3GPP TSG|WG-SA4 Meeting #133-en S4-251429

Online, 18 – 25 July 2025 (revision of S4-251196)

**Source: Qualcomm Incorporated**

**Title: [Draft] New SID on** **Advanced Media Delivery Phase 2**

**Document for: Approval**

**Agenda Item: 17.1**

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: Study on Advanced Media Delivery Phase 2

Acronym: FS\_AMD\_Ph2

Unique identifier:

Potential target Release: Rel-20

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | 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 …

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

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

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_AMD | SA4 | 1030006 | Study on Advanced Media Delivery |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 840001 | 5GMS3 5G Media Streaming stage 3 (5GMS3) | Addressed stage-3 in 5G Media Streaming by updating TS 26.247 as well as new specs in TS 26.511, TS 26.512, and TS 26.117. |
| 900029 | Study on 5G media streaming extensions (FS\_5GMS\_EXT) | Studied the current limitation of 5G Media Streaming architecture and documented possible extensions in TR 26.804. |
| 870014 | Feasibility Study on Multicast Architecture Enhancements for 5G Media Streaming (FS\_5GMS\_Multicast) | Identified and evaluated potential enhancements to the 5G Media Streaming Architecture to provide multicast-broadcast media streaming services in TR 26.802. |
| 960047 | 5G Media Streaming Architecture Phase 2 (5GMSA\_Ph2) | Addressed stage-2 of extensions to 5G Media Streaming Architecture |
| 1000018 | 5G Media Streaming Protocols Phase 2 (5GMS\_Pro\_Ph2) | Addressed stage-3 in 5G Media Streaming by updating TS 26.512 and creating TS 26.510 |
| 940008 | 5G Multicast-Broadcast Protocols | Initial work item to provide protocols for MBS |
| 960048 | Study on Media Streaming aspects of Network Slicing Phase 2 (FS\_MS\_NS\_Ph2) | Study to conclude on Media Streaming aspects of Network Slicing |
| 1060069 | Stage 2 for Advanced Media Delivery  (AMD-ARCH-MED) | Rel-19 phase 2 addressing the outcome from FS\_AMD |
| 1070057 | Stage 3 for Advanced Media Delivery (AMD\_PRO-MED) | Rel-19 phase 3 addressing the outcome from FS\_AMD |

**Dependency on non-3GPP (draft) specification:**

# 3 Justification

TS 26.501 defines the 5GMS architecture, call flows, and procedures. TS 26.512 defines the 5G Media Streaming protocols. In the 5GMS\_Ph2 work item, extensions to 5G Media Streaming architecture are provided. In the 5GMS\_Pro\_Ph2, extensions to 5G Media Streaming Protocols were provided and generalized the topic of media delivery by providing TS 26.510. In addition, for MBS, the User Service architecture was developed in TS 26.502 and MBS Protocols are defined in TS 26.517. It is also worth noting that 5G-MAG has defined reference implementations of both 5G Media Streaming, MBS and 5G Broadcast. The implementation provides feedback for potential bugfixes.

Mobile media delivery is as important as never before with everlasting growth of traffic and new functionalities provided by third-party service providers. Several potential improvement areas were identified to progress normative work.

In TR 26.804 clause 7.3.4, beyond the work that is now conducted in AMD\_PRO-MED, it is recommended to continue the study of additional extensions to 5G Media Streaming.

In TR 26.802 clause 8.4.4, beyond the work that is now conducted in AMD\_PRO-MED, it is recommended to continue the study of additional extensions to MBS User Services.

New development in the industry arise that are warranted to be addressed.

Based on this, several key work topics are collected

1. WT#1: Common Client Metadata phase 2: For Common Media Client Data (CMCD) as introduced in clause 5.16 and based on the conclusions in clause 6.16 of TR 26.804, further study is recommended. This in particular includes the support of CMCDv2.
2. WT#2: Uplink Streaming phase 2: 1. For Uplink Streaming as introduced in clause 5.5 and based on the conclusions in clause 6.5 of TR 26.804, for the application of uplink 5G Media Streaming for media production and contribution be studied in more detail based on the information from 5G-MAG in clause 5.5.1.5.
3. WT3: Network-assisted media streaming, this includes the following topics:
   1. For Common server-and network-assisted streaming as introduced in clause 5.17 and based on the conclusions in clause 6.17, to continue studying Common Media Server Data (CMSD) and its potential benefits in the context of 5G Media Streaming
   2. The support of quality metrics in media streaming, as for example provided in MPEG 6th edition with ARI tracks
   3. For Secure Communication of Network Properties (SCONE-PRO) and 5G Media Streaming as introduced in clause 5.25 and based on the conclusions in clause 6.25 of TR 26.804 to study the potential impact of Secure Communication of Network Properties (SCONE-PRO) as defined in IETF on 5G Media Streaming.
4. WT#4: Multi-service location phase 2: Delivery from multi-service locations has been addressed in Rel-19, but only a subset of open issues has been completed. Additional aspects on the full integration of CMMF and Content Steering in 5G Media Streaming, as well as addressing additional developments for these technologies, need to be considered.
5. WT#5: UE-power optimized streaming: For Optimising modem usage for media streaming in clause 5.20 and based on the conclusions in clause 6.20 in TR 26.804, it is recommended to identify the current limitations and assess the potential of candidate solutions of device-level media resource management with network-assisted scheduling for media delivery.
6. WT#6: Combined Unicast-Multicast-Broadcast: The combination of unicast with broadcast/multicast as introduced in clause 5.12 of TR 26.804 is expected to be extended including progressing the documented candidate solutions and further study the combination with deployed media players. It also includes the definition of a RESTful API between the MBSF and the MBS AS (reference point MBS-9) to configure unicast repair.
7. WT#7: Unified Multicast Service Delivery: In TR 26.802, clause 8.4.4, the alignment of alignment between MBS and MBMS user service protocols is indicated as a further study subject.
8. WT#8: Common Access Token: Common Access Token (CAT) is a simple, extensible, policy-bearing bearer token for content access. The primary use case for this token is to allow content providers to enforce access policies efficiently, flexibly, and interoperably. This token is usable as an OAUTH bearer token, a URI signing token, or more generally as a mechanism for conveying delivery policy. A standard developed by Web Application Video Ecosystem (CTA-WAVE) and specified in document CTA-5007. The integration of common access token into 5G Media Streaming is interesting to address different use cases.
9. WT#9: Access-independent Media Streaming. 5G Media Streaming features are to some extent independent of the access network, only a subset of the features relies on 5G system functionalities. However, 5G Media Streaming is applicable beyond 5G access networks and may benefit service providers and network operators. A study of opportunities and technical aspects is warranted, or may for example be done externally by implementors of 5GMS features, such as 5G-MAG.
10. WT#10: Latency Measurements and Control: Media Service quality is often determined by the latency and controlling latency is an important topic. The support of latency measurements in 5G Media streaming provides opportunities for service and network providers to judge the quality of the service.
11. WT#11: Media Streaming aspects of Network Slicing phase 3: Clause 7 of TR 26.941 includes topics for further study on enhancing 5G Media Streaming procedures and data model definitions in TS 26510, based on specification progress related to Network Slice replacement. TS 23.501 specifies a new procedure for AF requested modification of set of Network Slice(s) for a UE. The impact of this new slice replacement procedure on 5G Media Streaming is to be studied.
12. WT#12: Multi-access media delivery phase 2: Clause 5.18.7 of TR 26804 lists topics for further study on multi-access media delivery, including the impact on splitting M4 media flows when transported as GBR QoS flows; implications of ATSSS architecture on UE multi-path management, dynamic policy, network assistance, and network slicing procedures; and alignment with the study on media delivery from multiple service locations/endpoints. Additionally, the impact of multi-access media delivery for uplink streaming related use cases - based on discussion with 5G-MAG- is to be studied.

Editor’s Note: Additional topics may be added prior to agreement, also based on progress in stage-3 work in Rel-19

Additional study areas may be added with lower priority if time permits.

# 4 Objective

The objective of this study is in the context of the above potential improvements and extensions, referred to as key topics. Specifically, the following objectives are identified:

1. Document the following additional Key Issues in more detail, in particular how they relate to the 3GPP Media Delivery architecture and/or the MBS User Service architecture:

* 1. WT#1: Common Client Metadata phase 2
  2. WT#2: Uplink Streaming phase 2.
  3. WT#3: Network-assisted media streaming
  4. WT#4: Multi-service location phase 2.
  5. WT#5: UE-power optimized streaming.
  6. WT#6: Combined Unicast-Multicast-Broadcast.
  7. WT#7: Unified Multicast Service Delivery.
  8. WT#8: Common Access Token.
  9. WT#9: Access-independent Media Streaming.
  10. WT#10: Latency Measurements and Control.
  11. WT#11: Network Slicing phase 3
  12. WT#12: Multi-access media delivery phase 2

2. Study collaboration scenarios between the Application Service Provider and the 5G System and for each of the key topics.

3. Based on existing architectures, develop one or more deployment architectures that address the key topics and the collaboration models.

4. Map the key topics to basic functions and develop high-level call flows.

5. Identify the issues that need to be solved.

6. Provide candidate solutions including call flows, protocols and APIs for each of the identified issues.

7. Coordinate work with other 3GPP groups e.g. SA2, SA3, SA5, SA6 and others as needed.

8. Coordinate work with external organizations such as SVTA, CTA WAVE, ISO/IEC JTC29 WG3 (MPEG Systems), 5G-MAG, DVB or IETF, as needed.

9. Identify gaps and recommend potential normative work for stage-2 and stage-3, including which existing specifications would be impacted and/or if any new specifications would preferably be developed.

# 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 |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| TR 26.802 | Advanced Media Delivery for MBS phase 2, stage 2 | SA#111  (Mar 26) | Individual CRs for each of the key topics may be provided. |
| TR 26.804 | Advanced Media Delivery for 5GMS phase 2, stage 2 | SA#111  (Mar 26) | Individual CRs for each of the key topics may be provided. |
| TR 26.802 | Advanced Media Delivery for MBS phase 2, stage 3 | SA#112  (Jun 26) | Individual CRs for each of the key topics may be provided. |
| TR 26.804 | Advanced Media Delivery for 5GMS phase 2, stage 3 | SA#112  (Jun 26) | Individual CRs for each of the key topics may be provided. |

# 6 Work item Rapporteur(s)

Thomas Stockhammer, Qualcomm Incorporated, [tsto@qti.qualcomm.com](mailto:tsto@qti.qualcomm.com).

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

SA2: Potential architectural questions.

SA3: Security, privacy, and DRM aspects.

SA6: Service-framework related questions

CT3/CT4 for network reference points.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Qualcomm Incorporated |
| Comcast |
| China Mobile |
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