**3GPP SA4#114-eS4-210767**

**19-28 May 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.804** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **0. 2.1** |  |
|  | | | | | | | | |
| *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] Updated text for uplink streaming: additional gap analysis | | | | | | | | | |
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| ***Source to WG:*** | Tencent | | | | | | | | | |
| ***Source to TSG:*** | SA4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_5GMS-EXT | | | | |  | ***Date:*** | | | 2021-05-10 |
|  |  | | | |  | |  | | |  |
| ***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 | | | | | | | | |
|  | |  | | | | | | | | |
| ***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 TS 26.512

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

1. Lack of a template (or clear reference on how to use an existing template) for Content Publishing Configuration,

2. Lack of definition of egest protocols (or clear reference on how to use the existing ingest protocols).

3. Lack of content publishing API (or clear reference on how to use the existing ingest API).

4. Lack of streaming access for uplink streaming.

For downlink streaming, TS26.512 defines a StreamingAccess object as part of ServiceAccessInfromation resource. The StreamingAccess object includes a URL string that points to a URL for downloading a media or a manifest that describe the media presentation. In the case of uplink streaming, it is not clear what uplink ingest protocols are supported by TS26.512. Furthermore, it is not clear how the MSH would retrieve the entry point for streaming (e.g. a URL for posting the media segments).

### 5.5.5.2 Potential open issues w.r.t TS26.238

Section 5.5.3 describes the TS26.238 features that are missing from TS26.512 regarding uplink streaming. This section provides the potential missing features.

1. The FLUS Control Source may discover multiple FLUS sinks => The UE may discover multiple 5GMSu AS’s.
2. The FLUS Control Source may discover the capabilities of each discovered FLUS Sink, including its network-based media processing capabilities => The UE may discover the capabilities of each discovered 5GMSu As.

FLUS discovery server provides the means of discovering multiple FLUS sinks and their capabilities by a FLUS Control Source. In 5GMS architecture, various 5GMSd AS might have different capabilities. However, TS26.512 does not provide any means of discovery of them.

1. The FLUS Control Source may also request a FLUS Sink to perform media processing => The UE may also request the 5GMSu AS to perform media processing

The request for media processing is performed by a FLUS Control Source by including a media processing document in its request to FLUS Control Sink. Since in this study, the content preparation is addressed for uplink collaboration streaming (5.2.4.2), the content preparation can also be used for media processing. If the content preparation template allows a generic media processing description such as NBMP, then the content preparation can be used to provide an equivalent functionality of the FLUS specification.

Note that the content preparation template is provisioned through the M1 interface. However, in FLUS, the media processing is provisioned using the equivalent of the M5u interface.

1. The UE capabilities (formats, connectivity protocol, remote control) may be discovered by a FLUS Control Sink => The UE capabilities may be discovered by 5GMSu AF.

In 5GMS architecture, the session is generally provisioned by the Application Service Provider. The Application Service Provider through the user’s profile may have the UE capabilities. Furthermore, the UE can provide its capabilities through M8u. Therefore, the need for the 5GMSu AF to discover the UE’s capabilities through M5u seems unnecessary.

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

### **(**5.5.6 Candidate Solutions)

### 5.5.6.3 Uplink entry point

The StreamingAccess object can be extended to support both downlink and uplink streaming entry points. This object may include the following information:

* One or more URN defining the protocol (e.g MPD, HLS, DASH-IF ingest profile 1 or profile 2)
* the entry URL for the above service

Additionally, the StreamingAccess object may include alternative protocols for the same session. For instance, a StreamAccess object may include MPD as well as HLS m3u8 for the same downlink streaming, or two entry points for uplink streaming using DASH-IF ingest profile 1 and profile 2. An example of such extension is shown in the following tables.

Table 11.2.3.1‑1: Definition of ServiceAccessInformation resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Type | Cardinality | Usage | Description |
| provisioningSessionId | String | 1..1 | RO | Unique identification of the M1d Provisioning Session. |
| StreamingAccess | Object array | 0..N | RO |  |
| mediaServiceName | URN String | 0..1 | RO | Unique identification of the media service that indicates the availability of service at mediaEntry. |
| mediaEntry | Object area | 0..1 | RO | A document or a pointer to a document that defines a media presentation e.g. MPD for DASH content or URL to a video clip file. |

### 5.5.6.4 Discovery of various 5GMSu AS’s and their capabilities

In FS\_EMSA, a 5GMS-Edge enabled architecture is provided for discovering the EAS enabled-5GMSd AS’s and their capabilities using EAS discovery filters by UE as well as the Application Service Provider. One possible way to discover 5GMSu AS’s capabilities and/or instantiate a new 5GMSu AS with the desired capabilities is to use the same process described in TS26.803 for 5GMSu AS’s. This approach requires that MSH, 5GMSu AF, and 5GMSu AS support EEC, EES, and EAS capabilities described in TS26.558.

### 5.5.6.5 UE request to the 5GMSu AS for media processing

In 5GMS architecture, the content preparation template is provisioned through the M1 interface. To provide UE with the capability of provisioning a content preparation template, one of the following paths are possible:

1. UE provides the desired content preparation template through M8u to the Application Service Provider and then, the Application Service Provider requests provisioning of the content preparation template through M1u, or
2. MSH requests 5GMSu AF the set up the content preparation template through M5u. In this case, M5u needs to be extended to support content preparation template requests by MSH.

Option b seems not to provide significant benefits since the Application Service Provider initially provisions the session including provisioning of the content preparation template based on the UE capabilities. If UE happens to have a subset of capabilities available then the 5GMS Application Aware may inform the Application Service Provider through M8u and then Application Service Provider updates the content preparation template accordingly.