**3GPP TSG-SA4 Meeting #S4-220414**

**, 6th – 14th April 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
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|  | **TS 26.512** | **CR** |  | **rev** |  | **Current version:** | **16.4.0** |  |
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| *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:*** | Improved CR on edge provisioning procedures | | | | | | | | | |
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| ***Source to WG:*** | Tencent Cloud | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
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| ***Work item code:*** | 5GMS\_EDGE\_3 | | | | |  | ***Date:*** | | | 2022-03-29 |
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| ***Category:*** | B |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | Description of the procedures for edge resource provisioning configuration. | | | | | | | | |
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| ***Summary of change:*** | | The procedures to handle edge resource provisioning configuration through REST calls are described.  The requirements for 5GMS AF and MSH are defined (in yellow highlights) | | | | | | | | |
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| ***Consequences if not approved:*** | | The procedures will be missing. | | | | | | | | |
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| ***Clauses affected:*** | | 4.3.10, 4.7.2.1 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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| 1st Change |

### 4.3.10 Edge Resources Provisioning procedures

#### 4.3.10.1 General

These procedures are used by the 5GMS Application Provider at reference point M1 to provision edge resources on the 5GMS AF for downlink streaming. This clause defines the basic procedures. More details are provided in clause 7.10.3.1.

A given instance of an Edge Resources Configuration resource is identified by the edgeResourcesConfigurationId property of the EdgeResourcesConfiguration resource.

#### 4.3.10.2 Create Edge Resources Configuration

This procedure is used by the 5GMS Application Provider to create a new Edge Resources Configuration. The 5GMS Application Provider shall use the HTTP POST method for this purpose and the request message body shall include an EdgeResourcesConfiguration resource, as specified in clause 7.10.3.1.

- ~~The edgeManagmentMode property is set to EM\_NETWORK\_DRIVEN for network-driven edge resource management, in which case the 5GMS AF is responsible for requesting and managing the required edge resources and handling EAS relocation for the streaming session.~~

~~- If the edgeManagementMode is set to EM\_APP\_DRIVEN, the 5GMS AF shall only request edge resources based on a request from the Edge Enabler Client instantiated in the Media Session Handler.~~

~~If the procedure is successful, the 5GMS AF shall generate a resource identifier representing the new Edge Resources Configuration. In this case, the 5GMS AF shall respond with a 201 (Created) HTTP response message and shall provide the URL to the newly created resource in the Location header field. The response message body may include an EdgeResourcesConfiguration resource (see clause 7.10.3.1) that represents the current state of the Edge Resources Configuration, including any fields set by the 5GMS AF.~~

A 5GMS AF that is edge-enabled shall support EES functionality as required in TS26.501 clause 4.5.2. In addition, it shall support the following functionalities:

1. For every media streaming session, it shall determine if the session is eligible for edge resources based on the *eligibilityCriteria* in the provisioning information
2. For a media streaming session that is eligible for edge resources, it shall ensure that only 5GMS EASs that fulfil the requirements in *easRequirements* of the provisioning information, are discoverable by the MSH.
3. For an ongoing media streaming session with edge resources, it shall ensure the EAS relocation requirements as provided by the easRelocationRequirements of the provisioning information when performing an EAS relocation procedure.

An edge-enabled 5GMS Client shall provide an MSH that is edge-enabled as defined in TS26.501 clause 4.5.2. In addition, the MSH that is edge-enabled shall support the following functionalities:

1. For every new media streaming session, determine with the edge-enabled 5GMS AF if the media streaming session is eligible for edge resources and whether the edge resources are managed by the client or the network.
2. For client-driven sessions, use the information in the *easDiscoveryTemplate* of the service access information to build the EAS discovery request.
3. For client-driven sessions, ensure that the requirements in the easRelocationRequirements of the service access information are fulfilled when triggering an EAS relocation procedure.

The 5G system shall ensure that 5GMS streaming sessions that are eligible for edge resources are only associated with a 5GMS AF that is edge-enabled.

Depending on the properties of EdgeResourcesConfiguration resource, the following shall be satisfied:

1. If a media streaming session is eligible for edge resource and the edgeManagmentMode property is set to EM\_NETWORK\_DRIVEN for network-driven edge resource management, the 5GMS AF is responsible for requesting and managing the required edge resources and handling EAS relocation for the streaming session. In this case, the 5GMS AF shall perform the following steps:
   * 1. Determine if at least one 5GMS EAS that meets the requirements provided by the easRequirements is available for usage by the media streaming session.
     2. If none is found, the 5GMS AF shall request the instantiation and activation of a new EAS that fulfils the requirements.
     3. The 5GMS AF shall ensure that the EAS is discoverable through DNS procedures or the discovery procedures as defined in TS29.558.
2. If a media streaming session is eligible for edge resources and the edgeManagmentMode property is set to EM\_APP\_DRIVEN:
   1. The EEC in the MSH shall perfom a discovery request for edge resources from the 5GMS AF that is edge enabled using the EDGE-1 API.

~~If the procedure is not successful, the 5GMS AF shall provide a response code as defined in clause 6.3.~~

#### 4.3.10.3 Retrieve Edge Resources Configuration

This procedure is used by the 5GMS Application Provider to retrieve the current values of the properties of an existing Edge Resources Configuration resource from the 5GMS AF. The HTTP GET method shall be used for this purpose.

If the procedure is successful, the 5GMS AF shall respond with a 200 (OK) response message that includes the EdgeResourcesConfiguration resource in the response message body.

If the procedure is not successful, the 5GMS AF shall provide a response code as defined in clause 6.3.

#### 4.3.10.4 Update Edge Resources Configuration

The update operation is invoked by the 5GMS Application Provider to modify the properties of an existing EdgeResourcesConfiguration resource. All writeable properties except edgeManagementMode may be updated. The HTTP PATCH or HTTP PUT methods shall be used for the update operation.

If the procedure is successful, the 5GMS AF shall respond with a 200 (OK) and shall provide the content of the resource in the response, confirming the successful update operation.

If the procedure is not successful, the 5GMS AF shall provide a response code as defined in clause 6.3.

#### 4.3.10.5 Destroy Edge Resources Configuration

This operation is used by the 5GMS Application Provider to destroy an Edge Resources Configuration resource. The HTTP DELETE method shall be used for this purpose. This operation makes the configuration unsuable for future streaming sessions, but it does not affect any ongoing streaming sessions.

If the procedure is successful, the 5GMS AF shall respond with a 200 (OK) response message.

If the procedure is not successful, the 5GMS AF shall provide a response code as defined in clause 6.3.

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| 2nd Change |

#### 4.7.2.1 General

Service Access Information is the set of parameters and addresses needed by the 5GMSd Client to activate reception of a downlink media streaming session or by a 5GMSu Client to activate an uplink media streaming session for contribution. The data model of the ServiceAccessInformation resource acquired by the Media Session Handler of the 5GMS Client is shown in clause 11.2.3. Service Access Information additionally includes configuration information to allow the Media Session Handler to invoke procedures for dynamic policy (see clause 4.7.3), consumption reporting (clause 4.7.4), metrics reporting (clause 4.7.5) network assistance (clause 4.7.6).

- For downlink media streaming, the Media Session Handler of the 5GMSd Client may obtain Service Access Information from either the 5GMSd-Aware Application (via M6d) or the 5GMSd AF (via M5d). In the former case, the Service Access Information is initially acquired by the 5GMSd-Aware Application from the 5GMSd Application Provider via M8d. In the latter case, the Service Access Information is derived by the 5GMSd AF from the Provisioning Session established via M1d.

Typically, the Service Access Information for downlink media streaming includes a media entry point (e.g. a URL to a DASH MPD or a URL to a progressive download file) that can be consumed by the Media Player and is handed to the Media Player through M7d.

- For uplink media streaming, the Media Session Handler of the 5GMSu Client may obtain Service Access Information from either the 5GMSu-Aware Application (via M6u/M7u) or the 5GMSu AF (via M5u). In the former case, the Service Access Information is initially acquired by the 5GMSu-Aware Application from the 5GMSu Application Provider via M8u. In the latter case, the Service Access Information is derived by the 5GMSu AF from the Provisioning Session established via M1u.

In either case, if an Edge Resources Configuration is provisioned at M1, properties pertaining to client-driven management of edge media processing shall be included in the Client‌Edge‌Resources‌Configuration object of the Service Access Information provided by the 5GMS AF at reference point M5, and the Media Session Handler shall pass these values to the Edge Enabler Client.

NOTE: In the case where edge media processing is driven by the 5GMS Application Provider, no additional Service Access Information is required because the edge media processing resources are instead managed by the 5GMS AF.