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| Technical Specification |
| 3rd Generation Partnership Project;Technical Specification Group SA;5G multicast–broadcast services;User Service architecture(Release 17) |
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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document defines an architecture and high-level procedures for User Services conveyed using the 5G multicast–broadcast capabilities of the 5G System defined in TS 23.501 [2], TS 23.502 [3] and TS 23.247 [5].

# 2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System architecture for the 5G System (5GS)".

[3] 3GPP TS 23.502: "Procedures for the 5G System (5GS)".

[4] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

[5] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[6] 3GPP TS 26.348: "Northbound Application Programming Interface (API) for Multimedia Broadcast/Multicast Service (MBMS) at the xMB reference point".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1], TS 23.501 [2], TS 23.502 [3], TS 23.247 [5] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**Broadcast MBS session:** an MBS session to deliver the broadcast communication service, as defined in TS 23.247 [4].

**delivery method:** a mechanism used by the MBSTF to deliver data as part of a User Service to the MBS Client.

**MBS-Aware Application:** A UE-based application that consumes User Services by invoking with MBS Client APIs.

**MBS Client:** the UE function that consumes User Services defined in the present document.

**MBS session:** a multicast session or a broadcast session, as defined in TS 23.247 [4].

**Multicast MBS session:** an MBS session to deliver the multicast communication service, as defined in TS 23.247 [4].

**Object delivery method:** the delivery method supporting real-time and non-real-time distribution of discrete binary objects, including media segments, to MBS Clients as part of an MBS session.

**Transparent delivery method:** the delivery method supporting transparent distribution of Application Data Units to 5MBS Clients as part of an MBS session.

**User Service:** an abstract high-level usage of an MBS session for the purpose of supporting an application that presents a complete service offering to an MBS-Aware Application via a set of APIs that allows the MBS Client to activate and deactivate reception of the MBS session.

## 3.2 Symbols

Void.

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1], TS 23.501 [2], TS 23.502 [3], TS 23.247 [4] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

MBS Multicast–Broadcast Services

MB‑SMF Multicast–Broadcast Session Management Function

MB‑UPF Multicast–Broadcast User Plane Function

MBSF Multicast–Broadcast Service Function

MBSTF Multicast–Broadcast Service Transport Function

PCF Policy and Charging Function

NEF Network Exposure Function

UE User Equipment

# 4 Reference architecture for 5G Multicast–Broadcast User Services

## 4.1 General

This clause defines a reference architecture for 5G Multicast–Broadcast User Services, including the logical functions involved and the logical reference points between them.

## 4.2 System description

Editor’s Note: Explanation of fundamental concepts in the MBS User Services architecture.

### 4.2.1 Network architecture

Editor’s Note: How this specification relates to the SA2 architecture in TS 23.247.

### 4.2.2 User Service architecture

Editor’s Note: Introduction to MBS User Services and how they are manifested in the MBSF and MBSTF.

### 4.2.3 Delivery methods

Editor’s Note: Explanation of what a delivery method is and what delivery methods are for.

## 4.3 Functional entities

Editor’s Note: Reference architecture for MBS User Services, including client functions.

## 4.4 Reference points and interfaces

Editor’s Note: Description of the reference points .

## 4.4 Domain model

Editor’s Note: The static domain model for services and sessions.

## 4.5 Life-cycle model

Editor’s Note: State charts explaining the dynamics of MBS User Services.

## 4.6 QoS model

Editor’s Note: How MBS User Services make use of the network Quality of Service primitives defined by SA2 is TS 23.247.

## 4.7 Security

Editor’s Node: How MBS User Services makes use of the security primitives studied by SA3 in TR 33.850.

# 5 Procedures for 5G Multicast–Broadcast User Services

## 5.1 General

This clause defines the high-level procedures for 5G Multicast–Broadcast User Services.

## 5.2 High-level baseline procedures

## 5.3 Procedures for User Service discovery/announcement

## 5.4 Procedures for User Service initiation/termination

## 5.5 Procedures for User Service data transfer

## 5.6 Associated delivery procedures

# 6 MBS User Services Delivery Methods

## 6.1 Object Delivery Method

## 6.2 Packet/Transparent Delivery Method

Annex <A> (informative):
Deployment and Collaboration Models

# A.1 Group Communication

# A.2 5G Media Streaming

Editor’s Note: Reference to TS 26.501.

Annex <X> (informative):
Change history

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| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2021-07 | Post-SA4#114-e ad hoc | S4aI211206 |  |  |  | Initial skeleton document. | 0.0.1 |
| 2021-08 | SA4#115-e | S4-211270 |  |  |  | Implemented agreements at SA4#115-e | 0.1.0 |