**3GPP TSG SA WG4#127-bis-e S4-240599**

**online, Teams, 8 - 12 April 2024**

**Agenda item:** 8.9

**Source:** Qualcomm Incorporated

**Title:** [FS\_AMD] Proposed Way forward and CR Template

**Document for** Agreement

# Introduction

During SA4#127 the Feasibility Study on “Advanced Media Delivery” was agreed in S4-240518 and afterwards approved in by SA plenary #103 in SP-240514.

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

1. Document the above key topics

a) Common Client Metadata

b) Common Server-and Network-Assisted Streaming

c) Multi-Access and Multi-CDN Delivery

d) Modem-Usage Optimized Media Streaming

e) DRM and Conditional Access

f) In-session Unicast Repair for MBS Object Delivery

g) MBS User Service and Delivery Protocols for eMBMS

h) Selected MBMS Functionalities not supported in MBS

i) DASH/HLS Interoperability

j) Further harmonization of RTC and Streaming for Advanced Medial Delivery

k) Issues identified by Market Representation Partners

l) Improved QOS support

m) Impacts and opportunities of QUIC for segmented content delivery

in more detail, in particular how they relate to the 3GPP Media Delivery Architecture and/or the MBS User Service Architecture.

2. Study collaboration scenarios between the 5G System and Application Provider 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 DASH-IF, 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.

This document addresses the a way forward to complete the work.

It is expected that the lead for each topic develops a CR for either TR 26.802 or TR 26.804.

Leads are listed in clause 2.

# Leads and Supporters for Each Work Topic

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Title** | **Lead** | **Explicit Supporters** |
| 1 | Common Client Metadata | Thomas Stockhammer, Qualcomm | Qualcomm, Dolby, CMCC, AT&T, Telecom Italia, Comcast, Orange, BBC, EBU, Tencent, ATEME |
| 2 | Common Server-and Network-Assisted Streaming. | Iraj Sodagar,  Tencent | Qualcomm, Dolby, AT&T, Comcast, Tencent, ATEME, Sony Europe B.V. |
| 3 | Multi-CDN and Multi-Access Media Delivery. |  | Qualcomm, Dolby, AT&T, Orange, Samsung Electronics Co. Ltd., Huawei Technologies Co Ltd., ATEME |
| 4 | Modem Usage Optimized Media Streaming. | Iraj Sodagar,  Tencent | Qualcomm, Dolby, Comcast, BBC, EBU, Tencent |
| 5 | DRM and Conditional Access. |  | Qualcomm, Telecom Italia, Comcast, Rohde&Schwarz, Huawei Technologies Co Ltd. |
| 6 | In-session Unicast Repair for MBS Object Distribution. | Thomas Stockhammer, Qualcomm | Qualcomm, Telecom Italia, Comcast, Orange, BBC, SWR, EBU, Rohde&Schwarz, Huawei Technologies Co Ltd., ATEME |
| 7 | MBS User Service and Delivery Protocols for eMBMS. | Thomas Stockhammer, Qualcomm | Qualcomm, Comcast, SWR, EBU, Rohde&Schwarz, ATEME |
| 8 | Selected MBMS Functionalities not supported in MBS. | Thomas Stockhammer, Qualcomm | Qualcomm, Comcast, SWR, EBU, Rohde&Schwarz, Huawei Technologies Co Ltd., ATEME |
| 9 | DASH/HLS Interoperability. | Iraj Sodagar,  Tencent | Qualcomm, Telecom Italia, Comcast, Orange, BBC, EBU, Rohde&Schwarz, Huawei Technologies Co Ltd., Tencent |
| 10 | Further harmonization of RTC and Streaming for Advanced Media Delivery. |  | Qualcomm, CMCC, Comcast, Samsung Electronics Co. Ltd., NTT, InterDigital Communications, Lenovo |
| 11 | Issues identified by Market Representation Partners. |  | Qualcomm, Comcast, BBC, Dolby, EBU |
| 12 | Improved QoS support |  | Ericsson LM, Huawei Technologies Co Ltd., Qualcomm, BBC, InterDigital Communications, Lenovo |
| 13 | Impacts and opportunities of QUIC for segmented content delivery | Emmanouil Potetsianakis, Xiaomi, emmanouil@xiaomi.com | Xiaomi, Qualcomm |

# CR Template

### X.1 Description

### X.2 Collaboration Scenario

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

### X.3 Architecture Mapping

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

### X.4 High-level Call Flow

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

### X.5 Gap Analysis and Requirements

5. Identify the issues that need to be solved.

### X.6 Candidate Solutions

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

### X.7 Summary and Conclusions

# Proposal

It is proposed that

* Leads are identified
* Leads develop CRs for TR 26.802 and TR 26.804
* The template in clause 3 is used as a template in absence of better approached