**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.

- Potential impacts in the PCF to include the PLMN ID in the PCC Rule.

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. Potential impact to introduce the PLMN Id 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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