**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  |
| *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:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
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| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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 canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | **Media delivery from multiple service endpoints/locations:** Content distributors often use multiple Content Delivery Networks (CDNs) to distribute their content to end-users. As an example, they may upload a copy of their catalogue to each CDN, or more commonly have all CDNs pull the content from a common origin. In advanced deployments, technologies such as Coded Multisource Media Format (CMMF) use Application Layer FEC techniques to stripe different subsets of content across multiple CDNs. Different client implementations may then beneficially use the content on multiple CDNs, potentially guided by the service or network provider. Integration of these different technologies into the Media Delivery System is of relevance to address content provisioning, content hosting, impacts on reference points, as well as potential benefits in terms of quality and resource usage. |
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| ***Summary of change:*** | *Media delivery from multiple service endpoints/locations* as introduced in clause 5.19 and based on the conclusions in clause 6.19 of TR 26.804:vii. Introduce Content Steering as an M4 API in TS 26.512 and for use with 3GP-DASH (TS 26.247 [26]).viii. Support other relevant aspects resulting from stage-2. |
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| ***Consequences if not approved:*** | Features not supported. |
|  |  |
| ***Clauses affected:*** |  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 26.510 CR 0016, TS 26.511 CR 0014, TS 26.512 CR 0086  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

## ===== CHANGE =====

# 2 References

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[72] ETSI TS 103 998: "Publicly Available Specification (PAS); DASH-IF: Content Steering for DASH", January 2024.

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# 4 Overview

The present document specifies Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH) for continuous media. The features are separated from the umbrella specification TS 26.234 [3] to differentiate from RTP-based streaming that is specified and maintained in TS 26.234. Services relying exclusively on these features may be deployed independently from RTP-based PSS servers, for example by using standard HTTP/1.1 servers for hosting the services and in particular also for 5G Media Downlink Streaming when content is hosted on 5GMSd ASs as defined in the stage 2 specification in TS 26.501 [64] as well as in the stage 3 specifications in TS 26.511 [65] and TS 26.512 [66].

The specification covers the following aspects:

- System Description: describes the relationship to the PSS architecture and refines the architecture, interfaces and protocols that are defined in this specification.

- Progressive Download over HTTP.

- 3GPP Dynamic Adaptive Streaming over HTTP (3GP-DASH) provides an overview of the architecture, the
formats and the models that build the basis for 3GP-DASH. Also, 3GP-DASH Profiles provide identifiers and refers to a set of specific restrictions in this or other specifications.

- DASH - Media Presentation describes the data model of a Media Presentation. It also provides an overview on elements and attributes that may be used to describe components and properties of a media presentation in a
Media Presentation Description (MPD).

- DASH - Usage of the 3GP file format defines how segments can be formed based on the 3GP file format.

- Quality-of-Experience for Progressive Download and 3GP-DASH.

- Server and Network Assisted DASH (SAND) introduces messages between DASH clients and network elements or between various network elements for the purpose to improve efficiency of streaming sessions by providing information about real-time operational characteristics of networks, servers, proxies, caches as well as DASH client's performance and status.

- Normative annexes for MPD schema (Annex B), Descriptor Scheme Definitions (Annex C), OMA DM QoE Management Object (Annex F), File format extensions for 3GPP DASH support (Annex G) and MIME Type Registration for MPD (Annex H). - Informative annexes for Client Behaviour (Annex A), MPD Examples (Annex D), and Mapping MPD structure and semantics to SMIL (Annex E).

Note: Several of the Annexes refer partially or exclusively to ISO/IEC 23009-1 [43] or ETSI TS 103 998 [72].

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Annex A (informative):
Example DASH Client Behaviour

# A.1 Introduction

The information on client behaviour is purely informative and does not imply any normative procedures on DASH client implementations. The Annex primarily refers to Annex A of ISO/IEC 23009-1 [43] and ETSI TS 103 998 [72].

## ===== CHANGE =====

# A.12 Utilization of Content Steering Information

See clause 7 of ETSI TS 103 998 [72].

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# B.4 Content Steering Schema

See clause 5 and clause 8 of ETSI TS 103 998 [72].

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# D.5 Content Steering

Table D.5 extends the example in table D.1 to include Content Steering information as described in ETSI TS 103 998 [72].

Table D.5: Example MPD for a Service Using Content Steering

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| <?xml version="1.0"?><MPD profiles="urn:3GPP:PSS:profile:DASH10" type="static"  minBufferTime="PT10S"  mediaPresentationDuration="PT2H"  availabilityStartTime="2010-04-01T09:30:47Z"  availabilityEndTime="2010-04-07T09:30:47Z"  xsi:schemaLocation="urn:mpeg:dash:schema:mpd:2011 3GPP-Rel10-MPD.xsd"  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  xmlns="urn:mpeg:dash:schema:mpd:2011"> <ProgramInformation moreInformationURL="http://www.example.com"> <Title>Example</Title> </ProgramInformation> <BaseURL serviceLocation="alpha">http://www.cdn1.com</BaseURL> <BaseURL serviceLocation="beta">http://www.cdn2.com</BaseURL> <Period start="PT0S"> <AdaptationSet mimeType="video/3gpp"> <ContentComponent contentType="video"/> <ContentComponent contentType="audio" lang="en"/> <Representation codecs="s263, samr" bandwidth="256000" id="256"> <BaseURL>"rep1"</BaseURL> <SegmentList duration="1000" timescale="100">  <Initialization sourceURL="seg-init.3gp"/> <SegmentURL media="seg-1.3gp"/> <SegmentURL media="seg-2.3gp"/> <SegmentURL media="seg-3.3gp"/> </SegmentList>  </Representation> <Representation codecs="mp4v.20.9, mp4a.E1" bandwidth="128000" id="128"> <BaseURL>"rep2"</BaseURL> <SegmentList duration="10"> <Initialization sourceURL="seg-init.3gp"/> <SegmentURL media="seg-1.3gp"/> <SegmentURL media="seg-2.3gp"/> <SegmentURL media="seg-3.3gp"/> </SegmentList> </Representation> </AdaptationSet> </Period> <Period start="PT30S"> <SegmentTemplate  duration="10" initialization="seg-init-$RepresentationId$.3gp" media="http://example.com/$RepresentationId$/$Number$.3gp"/> <AdaptationSet mimeType="video/3gpp" codecs="mp4v.20.9, mp4a.E1"> <ContentComponent contentType="video"/> <ContentComponent contentType="audio" lang="en"/> <Representation bandwidth="256000" id="1"/> <Representation bandwidth="128000" id="2"/> </AdaptationSet> </Period> <ContentSteering defaultServiceLocation="beta" queryBeforeStart="true"> <https://steeringservice.com/app/instance1234?token=234523452> </ContentSteering></MPD> |