**3GPP TSG- Meeting # *r01***

**, , -** revision of S4aI240180

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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| *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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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***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 can be 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)* | |
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| ***Reason for change:*** | | In completing TS 26.502 and TS 26.517, it is obvious that only a subset of the MBMS functionalities is supported in Rel-17. While many MBMS functionalities are likely not important to be supported for MBS, a systematic analysis of MBMS User Services features and their potential relevance for MBS should be completed and recommendations made on which ones to migrate to MBS User Services specifications and how best to achieve this. | | | | | | | | |
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| ***Summary of change:*** | | Addresses the work item objectives for this key issue   * Documents the key issue in more detail, in particular how they relate to the 3GPP Media Delivery architecture and/or the MBS User Service architecture * Studies collaboration scenarios between the Application Service Provider and the 5G System and for each of the key topics. * Based on existing architectures, provides one or more deployment architectures that address the key topics and the collaboration models. * Maps the key topics to basic functions and develop high-level call flows. * Identifies the issues that need to be solved. * Provides candidate solutions including call flows, protocols and APIs for each of the identified issues.   Identifies 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. | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
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| ***Clauses affected:*** | | 5.11 (new) | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TR 26.802 CR 0001 | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
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| ***Other comments:*** | | |  |  |  |  | | --- | --- | --- | --- | | [**S4aI240153**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI240153.zip) | [FS\_AMD] Selected MBMS Functionalities not supported in MBS | Qualcomm Germany | Thomas Stockhammer |   **E-mail Discussion**:   |  |  |  | | --- | --- | --- | | [[FS\_AMD] S4aI240153 "Selected MBMS Functionalities not supported in MBS"](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;975aac3c.2410C&S=) | Richard Bradbury | Wed, 16 Oct 2024 12:17:16 +0100 |   **Revisions**:   |  |  |  | | --- | --- | --- | | [S4aI240153\_BBC.docx](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Inbox/Drafts/S4aI240153_BBC.docx) | 2024/10/16 11:15 | 66 KB |   **Presenter**: Thomas Stockhammer  **Online Discussion**: October 18, 2024   * Thomas presents [BBC](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Inbox/Drafts/S4aI240153_BBC.docx) version   + Richard: Can you explain partial file and time sync   + Thomas explains   + Thorsten: Time Sync needs careful check to make sure that time stamps are synced. Expires and so on.   + Richard: Partial file may be already there. * Small online edits to address remaining comments   **Decision**:   * Oct 18, 2024: online edited version agreed. Needs revision to new formal CR which is endorsed.   [S4aI240153](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI240153.zip) is **revised** to [**S4aI240180**](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI240180.zip). | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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

# 2 References

…

[16] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and Codecs",

…

## ===== CHANGE (new clause – no change marks shown) =====

## 5.11 Key Issue #10: Selected MBMS Functionalities not supported in MBS

### 5.11.1 Description

In completing TS 26.502 [29] and TS 26.517 [30], it is obvious that only a subset of the MBMS functionalities is supported in Release 18. While many MBMS functionalities are likely not important to be supported for MBS, a systematic analysis of MBMS User Services features and their potential relevance for MBS should be completed and recommendations made on which ones to migrate to MBS User Services specifications and how best to achieve this.

### 5.11.2 Gap analysis and requirements

#### 5.11.2.1 Feature Comparison of MBMS and MBS User Services

In order to address the Key Issue as documented in clause 5.11.1, table 5.11.2.1-1 below provides an overview of the MBMS features as documented in clause 5.11.2, equivalent functionality in MBS. The final column identifies related gaps, provides comments and suggests potential next steps.

Table 5.11.2.1-1: Overview of the MBMS features, equivalent functionality in MBS and related gaps as well as comments and potential next steps.

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| --- | --- | --- | --- | --- |
| MBMS feature and sub-feature | | TS 26.346 [16] clause | Equivalent MBS Feature | Gaps, Comments and next steps |
| User Service Announcement and Discovery Metadata Fragments | | 4, 11 | Announcement of MBS User Services.  See clauses 4.5.7 and 4.5.8 of TS 26.502 and clause 5 of TS 26.517. | No gaps identified. |
| Download delivery | Basic protocol | 7.2, 7.3 | Object Distribution Method, see clause 6.2 of TS 26.517. | No gaps identified. |
| OMA Push | 7.4 | Not supported in TS 26.517 Release 18. | Not considered relevant for MBS User Services. |
|  | RTSP session setup | 7.5 | Not supported in TS 26.517 Release 18. | Not considered relevant for MBS User Services. |
|  | Generic Application Service | 7.6 | Partially supported in clause 5.2.6 of TS 26.517. | Gaps: Metadata lacks the availablity to assign URLs to different distribution sessions, including unicast.  Next Steps: define the association of URLs to distribution sessions – for more details see clause 5.11.4. |
|  | Keep-updated Service | 7.7 | Supported through object manifest as specified in clause 6.1.2 of TS 26.517. | No gaps identified. |
|  | Location-specific delivery method | 7.8 | Not supported in TS 26.517 Release 18. | for further study |
|  | Partial file handling | 7.9 | Not supported in TS 26.517 Release 18. | Gaps: Lack of support of the feature results in unnecessary loss of correctly received information  Next steps: define the support of partial file handling for MBS – for more details see clause 5.11.5. |
|  | QoE metrics | 8.4 | Not supported in TS 26.517 Release 18. | Gaps: Reporting mechanisms for MBS are minimally supported  Comment: It is expected that some functionalities can be covered by the applicaton, but an analysis of reporting for MBS is needed.  Next steps: analyse reporting options for MBS in the 5G context. |
| Streaming delivery | Basic protocol | 8.2 | Not explicitely supported in TS 26.517, but covered in clause 7.2 of TS 26.517 as part of the packet distribution method. | Gaps: None identified  Comment: more details on RTP based delivery may be checked, but are only considered as potential optimizations.  Next steps: Nothing for now. |
|  | QoE metrics | 8.3, 8.4 | Not supported in TS 26.517 Release 18. | Gaps: Reporting mechanisms for MBS are minimally supported  Comment: It is expected that some functionalities can be covered by the applicaton, but an analysis of reporting for MBS is needed.  Next steps: analyse reporting options for MBS in the 5G context – for more details see clause 5.11.6. |
|  | Unicast | 8.5 | Not supported in TS 26.517 Release 18. | Not considered relevant for MBS User Services. |
|  | Group Communi­cation delivery | 8A | Not explicitely supported in TS 26.517, but covered in clause 7.2 of TS 26.517 as part of the packet distribution method. | No gaps identified. |
|  | Transparent delivery | 8B | Not explicitely supported in TS 26.517, but covered in clause 7.2 of TS 26.517 as part of the packet distribution method. | No gaps identified. |
|  | Key management | 4.4.2 | Supported in clause 5.2.10 of TS 26.517. | No gaps identified. |
| Associated delivery functions | File repair | 9.3 | Post-session Object Repair mechanism for FLUTE as specified in clause 6.2.4 of TS 26.517. | No gaps identified. |
| Reception reporting | 9.4 | Not supported in TS 26.517 Release 18. | Gaps: Reporting mechanisms for MBS are minimally supported  Comment: It is expected that some functionalities can be covered by the applicaton, but an analysis of reporting for MBS is needed.  Next steps: analyse reporting options for MBS in the 5G context – for more details see clause 5.11.6. |
|  | Consumption Reporting | 9.4A | Not supported in TS 26.517 Release 18. | Gaps: Reporting mechanisms for MBS are minimally supported  Comment: It is expected that some functionalities can be covered by the applicaton, but an analysis of reporting for MBS is needed.  Next steps: analyse reporting options for MBS in the 5G context – for more details see clause 5.11.6. |
|  | Media codecs | 10 | Not supported in TS 26.517. MBS is not considered to operate as a full service and hence codecs are excluded. With the combination with 5GMS, the codecs from 5G Media streaming are relevant for MBS. | No gaps identified. |
|  | MBMS Operation on Demand (MooD) | 11 | Not explicitely supported in TS 26.517. However, in combination with 5G Media Streaming, and 5G Media Streaming consumption reporting, an operation on On-demand may be implemented | Gaps: MooD not supported  Comment: It is expected that some functionalities can be covered by the applicaton or by 5G Media Streaming, but an analysis of MooD for MBS is encouraged.  Next steps: analyse MBS on demand operation in combination with 5G Media Streaming – for more details see clause 5.11.7. |
| Time synchronization | | 4.6 | Not supported in TS 26.517. | Gaps: Time synchronization not supported.  Next steps: analyse time synchronization requirements and add functionality if needed – for more details see clause 5.11.8. |
| Guidelines for DASH | | K | Not explicitely documented in TS 26.517. | No immediate actions needed, but may be combined with Application Service extension – for more details see clause 5.11.4. |
| Profiles | MBMS Profile 1a | L.2 | for further study | for further study |
|  | MBMS Profile 1b | L.3 | for further study | for further study |
|  | MBMS Profile 1c | L.3A | for further study | for further study |
|  | MBMS Profile: Download | L.4 | for further study | for further study |
|  | MBMS Profile: UA for Transparent delivery | L.5 | for further study |  |
|  | FLUTE Profile | L.6 | Developed for TS 26.517, so no gaps. | No actions needed. |
| Guidelines for HLS | | M | Not explicitely documented in TS 26.517. | No immediate actions needed, but may be combined with Application Service extension – for more details see clause 5.11.4. |

### 5.11.3 Candidate solutions

#### 5.11.3.1 Introduction

Candidate solutions for the gaps identified in clause 5.11.2 are advanced in the following clauses.

#### 5.11.3.2 Application Services – MBS and hybrid

The generic Application Service as defined in clause 7.6 of TS 26.346 [16] may be supported fully in clause 5.2.6 of TS 26.517 [26517] by extending the ability to signal application resources that are available on unicast, resource available via MBS User Services, as well as those that are available on both.

It is recommended to address this functionality in normative specifications in stage-2 and stage-3 by mapping the existing MBMS functionality to the MBS User Services.

#### 5.11.3.3 Partial file handling

Partial file handling as defined in clause 7.9 of TS 26.346 [16] may be fully supported in TS 26.517 [26517] by referencing the required functionality in TS 26.346 [16].

It is recommended to address this functionality in normative specifications in stage-2 and stage-3 by mapping the existing MBMS functionality to the MBS User Services.

#### 5.11.3.4 Reporting and metrics

Reporting of metrics is preferably supported by the MBS Client collecting and aggregating application metrics and providing those as an aggregated record to an appropriate network function, for example, the MBS AF.

It is recommended to address this functionality in normative specifications in stage-2 and stage-3 by mapping the existing MBMS functionality to the MBS User Services.

#### 5.11.3.5 MBS-on-demand

This topic is for further study.

#### 5.11.3.6 Time synchronization

Time Synchronization may be fully supported in TS 26.517 [26517] by referencing the required functionality in TS 26.346 [16] in clause 4.6.

This would require updates to the MBS architecture as well as stage-3 extensions, unless the functionality is supported in existing MBS network functions.

Candidate solutions to support the network functionalities (i.e. the SNTP server) for this feature may include

- the addition of a function in the MBSTF, or

- the addition of a function in the MBSF, or

- a new network entity shared between all functions requiring time synchronization.

It is recommended to address this functionality in normative specifications.

### 5.11.4 Summary and conclusions

It is recommended to address the following functionalities that are available in MBMS for MBS User Services

- the generic Application Service as defined in clause 7.6 of TS 26.346 [16] based on the discussion in clause 5.11.3.2,

- Partial file handling as defined in clause 7.9 of TS 26.346 [16] based on the discussion in clause 5.11.3.3,

- Reporting of metrics based on the discussion in clause 5.11.3.4,

- Time Synchronization as defined in TS 26.346 [16] in clause 4.6 based on the discussion in clause 5.11.3.6.

Other aspects for aligning MBS and MBMS are for further study.