on FS\_XRM.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| N/A |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 29.502 | 1. Impacts on V-SMF and H-SMF to support HR-SBO;2. Support UL CL/BP and local UPF insertion in HR roaming3. Support of target DNAI information from H-SMF to AMF via V-SMF4. Impacts on V-SMF and H-SMF to support EAS rediscovery5. Impacts on V-SMF and H-SMF on VPLMN EACI | TSG#103(March 2024) | CT4 responsibility |
| 29.503 | 1. User subscription information updates for indicating HR-local traffic routing allowed or HR-local traffic routing authorized;2. Support parameter provisioning and storage of subscription data of ECS Address Configuration Information (EACI) per PLMN ID;3. Updates to transport optional ECS authentication methods. | TSG#103(March 2024) | CT4 responsibility |
| 29.504 | Updates to the UDR data model. | TSG#103(March 2024) | CT4 responsibility |
| 29.518 | Provides HR-SBO allowed indication from source AMF to the target AMF | TSG#103(March 2024) | CT4 responsibility |
| 29.571 | Specification work on common data type definition for the new introduced parameters. | TSG#103(March 2024) | CT4 responsibility |
| 29.556 | 1. Impacts to support the HR-local traffic routing;2. Support 5GC selection of a common EAS for a collection of UEs | TSG#103(March 2024) | CT4 responsibility |
| 29.508 | Impacts on Nsmf\_eventExposure services to support notification of AF/EAS change and supporting common EAS/DNAI. | TSG#103(March 2024) | CT3 responsibility |
| 29.512 | 1. Provides roaming offload policy to perform local traffic routing in VPLMN to SMF;2. Potential impacts to support combination of Group Ids or any UE, and (service information and/or "Subscriber categories");3. Potential impacts to support the collections of UEs. | TSG#103(March 2024) | CT3 responsibility |
| 29.514 | Specification work on Policy Authorization updates | TSG#103(March 2024) | CT3 responsibility |
| 29.513 | Impacts on policy and Charging Control signalling flows. | TSG#103(March 2024) | CT3 responsibility |
| 29.522 | 1. Impacts on providing the target DNAI to H-SMF to support AF triggered EAS Re-discovery;2. Impacts on providing the EACI in the VPLMN to the V-SMF for HR case;3. Supports combination of Group Ids or any UE, and (service information and/or "Subscriber categories");4. Impacts on Nnef\_TrafficInfluence service to support common EAS/DNAI;5. Impacts on mapping information between EAS IP/IP range and DNAI;6. Updates to transport optional ECS authentication methods.7. Updates to fetch internal UE Id and related information for roaming UE. | TSG#103(March 2024) | CT3 responsibility |
| 29.519 | Data storage update in UDR | TSG#103(March 2024) | CT3 responsibility |
| 24.501 | Updates to support optional ECS authentication methods | TSG#104(June 2024) | CT1 responsibility |
| 24.008 | Updates to support optional ECS authentication methods | TSG#104(June 2024) | CT1 responsibility |

# 6 Work item Rapporteur(s)

Qi Caixia, caixia.qi@huawei.com

# 7 Work item leadership

CT4

# 8 Aspects that involve other WGs

SA3 for the security aspects.

SA5 for the charging aspects.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Huawei |
| [HiSilicon](http://www.baidu.com/link?url=GzTJdFmiiGUNEpWl9_FjK-G_Vr2NPMEXAGh6ZXKnlAiLBFsNyqpUSdFv4pTJDPIXvuUW48qYBf6M7hupCg8Tt8WF-GDMnTxvOphKE2RwzaC) |
| China Unicom |
| China Telecom |
| ZTE |
| NTT DOCOMO |
| CATT |
| OPPO |
| Apple |
| Lenovo |
| Motorola Mobility |
| Nokia |
| Nokia Shanghai Bell |
| Ericsson |
| China Mobile |
| KDDI |
| NEC |
| Charter Communications |
| Samsung |
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