**3GPP TSG SA WG-4 Meeting #131 S4-250178**

**Geneva, CH, 17-21 February 2026**

**Source: Xiaomi**

**Title: Feasibility Study on QUIC-based protocols for video applications and streaming services**

**Document for:** **Discussion**

**Agenda Item: 17.2**

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: Feasibility Study on QUIC-based protocols for video applications and streaming services

## Acronym: FS\_QVideo-MED

## Unique identifier: xxxx

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | X |  | X |  |
| **No** | X |  | X |  |  |
| **Don't know** |  |  |  |  |  |

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a …

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | *Work Task* |
| X | Study Item |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work Items  |
| Unique ID | Title |
|  |  |

### 2.3 Other related Work Items and dependencies

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| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 1030006 | Study on Advanced Media Delivery (FS\_AMD) | In the topic “QUIC-based segmented streaming”, FS\_AMD collected existing QUIC-based protocols and their workflows for DASH delivery. |

## 3 Justification

Media streaming services are a predominant source of network traffic on 5G networks, and the trend is not expected to decrease in the 6G era. According to recent market data, video streaming accounts for over 80% of all internet traffic, with popular platforms like Netflix, YouTube, and TikTok driving significant demand. As the number of 5G subscribers continues to grow, the need for efficient and high-quality media delivery becomes increasingly critical. The current state of the art for delivery of segmented media in 5G Media Services (5GMS) is DASH, possibly over HTTP/3. Originally, DASH deployments leveraged HTTP/1.1 and more recently some services used HTTP/2; both protocols are built on top of TCP. In 2021, HTTP/2 accounted for nearly 63% of the traffic handled by one CDN provider (see Clause 5.4.1.1 in TR 26.804). However, HTTP/2 has not fully replaced HTTP/1.1 yet due to its shortcomings (e.g. head of line blocking) and the overhead it introduces in certain scenarios. In addition, HTTP/3 is being more and more deployed for generic traffic (nearly 30% of websites supported HTTP/3 in 2024, see Table 5.4.1.1‑2 in TR 26.804), and this is built on top of QUIC, which is a UDP-based protocol.

In FS\_AMD (Feasibility Study on Advanced Media), QUIC for segmented media delivery was studied. QUIC is designed to reduce connection establishment time, improve reliability, and enhance performance, especially in mobile and high-latency environments. This makes it particularly suitable for media streaming, where low latency and high throughput are crucial. FS\_AMD considered DASH over HTTP/3 as well as other QUIC-based delivery mechanisms. The findings of that exploration are in TR 26.804. and clause 5.24.7 includes a high-level overview of QUIC-based media delivery technologies, such as Media over QUIC (MoQ), WebSockets for Media Delivery and others. The identification of these technologies was an important first step to better understand how video streaming can evolve with QUIC.

As the industry begins to explore 6G, a key question remains: can QUIC-based protocols, including DASH over HTTP/3, provide higher Quality of Experience (QoE) for different streaming services, such as ultra-low-latency live streaming, on-demand video, and short-form video, compared to DASH over HTTP/1.1 or HTTP/2?

To achieve this evaluation, identifying the relevant media services and performance metrics is the foundation of this study. Examples of such key metrics are delay from the live edge, measured throughput and rebuffering events. To this end, a test framework will be developed, to compare relevant technologies against DASH over HTTP/1.1 which will be used as anchor.

While SA4 is focusing its work on media delivery aspects, the impact of QUIC is already being studied in other 3GPP groups, and therefore collaboration is encouraged among WGs (e.g. with SA2).

## 4 Objective

Based on these observations, the objectives of the study item are primarily to evaluate whether current and possibly future media services could benefit from a QUIC-based protocol as opposed to current TCP-based protocol such as HTTP 1.1 and HTTP/2. To do so, the study item will define a list of relevant services as well as a test framework to evaluate which services and to what extent one or more QUIC-based protocols could be beneficial.

The objectives are:

1. Define the list of video services and applications to be evaluated in this study, e.g. ultra low latency video streaming, live streaming, on-demand and short-form video platforms.
2. Determine the set of metrics to be collected, possibly selected from Common Media Client Data (CMCD), that are reflecting QoE, e.g. playback time from live edge, start-up time, etc.
3. Design a test framework for collecting the selected metrics for comparing the anchor (DASH over HTTP 1.1) with other QUIC-based protocols based on those identified in TR 26.804, i.e. DASH over HTTP/3, Media-over-QUIC, MPEG-DASH over WebTransport, MPEG-DASH part 6 over QUIC.
4. Based on the collected QoE metrics, identify which streaming services and to what extent those streaming services can benefit from a QUIC-based protocol compared to DASH over HTTP 1.1.

*Note: Each service and application may have different requirements on those metrics, hence this analysis will be done per service and application.*

1. Study how QoE metric reporting can be achieved using a QUIC-based protocol compared to DASH over HTTP 1.1, e.g. using QLog metrics.
2. Communicate the progress of this study to relevant IETF Working Groups (e.g. the Media Over QUIC Working Group) and possible other SDOs and solicitate feedback.

## 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# | Remarks |
| TR 26.xxx |  | Evaluation of QUIC-based protocols for Video Applications and Streaming Services | *SA#112 (Jun ´26)* | *SA#113**(Sep ´26)* |  |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |

## 6 Work item Rapporteur(s)

*xyz, xyz@xiaomi.com*

## 7 Work item leadership

*SA4*

## 8 Aspects that involve other WGs

*SA2 on possible architectural aspects*

## 9 Supporting Individual Members

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| Supporting IM name |
| Xiaomi |
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