**3GPP TSG-S4 Meeting #113-e**S4-210575

**Electronic Meeting, 6th – 14th April 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **26.803** | **CR** |  | **rev** |  | **Current version:** | **1.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Gaps and Conclusions for TR 26.803 | | | | | | | | | |
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| ***Source to WG:*** | Qualcomm Inc. | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_EMSA | | | | |  | ***Date:*** | | | 31 March 2021 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | Adds content to the gaps section and proposes a conclusion to the TR. | | | | | | | | |
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| ***Summary of change:*** | |  | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
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| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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| **First Change** |

## 6.4 Identified Gaps in Architecture and Procedures

### 6.4.1 General

Based on the recommended EMSA architecture in clause 6.2 and the high-level call flows defined in clause 6.3, we can identify the following gaps in the existing 5GMS architecture:

1. The procedures and services offered by the 5GMS AF and the 5GMS Client need to be defined.
2. Extensions to the M1 and M5 interfaces are required to provide additional procedures for provisioning and edge processing request.
3. Definition of the M3 interface between the 5GMS AF and 5GMS AS to manage edge processing.
4. Procedures to support session mobility and context transfer, triggered by the UE or by the 5GMS AF. In particular, the application and media-specific aspects of the Application Context Relocation would need to be specified.
5. Procedures in the 5GMS client and interactions with the application in the UE to discover and select an appropriate EAS/5GMS AS for the media processing needs of the application are only partially supported.

### 6.4.2 Justification of Identified Gaps

#### 6.4.2.1 Gaps in client-driven edge discovery

The following provides a reference to the gaps and the corresponding procedure step in the call flow:

1. Gap 2: In step 12, “The 5GMS AF checks the provisioned edge processing resource template for the related application to determine the requirements of the application.”

How the EES embedded in the 5GMS AF gains access to the edge processing resource template needs to be investigated, and whether M1 supports providing this template during step 6 “Provision 5GMS features”. Otherwise, the API that the 5GMS AF uses to access this template needs to be identified and possibly defined.

2. Gap 5: In steps 18 and 19, if more than one EAS is expected to be provided in the response, then one of the actors in the system needs to select the best one.

This process is not defined. For example, if the 5GMS AF selects the best EAS based on the template provided by the Application Provider during the “Provision 5GMS features” step, and based on EAS discovery filters provided by EEC, then this process must be indicated and required by “5GMS AF/EEC”.

#### 6.4.2.2 Gaps in AP-driven management of 5GMS edge processing

1. Gap 2: In step 6, “Provision 5GMS features”, the desired characteristics of the EAS, such as geographical service area, service continuity support, and service features (as indicated in the EAS discovery filter supplied by the Application in the client-driven call flow) must be signalled to the 5GMS AF. It is not clear whether an API and/or resource for such signalling is supported by M1 in TS 26.512 [?].

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| **Fourth Change** |

# 7 Conclusions and Recommendations

Edge media processing is an enabler for a variety of immersive media streaming services, such AR/MR and cloud gaming, which require stringent QoS guarantees to operate properly. The 5GMS architecture has been developed to support media streaming services by leveraging 5G System functionality to optimize the streaming experience. Extensions to the 5GMS architecture are necessary to leverage 5G edge computing capabilities and integrate them into media streaming workflows.

The present docoument provides an overview of the different edge-related activities that are taking place in 3GPP. It also collects together a set of media streaming use cases that rely on or benefit from media processing at the edge. Based on these, a recommended architecture for edge media processing is derived and documented. The architecture is an integration of the 5G Media Streaming architecture with the architectures and procedures for establishment, control, and management of edge computing sessions that have been developed elsewhere in 3GPP.

It is recommended that normative work be initiated with the following objectives:

1. Extend the 5GMS Architecture to support edge media processing according to the recommended architecture in clause 6.2.
2. Enhance the procedures and services that are offered by the 5GMS AF and the 5GMS Client to enable establishment and management of media streaming session with edge processing.
3. Extend the M1 interface to support the provisioning of edge media processing.
4. Extend the M5 interface to support discovery and request of edge media processing resources.
5. Define the M3 interface between the 5GMS AF and 5GMS AS to manage edge processing resources and sessions.
6. Specify media and application context relocation information based on the Application Context Relocation procedures for session continuity in edge media processing.