**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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***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 =====**

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

[G] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE\_LTE)".

**===== 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 SDUs are generic IP/UDP datagrams.

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 =====**

### 4.3.2 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 in a timely manner using one or more of the following mechanisms:

- Unicast User Service Announcement via reference point MBS-5, including the possible use of push- or notification-based update mechanisms.

- User Service Announcement carriage via an MBS Delivery Session at reference point MBS-4-MC, optionally in the same MBS Delivery Session as the content it is advertising.

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

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 MBS Distribution Session 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 MBS Distribution Session 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).

- Delivery of MBS User Service Announcement information (including updates as necessary) within the MBS Session.

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

## 4.9 Interworking with eMBMS

Interworking between MBS and eMBMS is described in clause 5.2 of TS 23.247 [5] and applies at the service layer in cases where the same Multicast/Broadcast service is provided simultanesouly via eMBMS and MBS. Figure 4.9-1 depicts an updated network architecture based on figure 4.2.1-1 in the present document and figure 5.2-1 in TS 23.247 [5].



Figure 5.2-1: MBS–eMBMS interworking system architecture

To supoprt MBS-eMBMS interworking according to the description in clause 5.2 of TS 23.247 [5], the MBS User Services architecture supports the following functionality:

1. MBS User Services are provisioned via reference point Nmb8 per the present document. eMBMS User Services are separately provisioned at xMB-C per TS 26.348 [6] or MB2-C per TS 23.468 [G]. A common TMGI is used in the MBS System and in the eMBMS System. The two User Services should be provisioned to ingest the same content if service continuity between the MBS System and the eMBMS System is required.

2. Signaling from the MBSF to the MBS Client is present in the MBS User Service Announcement indicating that the equivalent User Service is also available via 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 dynamically switch between them according to varying reception conditions. Such an architecture is shown in figure 4.9-2.

3. Content for the provisioned MBS User Service is ingested logically by the MBTSF at reference point Nmb8 per the present document. Content for the provisioned eMBMS User Service is ingested logically by the MBSTF at reference point xMB-U per TS 26.348 [6] or MB-2 per TS 23.468 [G]. If these reference points are compatible, the content is ingested once to satisfy both logical ingests.

4. MBS User Services distribution methods are compatible with eMBMS delivery methods such that the same ingested content can be delivered to an MBS Client and to an eMBMS Client. UEs only supporting only eMBMS are served by this architecture as well.



Figure 5.2-1: MBS–eMBMS interworking reference architecture