**3GPP TSG-CT WG1 Meeting #130-eC1-213abc**

**E-meeting, 20-28 May 2021** (revision of CP-210284)

**Source: Huawei, HiSilicon**

**Title: Revised WID on CT Aspects of 5G eEDGE**

**Document for: Endorsement**

**Agenda Item: 17.1.1**

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: CT Aspects of 5G eEDGE

## Acronym: eEDGE\_5GC

## Unique identifier: 910005

Potential target Release: {Rel-17}.

Note that this field above indicates the proposed Release at the time of submission of the WID to TSG approval. It can later be changed without a need to revise the WID. The updated target Release is indicated in the Work Plan.

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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) |
| eEDGE\_5GC | S2 | 900016 | Enhancement of support for Edge Computing in 5G Core network |

### 2.3 Other related Work Items and dependencies

|  |  |  |  |
| --- | --- | --- | --- |
| Other related Work Items (if any) | | | |
| Unique ID | Title | Nature of relationship |
| 830032 | Study on enhancement of support for Edge Computing in 5GC | SA2 study item |
| 880002 | Study on Security Aspects of Enhancement of Support for Edge Computing in 5GC | SA3 study item on the security aspects of Edge Computing |
| 880030 | Study on charging aspects of Edge Computing | Study of the charging aspects of Edge Computing (SA5). |

## 3 Justification

The stage 2 study on enhancement of support for Edge Computing in 5GC is completed and captured in 3GPP TR 23.748 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 EAS discovery in different connectivity models

- The support of Edge relocation in different connectivity models

- The support of selecting SMF/I-SMF based on DNAI

- The support of network information provisioning to local applications with low latency based on support of local NFs

The 3GPP CT WGs need to do the normative work to complete the stage 3 work in Rel-17.

## 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 eEDGE\_5GC. The following areas of work are expected to be covered:

**CT4:**

- N4 enhancement to support EAS (re)discovery for Distributed Anchor and Session Breakout (i.e. for steering of edge application traffic / DNS traffic based on FQDNs).

- Impacts on UE's subscription information to include identities of Edge Configuration Servers that the UE may access.

- EASDF selection by SMF.

- A new network function EASDF and its services.

- Potential impacts on N4 to support enhancements for packet loss reduction (i.e. buffering of UL traffic during EAS relocation).

- Potential impacts on N4 to support enhancements for EAS IP address replacement in 5GC.

- Potential impacts on SMF for PSA UPF selection.

- Support of selecting SMF/I-SMF based on DNAI and SMF profile update to include the DNAI it supports.

- Local NEF selection.

- Local PSA UPF exposes the QoS monitoring results to local AF/EAS via local NEF.

**CT1:**

* Support of ECS address(es) provisioning.
* Support of the UE based EAS rediscovery in session breakout case with SM NAS enhancements.
* Support of the UE based EAS rediscovery in session breakout case using BP and SSC mode 2/3 case, by enabling the UE to reselect a new EAS after it is allocated with a new IP address.

**CT3:**

- Updates NEF Nnef\_ServiceParameter service to allow the AF/EAS to influence PCF decisions for URSP.

- Impacts on AF/EAS to provide Edge Configuration Server Identities to the UDM.

- Potential impacts on AF/EAS/SMF/PCF to support enhancements for packet loss reduction.

- Potential impacts on AF/EAS/SMF/PCF/NEF to support enhancements for former and new connection coexistence at Edge Relocation.

- Impacts on AF/EAS/SMF/PCF/NEF to support Edge relocation considering user plane latency.

- Impacts on AF/EAS/SMF/PCF/NEF to support EAS IP address replacement in 5GC.

- Updates to procedure on AF/EAS requests to influence traffic routing for scenarios where EAS relocation also results in corresponding AF/EAS relocation.

- Impacts on AF/EAS/SMF/PCF/NEF to support low latency exposure of QoS monitoring results.

The potential impacts to CT4 and CT3 will be updated during the normative work in SA2. Especially EASDF interactions with SMF need further SA2 work before stage 3 can start on this aspect.

Local PSA UPF exposing the QoS monitoring results to local NEF still depends on further SA2 work, to determine whether new API(s) are needed.

Stage 3 work will start only when the normative stage 2 requirements are available.

Coordination with EDGEAPP WID (900006) may be required for the objectives related to Enabling Edge Applications.

## 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 |
| TS | 29.556 | 5G System; Edge Application Server Discovery Services; Stage 3 | TSG#94  (Dec. 2021) | TSG#95  (March 2022) | CT4 responsibility  Rapporteur: Qi, Caixia. Huawei. [caixia.qi@huawei.com](mailto:caixia.qi@huawei.com) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| 29.244 | 1. Potential impacts on N4 to support enhancements for packet loss reduction (i.e. buffering of UL traffic during EAS relocation).  2. Potential impacts on N4 to support enhancements for EAS IP address replacement in 5GC.  3. Potential impacts on N4 for steering of edge application traffic / DNS traffic based on FQDNs.  4. N4 extensions to support local notification of QoS Monitoring to the AF via the Local NEF. | TSG#95  (March 2022) | CT4 responsibility |
| 29.510 | 1. EASDF selection by SMF based on (DNN, S-NSSAI) of the PDU Session and on the PSA selected for the PDU Session.  2. Local NEF selection.  3. (I-)SMF selection based on Target DNAI (new Target DNAI query parameter, new Supported DNAI list in SMF profile) | TSG#95  (March 2022) | CT4 responsibility |
| 29.502 | 1. Updates Nsmf\_PDUSession\_SMContextStatusNotify and StatusNotify operations to send the target DNAI(s) to the AMF to assist the I-SMF/SMF selection.  2. Update to Create SM Context request to include the target DNAI to be used for the selection of the new PSA | TSG#95  (March 2022) | CT4 responsibility |
| 29.503 | Specification work on UE's subscription information to include identities of Edge Configuration Servers that the UE may access | TSG#95  (March 2022) | CT4 responsibility |
| 29.504 | Define a new feature on support of Enhancement of Edge Computing in UDR | TSG#95  (March 2022) | CT4 responsibility |
| 29.505 | Possible specification work on UE's subscription information to include identities of Edge Configuration Servers that the UE may access | TSG#95  (March 2022) | CT4 responsibility |
| 29.571 | Possible specification work on common data type definition for the new introduced parameters. | TSG#95  (March 2022) | CT4 responsibility |
| 24.008 | 1. Updates of PCO parameters for ECS address(es) provisioning.  2. Potential updates of PCO parameters to support the UE-based EAS rediscovery. | TSG#95  (March 2022) | CT1 responsibility |
| 24.501 | SMF and UE enhancements over NAS to support the UE-based EAS rediscovery. Support of EAS rediscovery indication and logic. | TSG#95  (March 2022) | CT1 responsibility |
| 24.526 | Potential clarification on the use of URSPs for the DNS request and the corresponding application traffic. | TSG#95  (March 2022) | CT1 responsibility |
| 27.007 | Potential updates of AT command for DNS flush in case of EAS rediscovery. | TSG#95  (March 2022) | CT1 responsibility |
| 29.508 | 1. Potential impacts on IP addressing information of EAS selected by DNS notification.  2. Potential impacts on support of seamless edge application relocation indication. | TSG#95  (March 2022) | CT3 responsibility |
| 29.512 | 1. 'Seamless Edge relocation' indication in the PCC rule sent to the SMF.  2. User plane latency requirements in the PCC rule sent to the SMF.  3. EAS IP address replacement information in the PCC rule sent to the SMF. | TSG#95  (March 2022) | CT3 responsibility |
| 29.514 | 1. 'Seamless Edge relocation' indication in the attributes of Policy Authorization.  2. User plane latency requirements in the attributes of Policy Authorization.  3. EAS IP address replacement information in the attributes of Policy Authorization. | TSG#95  (March 2022) | CT3 responsibility |
| 29.513 | Updates the policy and Charging Control signalling flows. | TSG#95  (March 2022) | CT3 responsibility |
| 29.522 | 1. Updates NEF Nnef\_ServiceParameter service to allow the AF to influence PCF decisions for URSP.  2. Impacts on providing ECS Identities from AF to UDM.  3. Updates the Nnef\_TrafficInfluence to provide FQDN(s) per DNAI by AF.  4. Supports the user plane latency requirements.  5. Supports the EAS IP address replacement information.  6. Low latency exposure of QoS monitoring results | TSG#95  (March 2022) | CT3 responsibility |
| 29.519 | Data storage update in UDR | TSG#95  (March 2022) | CT3 responsibility |
| 29.561 | Potential DNS enhancement to support EAS discovery | TSG#95  (March 2022) | 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 Telecom |
| China Unicom |
| Nokia |
| Nokia Shanghai Bell |
| Deutsche Telekom |
| vivo |
| Convida Wireless |
| NTT DOCOMO |
| China Mobile |
| KDDI |
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