**3GPP TSG-CT WG3 Meeting #136C3-244051**

**Maastricht , NL; 19th – 23th August 2024**

**3GPP TSG-CT WG4 Meeting #124C4-243348**

**Maastricht , NL; 19th – 23th August 2024**

**Source: Intel, Nokia**

**Title: New WID on CT aspects of enhancement of support for Edge Computing in 5G Core network - Phase 3**

**Document for: Approval**

**Agenda Item: 19.1.1 (CT3) / 5 (CT4)**

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 enhancement of support for Edge Computing in 5G Core network - Phase 3

Acronym: eEDGE\_5GC\_Ph3

Unique identifier: 1050006

Potential target Release: Rel-19

# 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 |  |
| No | X | 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 …

|  |  |
| --- | --- |
|  | Study  |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| eEDGE\_5GC\_Ph3 | SA2 | 1040036 | Enhancement of support for Edge Computing in 5G Core network - Phase 3 |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 1020004 | Study on Enhancement of support for Edge Computing in 5G Core network — phase 3 | Rel-19 SI for Edge Computing Phase 3 (SA2) |
| 1030036 | Study on Security Aspects of Enhancement of Support for Edge Computing in 5GC phase 3 | Rel-19 SI for Edge Computing Phase 3 (SA3) |

# 3 Justification

Edge Computing has been supported in the 5GS since Release 15. Building on the advancements made in Releases 17 and 18, SA2 has identified aspects that require further investigation as part of the ongoing efforts in Release 19. These aspects include: (i) more efficient management of EHE information, (ii) improved EAS (re)discovery, and (iii) routing of application traffic between the local cloud and the central cloud.

The stage 2 work of eEDGE\_5GC\_Ph3 started at SA#102 with the SA2 study item on the Enhancement of Support for Edge Computing in the 5G Core Network - Phase 3 (FS\_eEDGE\_5GC\_Ph3). The key issues, solutions, and conclusions of the SA2 study are documented in TR 23.700-49. The conclusions specified in TR 23.700-49 will serve as the basis for the normative work in SA2.

Additionally, a new Stage 2 work item, "Enhancement of Support for Edge Computing in the 5G Core Network - Phase 3" (eEDGE\_5GC\_Ph3), was approved by TSG SA at SA#104 (SP-240996). Considering the above, impacts on protocols and interfaces under CT WGs' responsibilities are foreseen. The CT WGs will need to carry out stage-3 work in Release 19 to satisfy the normative requirements arising from stage-2 work. Based on progress in Stage 2, this WID will be updated as necessary.

# 4 Objective

The objective of this work item is to specify the CT aspects of eEDGE\_5GC\_Ph3. The stage-3 work shall be started after the applicable normative stage-2 requirements in SA2 are available.

The stage-3 aspects will include the following (CT WGs impact areas will be identified based on the progress in the normative stage-2 work):

CT4:

1. Enhancements for EAS (re)discovery and UPF (re)selection with reducing impact on central 5GC NF

a) Potential update to the Nudm\_SDM service to include a "local offloading allowed" indication in the SM subscription data.

b) Potential update to the UDR to support a new feature for local offloading.

c) Potential update to the Nsmf\_PDUSession service to support the transfer of the local offloading policy (e.g., IP range(s) and/or FQDN(s)) from PCF to the I-SMF via the SMF.

d) Potential update to the Nsmf\_PDUSession service to facilitate the forwarding of AF-provided traffic influence information from the SMF to the I-SMF.

e) Potential update to the NRF to support I-SMF selection for local offloading management.

f) Potential update to support the I-SMF as a consumer of the EASDF service.

2. Enhancement of EAS and local UPF (re)selection

a) Potential update to the UPF to support N6 delay measurement and reporting. The anticipated measurement configuration includes network instances (i.e. mapped from DNAIs), N6 endpoints (e.g., target EAS IP addresses/Designated IP range), delay measurement protocols (e.g., ICMP, TWAMP, OWAMP, or other IETF-defined protocols), and optional protocol-specific configuration parameters.

CT3:

1. Enhancements for EAS (re)discovery and UPF (re)selection with reducing impact on central 5GC NF

a) Potential update to the SM Policy Association procedure to support local offloading policy.

2. Enhancement of EAS and local UPF (re)selection

a) Potential update to the Traffic influence procedures (i.e. Nnef\_TrafficInfluence service) to support N6 delay measurements.

b) Potential update to the EAS Deployment Information management procedures (i.e. Nnef\_EASDeployment service) to support N6 delay measurements.

# 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 |
| NA |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 29.244 | Potential update to support N6 delay measurements. | TSG#109 (September 2025) | CT4 |
| TS 29.502 | Potential update to support the transfer of the local offloading policy to the I-SMF. Potential update to support forwarding of AF provided traffic influence information to the I-SMF. | TSG#109 (September 2025) | CT4 |
| TS 29.503 | Potential update to support local offloading control policy as part of SM subscription data | TSG#109 (September 2025) | CT4 |
| TS 29.504 | Potential update to support new feature for local offloading control policy. | TSG#109 (September 2025) | CT4 |
| TS 29.510 | Potential update to support I-SMF selection for local offloading management. | TSG#109 (September 2025) | CT4 |
| TS 29.556  | Potential update to support the I-SMF as a consumer of the EASDF service. | TSG#109 (September 2025) | CT4 |
| TS 29.564 | Potential update to support N6 delay measurements. | TSG#109 (September 2025) | CT4 |
| TS 29.512 | Potential update to the SM Policy Association API to support local offloading policy. Potential update to the SM Policy Association API to support N6 delay measurements. | TSG#109 (September 2025) | CT3 |
| TS 29.513 | Potential update to the SM Policy Association procedure to support local offloading policy. Potential update of Traffic influence procedure to support N6 delay measurements. | TSG#109 (September 2025) | CT3 |
| TS 29.519 | Potential update of the UDR data model to support N6 delay measurements. | TSG#109 (September 2025) | CT3 |
| TS 29.522 | Potential update to the Traffic influence procedures and the EAS Deployment Information management procedures to support N6 delay measurements. | TSG#109 (September 2025) | CT3 |
| TS 29.591 | Potential update to the Nnef\_TrafficInfluenceData service and Nnef\_EASDeployment service to support N6 delay measurements. | TSG#109 (September 2025) | CT3 |

# 6 Work item Rapporteur(s)

Luetzenkirchen, Thomas, Intel, (thomas.luetzenkirchen@intel.com)

# 7 Work item leadership

CT4

# 8 Aspects that involve other WGs

SA3 for the security aspects.

# 9 Supporting Individual Members

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| Supporting IM name |
| Intel |
| Nokia |
| Huawei |
| Ericsson |
| China Mobile |
| ZTE |
| Samsung |
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