**SA WG2 Meeting #S2-140E S2-2005260**

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**Source: vivo**

**Title: Architecture proposal for 5G MBS**

**Document for: Approval**

**Agenda Item: 8.9**

**Work Item / Release: FS\_5MBS / Rel-17**

*Abstract of the contribution: Propose architecture for 5G MBS.*

# 1 Introduction

This paper proposes the architecture for 5G MBS.

# 2 Discussion

In practice, there would not be different types of MBSF-C: embedded in NEF for interacting with AF, or dedicated for interacting with Application Server. The MBSF-C can always be embedded into some NEFs if needed, and the service based interface can be Nnef, which is similar as PFDF embedded in NEF and Nnef interface is extended to support service provided by PFDF. Considering that not all NEF services described in 23.502 shall be supported by an NEF, it is reasonable that some NEFs only support general NEF functionality (e.g. signalling secure protection and AF authorization) and MBSF-C functionality, and those NEFs could be treated as dedicated MBSF-C.

**Proposal 1: For the sake of simplifying the system view, always show MBSF-C as an embedded function in NEF.**

Considering [digital copyright](http://www.baidu.com/link?url=VvZ9MGyMJCAu3983mh7XYu1AKEypekeKemkAp9JPNhq96ypGce-5BBusn6weXAUwk2OyM3J3BU-NkI7KVkq4UefKlx1XzHbRQ_wZGk35ETmm-FjrFeZXDdrLoOwvjpRL) or regulatory requirement, for inbound roaming, the UE can only be able to join into a multicast session provided by AF connecting to visited PLMN, and the AF interacts with visited PLMN for service parameters provisioning and service command (for roaming with AF in HPLMN, only unicast method can be used, which is not in the 5G MBS scope). In that case, the MB-SMF and MB-UPF are in VPLMN, which may not be allowed to be exposed to other PLMN, while SMF and UPF for associated PDU Session may be in HPLMN (HR-roaming case).

It is proposed that visited PLMN stores parameters including serving MB-SMF information for an MBS Session, e.g. in UDSF. If UDSF is not deployed, the storage and acquisition of parameters are dependent on implementation, e.g. MB-SMFs are deployed as a pool and stores the parameters, or MBSF-C in NEF for parameters storage and acquisition.

**Proposal 2: Stores parameters for 5MBS in visited PLMN, e.g. in UDSF, MB-SMF, or NEF (MBSF-C).**

Considering the naming of MBSF/MBSU, MBSF-C/MBSF-U, both are not following the practice we already have in 23.501/502/503. In current practice, we always use “F” at the end of the name to indicate a network function. It is proposed to use the name MBSF (short for Multicast Broadcast Service Function) and MBTF (short for Multicast Broadcast Traffic Function)

**Proposal 3: Uses MBSF and MBTF as the name of service level NFs.**

# 3 Proposal

**FIRST CHANGE (NEW TEXT)**

## 5.1 General architecture

Figure 5.1-1 depicts the 5G MBS reference architecture. Service-based interfaces are used within the Control Plane.



**Figure 5.1-1: 5G MBS system architecture**

NOTE 1: The MB-SMF is an enhanced SMF and the MB-UPF is an enhanced UPF. The MBSF is optional and is embedded in NEF, the MBTF is an optional network function.

NOTE 2: The existing service based interfaces of Nudm and Nsmf are enhanced to support 5G MBS. The existing service based interfaces of Nudsf, Npcf, and Nnef are enhanced to support 5G MBS depends on deployment.

Editor’s note: Which NF is used to store service parameters, including serving MB-SMF information, is FFS.

Figure 5.1-2 depicts the 5G MBS system architecture using the reference point representation showing how various network functions interact with each other.



**Figure 5.1-2: 5G MBS system architecture in reference point representation**

NOTE 3: The existing reference points of N1, N2, N10, N11, and N16 are enhanced to support 5G MBS. The existing reference points of N7, N18, N29 and N33 are enhanced to support 5G MBS depends on deployment. The N4 reference point between NEF (MBSF) and MBTF is enhanced to support 5G MBS service level management required by AF/Application Server.

**END OF CHANGES**