**3GPP SA4#115-eS4-211096**

**18-27 Aug 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
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|  | **26.804** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **0. 2.1** |  |
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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 | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | [FS\_5GMS-EXT] Uplink Streaming: Contribution Reporting | | | | | | | | | |
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| ***Source to WG:*** | Tencent | | | | | | | | | |
| ***Source to TSG:*** | SA4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_5GMS-EXT | | | | |  | ***Date:*** | | | 2021-08-12 |
|  |  | | | |  | |  | | |  |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | The study item description identifies the key topic “Uplink Streaming”. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding additional gap analysis: contribution reporting | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Key topic not addressed | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
| ***56*** | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**===== CHANGE 1 =====**

### 5.5.5 Potential open issues

#### 5.5.5.1 Potential open issues in 5G Media Streaming stage 3

The following open issues seem to exist in TS 26.512 [16]:

1. Lack of a standard template (or clear reference on how to use an existing standard template) for inclusion in a Content Publishing Configuration, i.e. to be able to provide content preparation instructions in a defined, interoperable format that the 5GMS AF supports through M1.

2. Lack of definition of protocols for media egest from the 5GMSu AS to the 5GMSu Application Provider via M2u.

NOTE: The Content Protocols Discovery APIs allows the 5GMSu Application Provider to discover the supported egest protocols by 5GMSu AS. However, clause 8.1 of TS 26.512 does not currently list any specific egest protocols alongside those for downlink ingest streaming.

3. Lack of content publishing API, i.e. a similar functionality to Content Hosting Configuration in downlink streaming, for provisioning the uplink streaming through M1u.

4. Lack of Service Access Information for uplink streaming.

For downlink streaming, TS 26.512 [16] defines a StreamingAccess object as part of the Service‌Access‌Infromation resource. The StreamingAccess object includes a URL string that points to a media download resource or a manifest that describes a media presentation. In the case of uplink streaming, TS 26.512 does not yet specify which uplink streaming protocols are supported in M5u. Furthermore, it is not clear how the Media Session Handler would retrieve the entry point for uplink streaming to the 5GMSu AS.

5. Lack of Contribution Reporting for uplink streaming.

For downlink streaming, TS 26.501 [15] and TS 25.512 [16] defines a Consumption Reporting for the 5GMSd clients by which all clients or a group of clients can be provisioned to report the media consumptions. The report may include information such as media player entry point (e.g. the DASH MPD’s URL), the consumed media (e.g. the AdaptationSet@id in DASH MPD that is being played), start and duration of media playback and the UE’s location. The consumption reporting can be configured for reports to be sent to one or more specific 5GMSd AFs in specific reporting intervals for some sample percentage of UE’s and possibly requesting including the location of the UE’s.

For uplink streaming, TS 26.501 [15] and TS 25.512 [16] do not define a Contribution Reporting which may include information such as the media entry address (and media entry type), start and duration of media uplink streaming and the UE’s location. Similar to the Consumption Reporting, the contribution reporting can be configured for reports to be sent to one or more 5GMSus, to be reported in a specific interval, for some sample percentage of UE’s and possibly requesting including the locations of UE’s.

**===== CHANGE 2 =====**

### 5.5.6 Candidate Solutions

#### 5.5.6.4 Uplink contribution reporting

The uplink contribution reporting procedure is shown in the following figure.



Figure 5.6-1: Consumption reporting

Steps:

The first phase is the initialisation phase:

1: The 5GMSu-Aware Application is started.

2: A media is selected to be captured.

3: The 5GMSu-Aware Application triggers the Media Session Handler to start content uplink streaming. The Media Entry is provided.

4: The 5GMSu AF initializes the parameters for the contribution reporting configuration.

5: The Media Session Handler triggers contribution reporting.

6: The Media Session Handler starts the Media Streamer with the Media Entry.

If the user preferences may be changed (steps 7-8):

7: The 5GMSu-Aware Application selects/changes the user preferences.

8: The Media Streamer transmits consumption reporting user preferences to the Media Session Handler.

If the contribution reporting parameters is updated (step 9):

9: The 5GMSu AF updates the contribution reporting parameters.

When media is uplink streamed:

10: The Media Streamer regularly accesses to the media content.

11: In case of changes to the captured media properties, the Media Player transmits the changes to the Media Session Handler.

12: The Media Session Handler regularly sends report(s) to the 5GMSu AF.

The last phase is to stop the media:

13: The 5GMSu-Aware Application triggers the Media Session Handler to stop content playback.

14: The Media Session Handler stops contribution reporting.

15: The Media Session Handler may send final contribution report(s) to the 5GMSu AF.

17: The Media Session Handler stops the Media Streamer.

Table 4.2.3‑2 of TS 26.501 [15] describes the parameters used in step 4 of the above procedure:

The following Table describes the additional parameters used in steps.

Table 4.2.3-2: Parameters for contribution reporting configuration

|  |  |
| --- | --- |
| Parameters | Description |
| Reporting interval | Identifies the interval between contribution reports being sent by the Media Session Handler. |
| Server address | A list of 5GMSu AF addresses where the contribution reports are sent by the Media Session Handler. |
| Sample percentage | The proportion of clients that shall report media contribution.  If not specified, all clients shall send reports. |
| Location reporting | Identify whether the Media Session Handler provides location data to the 5GMSu AF (in case of MNO or trusted third parties) |

The following table shows the additional parameters thatmay be included in contribution reporting in steps 13 or 16:

Table 5.6.2-2: Additional contribution reporting parameters

|  |  |
| --- | --- |
| Parameters | Description |
| Media Entry Type | A fully-qualified term identifier from the controlled vocabulary urn:3gpp:5gms:content-protocol, as specified in clause 8, indicating the type of media at Media Entry. |
| Media Entry | Depending on the type of media entry indicated in Media Entry Type, either a URL endpoint on the 5GMSu AS to which media can be streamed directly at M4u, or else the URL of a document that can be downloaded from the 5GMSu AS which contains the parameters for uplink media streaming at M4u. |
| Consumption reporting client ID | Identify the identifier of the UE that contributes the media. |
| Location type | Identify the UE location type.  This parameter is only used when the location reporting is enabled for the UE or for the Downlink Streaming session with a condition that the UE allows to share its location within operator’s trust domain.  The location type can be CGI, ECGI or NCGI as defined in TS 23.003 [9]. |
| Location | Identify the UE location.  This parameter is only used when location reporting is enabled for the UE or for the Downlink Streaming session, and when the UE allows its location to be shared within the Network Operator’s trust domain. |
| Media contributed | Identifies the contributed media.  The Media Entry Type defines the scheme and possible values for this identifier. |
| Start time | The time when contributed media started. |
| Duration | The duration of contributed media relative to the start time. |

The yellow highlighted text in the above tables shows the differences between this table and the consumption parameters tables of TS26.501.

Similar to consumption reporting provisioning API, the contribution reporting provisioning API is a RESTful API and can be accessible through the following URL base path:

{apiRoot}/3gpp-m1/v1/provisioning-sessions/{provisioningSessionId}/

Table 7.7.2‑1 below specifies the operations and the corresponding HTTP methods that are supported by this API. In each case, the Provisioning Session identifier shall be substituted into {provisioningSessionId} in the above URL template and the sub-resource path specified in the second column shall be appended to the URL base path.

Table 7.7.2‑1: Operations supported by the Contribution Reporting Provisioning API

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Sub‑resource path | Allowed HTTP method(s) | Description |
| Activate Contribution Reporting procedure with a Contribution Reporting Configuration | contribution ‑reporting‑configuration | POST | Activate the contribution reporting procedure and to set the Contribution Reporting Configuration. |
| Fetch Contribution Reporting Configuration | GET | Retrieve an existing Contribution Reporting Configuration. |
| Update Contribution Reporting Configuration | PUT,  PATCH | Modify an existing Contribution Reporting Configuration. |
| Delete Contribution Reporting Configuration | DELETE | Deactivate the Contribution reporting procedure for that particular session. |

The data model for contribution reporting configuration is same as the consumption reporting provisioning resource in clause 7.7.3.1 of TS 26.512 [16].