**3GPP TSG-CT WG3 Meeting #125C3-225193**

**Toulouse, France, 14th – 18th November 2022**

**3GPP TSG-CT WG1 Meeting #139C1-226698**

**Toulouse, France, 14th – 18th November 2022**

**3GPP TSG-CT WG4 Meeting #113C4-225358**

**Toulouse, France, 14th – 18th November 2022**

(revision of CP-yyxxxx)

**Source: Huawei,** [**HiSilicon**](http://www.baidu.com/link?url=GzTJdFmiiGUNEpWl9_FjK-G_Vr2NPMEXAGh6ZXKnlAiLBFsNyqpUSdFv4pTJDPIXvuUW48qYBf6M7hupCg8Tt8WF-GDMnTxvOphKE2RwzaC)

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

**Document for: Approval**

**Agenda Item: 18.1.1**

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: New WID on CT Aspects of Edge Computing Phase 2

Acronym: EDGE\_Ph2

Unique identifier:

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 | 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 the related normative work is under progress specifying normative aspects of the following in 3GPP 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 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 and Session Management Subscription data updates to include the indication for HR-local traffic routing allowed

- Potential impacts on AMF and NRF for the discovery and selection of a V-SMF and an H-SMF supporting local traffic routing for HR PDU sessions, V-SMF selection on supporting target DNAI

- Impacts to H-SMF to provide HR-local traffic offloading authorization information (e.g. allowed FQDN ranges), DNS server address of HPLMN to V-SMF

- Impacts to V-SMF to send the V-EASDF address or local DNS server address to the H-SMF

- Potential impacts to V-SMF/V-EASDF to support the HR-local traffic routing

- 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 SMF to transfer inter-PLMN relocation indicator between V-SMF and H-SMF to indicate that the EAS relocation is between HPLMN and VPLMN

- Impacts to UDM/UDR to support the storage of subscription data of ECS Address Configuration Information (EACI) per PLMN ID

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

- Potential impacts on UDM on providing the EACI by using the parameter provisioning procedure from AF deployed in the VPLMN for LBO case

- Impacts to UDM/UDR for storing the common EAS/DNAI

- Impacts to UDM/UDR to manage the AF provisioned dynamic groups of UEs

- 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

**CT1:**

* Potential enhancement on URSP to support the scenarios where the EHE is accessed via an LBO PDU Session.

**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")

- Potential impacts on Nnef\_ParameterProvision service to support the dynamic group management other than that specific for 5G VN group

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

- Impacts to NEF/PCF/AF to provide common EAS/DNAI to support using common EAS/DNAI determined by AF 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.

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

The potential impacts to CT4 and CT3 will be updated during the normative work in SA2. Stage 3 work will start only when the normative stage 2 requirements are available.

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 |
| 29.510 | Potential impacts for1. Discovery of a V-SMF and an H-SMF supporting local traffic routing for HR PDU sessions2. Discovery of V-SMF supporting target DNAI | TSG#102(December 2023) | CT4 responsibility |
| 29.502 | 1. HR-local traffic offloading authorization information (e.g. allowed FQDN ranges), DNS server address of HPLMN from H-SMF to V-SMF;2. V-EASDF address or local DNS server address, VPLMN EACI from V-SMF to H-SMF;3. Support UL CL/BP and local UPF insertion in HR roaming4. Support of target DNAI information from H-SMF to AMF via V-SMF5. Transfer of inter-PLMN relocation indicator between V-SMF and H-SMF6. Potential impacts to support 5GC selection of the common DNAI for UE collection | TSG#102(December 2023) | CT4 responsibility |
| 29.503 | 1. User subscription information updates for indicating HR-local traffic routing allowed;2. Support the storage of subscription data of ECS Address Configuration Information (EACI) per PLMN ID;3. Potential impacts on UDM on providing the EACI by using the parameter provisioning procedure from AF deployed in the VPLMN for LBO case;4. Impacts to UDM/UDR for storing the common EAS/DNAI;5. Impacts to manage the AF provisioned dynamic groups of UEs | TSG#102(December 2023) | CT4 responsibility |
| 29.505 | 1. User subscription information updates;2. Impacts to manage the AF provisioned dynamic groups of UEs | TSG#102(December 2023) | CT4 responsibility |
| 29.571 | Possible specification work on common data type definition for the new introduced parameters. | TSG#102(December 2023) | CT4 responsibility |
| 29.556 | 1. Potential impacts to support the HR-local traffic routing;2. Support 5GC selection of a common EAS for a collection of UEs | TSG#102(December 2023) | CT4 responsibility |
| 24.526 | Potential enhancements on URSP to support the scenarios where the EHE is accessed via an LBO PDU Session. | TSG#102(December 2023) | CT1 responsibility |
| 29.508 | Potential impacts on Nsmf\_eventExposure services to support notification of AF/EAS change | TSG#102(December 2023) | 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 UEs4. PLMN Id is included within the PCC rule. | TSG#102(December 2023) | CT3 responsibility |
| 29.514 | Specification work on Policy Authorization updates | TSG#102(December 2023) | CT3 responsibility |
| 29.513 | Potential impacts on policy and Charging Control signalling flows. | TSG#102(December 2023) | 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. Potential impacts on Nnef\_ParameterProvision service to support the dynamic group management;5. Impacts on mapping information between EAS IP/IP range and DNAI. | TSG#102(December 2023) | CT3 responsibility |
| 29.519 | Data storage update in UDR | TSG#102(December 2023) | CT3 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

|  |
| --- |
| 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 |
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