**3GPP TSG SA WG4#117e S4-220112**

**E-meeting, 14th – 23rd February 2022**

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| *CR-Form-v12.0* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
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|  | **26**.**502** | **CR** | draft | **rev** |  | **Current version:** | **1.0.0** |  |
|  | | | | | | | | |
| *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:*** | **[5MBUSA] Proposed Updates to TS26.502** | | | | | | | | | |
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| ***Source to WG:*** | Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBUSA | | | | |  | ***Date:*** | | | 07/02/2022 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | 17 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | |  | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
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| ***Clauses affected:*** | |  | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR | | |
| ***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 =====**

### 4.2.3 Distribution methods

Editor’s Note: Decide whether to refer at all to associated delivery procedures.

The MBS distribution methods defined in clause 6 of the present document make use of MBS Sessions (see clause 4.1 of TS 23.247 [5]) to deliver data to the MBS Client. The distribution methods may use either a multicast MBS Session or a broadcast MBS Session. A set of MBS distribution methods is provided by the MBSTF. These provide functionality such as security and key distribution, reliability control (by means of FEC techniques) and associated delivery procedures.

**- Object Distribution Method:** A distribution method that delivers discrete binary objects over an MBS Session. This may be used to support real-time distribution of media segments (as special objects) including Low-Latency CMAF segments.

The use of MBS Sessions by the Object Distribution Method is specified in clause 6.1.

**- Packet Distribution Method:** A distribution method that supports streaming of packetised data over an MBS Session where Service Data Units (SDUs) are conveyed to the UE as part of Protocol Data Units (PDUs) or IP flows. Examples of upper layer SDU are generic IP/UDP datagrams, RTP packets [8] or packetized MPEG-2 Transport Stream [9].

The use of MBS Sessions by the Packet Distribution Method is specified in clause 6.2.

The above distribution methods may use either a multicast MBS Session or a broadcast MBS Session to distribute content to an MBS Client and may also make use of a set of MBS associated delivery procedures.

**===== CHANGE =====**

### 4.2.4 User Service Announcement

The User Service Announcement provides information needed by the MBS Client to discover and activate the reception of one or more MBS User Services. [User Service Announcement information may be delivered via MBS Sessions or via a regular PDU Session.]

Editor’s Note: The ancillary information needs to be described and defined in the context of the User Service Announcement.

The baseline information conveyed in User Service Announcements is defined in clause 4.5.2.

**===== CHANGE =====**

### 4.3.2 MBSF

The functionality of the MBSF is defined in clause 5.3.2.11 of TS 23.247 [5]. It receives provisioning and control commands either directly at reference point Nmb10 or at reference point Nmb5 (via the NEF). The MBSF invokes MBS Session operations on the MB‑SMF at reference point Nmb1. The MBSF configures the MBSTF at reference point Nmb2.

The User Service Announcement function of the MBSF provides session access information which is consumed by the MBS Client and subsequently used to discover and initiate the reception of one or multiple MBS User Services. The session access information may contain information for presentation to the end-user, as well as application parameters used in generating service content for consumption by the MBS Client.

The present document defines additional Control Plane functionalities of the MBSF to support MBS User Services including:

- Generating the User Service Announcement for each MBS Session.

- Managing User Service Announcement updates.

- Providing the User Service Announcement information to the MBS Client using one or more of the following mechanisms:

- Unicast User Service Announcement via reference point MBS-5.

- User Service Announcement via an MBS User Service Session.

- User Service Announcement via application-private means at reference point MBS-8.

- Monitoring the status of User Service Announcement updates and configuring its delivery such that the MBS client receives the information and receives it in time. Examples for such delivery options are the delivery in the same MBS Session as the content with which it is associated if ancillary information is changed and the MBSTF is used or the use of push and notification-based protocols via MBS-5.

Editor’s Note: Usage of QoS is FFS. See clause 4.6.

**===== CHANGE =====**

#### 4.3.3.1 General

The functionality of the MBSTF is defined in clause 5.3.2.12 of TS 23.247 [5]. It receives User Plane data traffic at reference point Nmb8 and sends MBS data packets to the MB‑UPF via reference point Nmb9.

NOTE: The MBSTF may not be present in all deployments of the MBS System. However, the MBSTF is an integral and necessary component of MBS User Services and the present document is not concerned with deployments in which it is absent.

The present document defines additional User Plane functionalities of the MBSTF to support MBS User Services as follows:

- Receiving distribution method configurations from the MBSF at reference point Nmb2.

- Sending notification events to the MBSF, e.g. data ingest failure, session terminated, delivery started via reference point Nmb2.

- Based on the distribution method configuration:

- MBS delivery of ingested objects or sequences of objects to the MBS Client using the Object Distribution Method (see clause 6.1). This may be used to support real-time distribution of media segments (as special objects) including CMAF segments.

- MBS delivery of ingested packet streams to the MBS Client using the Packet Distribution Method (see clause 6.2).

- Delivering of MBS User Announcement Service information and updates within the MBS Session.

**===== CHANGE =====**

## 4.9 Interworking with eMBMS

In TS 23.247, clause 5.2, interworking between MBS and eMBMS is described. Interworking between MBS and eMBMS at service layer functionality applies in cases where the same Multicast/Broadcast service is provided via eMBMS and MBS. Figure 4.9-1 depicts an updated network architecture based on Figure 4.2.1-1 and Figure 5.2-1 in TS 23.247.



Figure 5.2-1: MBS-eMBMS interworking system architecture at service layer

A common TMGI is used towards the AF/AS. The TMGI is also used as identifier for transport over E-UTRAN/EPC.

For proper operation of the MBS-eMBMS interworking according to the description in TS 23.247, clause 5.2, the MBS User Services support the following functions:

* An Nmb8 mode that allows to ingest content such that it can be delivered to an eMBMS client using MBMS User Services and delivery modes.
* Similarities in the Service Announcement for MBS and for eMBMS.
* MBS User Service Distribution methods that are compatible with or only require minimal processing in the Joint BM-SC + MBSF functionality to deliver the same ingested content via Nmb8 to an MBS client and an eMBMS client. UEs only supporting eMBMS are served by this architecture as well.

Signaling from the MBSF to the MBS client that the equivalent user service is also available on eMBMS. By this, a UE that implements both, an MBS client and eMBMS client, may chose to receive the service from either network and may even dynamically switch. Such an architecture is shown in Figure 4.9-2





Figure 5.2-1: MBS-eMBMS interworking MBS User Service reference architecture

Editor’s Note: Do not have the original figure. We need to update you also add the MBMS client and that MBS-7 are aligned.