**3GPP TSG-SA WG4 Meeting #131-bis-eS4-250458r01**

**Online, 11 – 17 April 2025** revision of S4aI250070

**Agenda item:** 8.5

**Source:** Qualcomm Germany

**Title:** [AMD\_PRO-MED] Proposed specification structures for user plane and how to deal with TS 26.247

**Document for** Discussion

# Introduction

During the study, a proposed CR 26804-0014 (rev4 latest version is in S4-242265) was not progressed due to the lack of support, dealing with the specification structure. As we start stage-3 work now, the discussion from back then is revisited and it is also discussed if and what to do with TS 26.247.

**Comments during SA4#131-bis-e**

[Richard Bradbury on Fri, 11 Apr 2025 10:32:27 +0100](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;3a38dda1.2504b)

**Section 2.3 (about TS 26.512)**

I think the conclusion is to just update TS 26.512 in Rel-19, and section 2.3 eventually wends its way towards saying that. But the structure of the bulleted list above seems more predicated on the original idea of creating a new TS structured around particular features. This is therefore the wrong plan for what we are going to do in Rel-19, and should either be redrafted or just removed.

Small additional comment on list item 2 in section 2.3: stage-3 is supposed to stand alone, so isn't supposed to back-reference stage-2.

*The whole idea is to identify what content is included. It is not about the specification.*

**Section 3 (about the role of TS 26.247)**

The idea of specifying a 5GMS profile of DASH seems a reasonable one, and structuring this as an annex sounds fine too.

Would this new annex go into TS 26.247 or TS 26.512 or maybe even TS 26.511? (The description in section 3 and the proposal in section 4 are ambiguous on this point.)

[Rufael Mekuria on Mon, 14 Apr 2025 09:50:17 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;f4164d4.2504b)

I am not sure what needs to be addressed. We are not against using TS 26.510 for other delivery than segmented, but 512 is segmented.

[Gabin, Frederic on Mon, 14 Apr 2025 11:51:17 +0000](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;bf0228f6.2504b)

# Media Delivery specification

## 2.1 Description

The primary focus of the update to TS 26.512 [16] is addressing the delivery of segmented media objects in the media plane, i.e. at reference points M2, M3, M4, M7, M11 and M12 of the Media Delivery architecture as shown in Figure 5.15.1-1.



Figure 5.15.1-1 Media Delivery Architecture as defined in TS 26.501 [15] with emphasis for protocol specification (M2, M3, M4, M7, M11 and M12) to be developed.

The specification is expected to address interoperability considerations around content delivery protocol features and general technologies for segmented media streaming and the IP/PDU 5G System Layer. It was discussed whether a new specification is needed or updates to TS 26.512 [16] are sufficient.

M12 is not in scope for this Technical Report and the expected new specification, the focus is on Media AS from/to UE.

Key aspects of such a specification should include common protocols on M2 and M4, as well as common APIs and reference points on M3, M7 and M11. In addition, consistent extensions to such protocols need to be reviewed, for example custom HTTP headers, query parameters, etc.

## Considered content in updated specification

The following outline is considered for a new specification addressing the media plane.

1 Overview and Assumptions

1.1 General Assumptions and Protocol Stack for M2 and M4: IPv4 or IPv6 and HTTP according to RFC 9110

- HTTP/1.1, TLS (optional), TCP, IP – parallel requests, RFC 9112

- HTTP/2, TLS, TCP, IP – one TCP connection, RFC 9113

- HTTP/3, QUIC (+TLS), UDP, IP – one QUIC connection, RFC 9114

- HTTP Methods

- HTTP Headers

- Non-HTTP specific cases

1.2 General Assumptions for M7 and M11

- Existence of a reference API in Media Access function

1.3 General Assumptions for M3

- Existence of a reference API in Media AS

1.4 Features

- features ?

- Configurable UE and Media AS functionalities.

- Features may be mandatory or optional, but are typically optional

- Features are fully specified and normative

- How can the features be configured?

- Requirements of each feature?

- Overview of features and mapping to reference points

2 Media Delivery Features

- For each feature

- Overview

- Procedures (if not in stage-2, possibly referenced)

- Requirements for each function and reference point

- Configuration on AS through M3, Impact on M2 and M4, client APIs M7 and M11.

- Implementation Guidelines

## Recommendations

Based on the discussion in this clause, it is recommended to

- that we ensure that TS 26.512 addresses extensions to media segment-based delivery taking into account the functionalities discussed in clause 2.2.

# Role of TS 26.247

Some feature in 5G Media Streaming need support in DASH, for example by

1. Signaling information in the MPD
2. Signaling information in the Segments
3. Using other means to support the feature

Examples include support for CMCD, Content Steering, DRM, and so on. IN order to have some consistency for this, it is recommended to provide the content authoring requirements and client processing requirements for this feature.

We also expect that when speaking about DASH, then this is not restricted to TS 26.247, but generally it is ISO/IEC 23009-1, and possibly some DASH-IF profiles.

In order to support a feature on M2, M4, M3 and M7 together with DASH, this should be documented in 3GPP specs.

There are three options:

1. Add this documentation to TS 26.247
2. Add this documentation to TS 26.512
3. Create a new specification

It is also understood that someone may want to provide the same information for HLS.

It is also understood that some of the features may be applicable outside 5G Media Streaming. However, we consider this of lower relevancy for now.

Based on this discussion, it is proposed to:

* Not update TS 26.247 for enabling DASH-related features in 5G Media Streaming
* Create a dedicated normative Annex for “5GMS Features with DASH” in TS 26.512
* Document for each feature how to implement it end to end defining M2, M3, M4 and M7

A template for such a documentation is in DASH-IF features, e.g.

* <https://dashif.org/DASH-IF-IOP/live2vod/>
* https://dash-industry-forum.github.io/docs/CR-Low-Latency-Live-r8.pdf

The features in DASH-IF may be referenced.

As similar Annex may be created for HLS.

# Proposal

It is proposed to

* Implement the proposal in clause 2 as a starting point
  + Update that we ensure that TS 26.512 for addressing addresses extensions to media segment-based delivery taking into account the functionalities discussed in clause 2.2.
  + Do not update 26.247 at this time
  + Start with features defined in release 19 for normative work
* Implement the proposal in clause 3:
  + New Annex for DASH in TS 26.512
  + Feature-based documentation, starting with features from Release 19
  + Align with DASH-IF to speedup work

Timeline is TBD but should be within release 19

The current list of features are the ones included in Rel-19:

- Common Media Client Data

- Media delivery from multiple service endpoints/locations

- Multi-Access Media Delivery

- Distributing encrypted and high-value content

- In-session Unicast Repair for MBS Object Distribution