**SA WG2 Meeting #S2-142E S2-2008802**

**November 16 ~ 20, 2020, Elbonia**

**Source: vivo**

**Title: Configuration for MBS**

**Document for: Approval**

**Agenda Item: 8.9**

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

*Abstract of the contribution: Procedure of configuration for 5MBS.*

# 1 Introduction

This paper proposes procedure of configuration for 5MBS.

# 2 Discussion

The current procedure indicates that NEF/MBSF/MBSF-C stores the MB-SMF information before interaction with the selected MB-SMF, considering that the interaction may fail, it is proposed to first create and stores the service context with service parameters, and after interaction with selected MB-SMF, then updates the service context with the MB-SMF selection information and ingress endpoint information.

**Proposal 1: Store MB-SMF selection information after interaction with selected MB-SMF.**

For the sake of AF simplicity that some AFs do not implement any tunnel technology or the tunnel technologies specified by the PLMN, it is proposed that 5GC can only provide ingress address to those AFs without tunnel endpoint as requested by AFs, and those AFs can use the ingress address as the destination of multicast data with UDP protocol, 5GC translates the ingress address to multicast address before forwarding them to the RAN nodes or UEs.

**Proposal 2: 5GC can provide AF the ingress address without tunnel endpoint if requested by AF, and translate the ingress address to multicast address for forwarding the received data.**

For TMGI allocation, considering that NEF is able to allocate reference ID for AF that AF can use it for successive NEF service operation invoking, it is reasonable that NEF allocates TMGI, which also is a kind of reference ID. For IP multicast address allocation if required by AF, it is reasonable that MB-SMF/MB-UPF allocates it because anyway MB-SMF/MB-UPF needs to use it for MBS data handling.

**Proposal 3: The NEF allocates TMGI. The MB-SMF/MB-UPF allocates IP multicast address for AF if required.**

The current procedure indicates BSF is enhanced to manage PCF per MBS Session, in order to limit the impact on 5GC, it is proposed that the serving PCF for a MBS Session is stored in UDSF/NEF (MBSF) as part of MBS Session Context considering that anyway UDSF/NEF (MBSF) needs to be enhanced.

**Proposal 4: Do not impact BSF.**

# 3 Proposal

It is proposed to approve following changes:

\* \* \* \* First change \* \* \* \*

7.0.1 Configuration for MBS

Configuration of a multicast and broadcast service in the 5GC can occur:

- When the first UE joins the multicast group;

- Based on static configuration, in which way NEF may not need to be enhanced;

- Triggered by an AF request via an NEF (MBSF).

The following figure 7.0.1-1 shows the procedure for AF requested configuration via NEF (MBSF).

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**Figure 7.1.3-1: Configuration for MBS by AF**

1. The AF of content provider invokes Nnef\_MBParameterProvision\_Create ([MBS Session ID], Service Parameters, [Command]), or Nnef\_MBParameterProvision\_Update (MBS Session ID, [Service Parameters], [Command], [New Members], [Removed Members]), or Nnef\_MBParameterProvision\_Delete (MBS Session ID) towards NEF (MBSF). The Service Parameters may include service description of QoS requirements, service area information, and start/end time.

For creation operation, the MBS Session ID may be included, which may be a TMGI or a source specific multicast address, and the Command may be included to indicate session start for the MBS Session. For update operation, the Command may be included to indicate session start or session stop for the MBS Session.

For multicast service, the Service Parameters may also include UE authorization information (e.g. a list of GPSI, a list of IP address, or an External Group Id to identify UEs allowed to join the multicast service). The New Members/Removed Members may be included to indicate that the AF requests to update a multicast session with establishing/releasing resources towards some UEs after the multicast session has started (c.f. clause 7.1.3).

2. NEF (MBSF) checks whether the AF of content provider is authorized to perform this request based on the operator policies. If authorization succeeds, the NEF (MBSF) allocates a TMGI for identifying the MBS session.

3. [Optional] NEF (MBSF) stores/updates/deletes the MBS Session Parameters for the MBS Session. For multicast service, if UE authorization information is received, the NEF (MBSF) maps the UE authorization information into SUPIs or internal group IDs. The NEF (MBSF) stores/updates/deletes the Multicast Authorization Data for the MBS Session, the Multicast Authorization Data includes a list of SUPI that is allowed to join the MBS Session and/or a list of SUPI that is disallowed to join the MBS Session.

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

4. [Optional] For creation operation, if configuration related to the AF indicates the request to reserve ingress address, e.g. gateway information is not preconfigured between the 5GC and AF for data transmission, or for creation and update operation, the Command indicating session start is received, the NEF (MBSF) selects an MB-SMF as ingress control node, e.g. by query NRF, or based on local policies. NEF (MBSF) invokes Nsmf\_MBSession\_CreateSMContext (MBS Session IDs, NEF ID, [PCF ID], [PCF set ID], [No Tunnel Endpoint], [Request Multicast Address], [Command]) towards the selected MB-SMF. The No Tunnel Endpoint is included if the configuration indicates the AF does not use tunnel for data transmission. The Request Multicast Address is included if the configuration indicates the AF needs the 5GC to allocate IP multicast address for the MBS Session.

For update with QoS parameters change or deletion, if MB-SMF has been used for the MBS session, the NEF (MBSF) invokes Nsmf\_MBSession\_UpdateSMContext (SM Context ID, [Command], [New Members], [Removed Members]), or Nsmf\_MBSession\_DeleteSMContext (SM Context ID) towards the MB-SMF.

5. [Optional] If dynamic PCC is deployed, when Command indicating session start is received, the MB-SMF invokes Npcf\_MBPolicyControl\_Create (MBS Session ID) towards PCF, when Command indicating session stop is received, the MB-SMF invokes Npcf\_MBPolicyControl\_Delete (MB Policy Association ID) towards PCF, when update operation is requested, the MB-SMF invokes Npcf\_MBPolicyControl\_Update (MBS Session ID) towards PCF.

6. [Optional] For policy association creation, the PCF updates the MBS Session Parameters of the MBS Session with the PCF information for registering the PCF for the MBS Session. It may provide its own PCF ID and optionally its PCF set ID.

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7. [Optional] For policy association creation or update, the PCF queries the MBS Session Parameters of the MBS Session for retrieval of QoS requirement and policy input related to the MBS Session. The MBS Session ID may be TMGI or source specific multicast address.

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

8. [Optional] The PCF responds to the MB-SMF.

For policy association creation or update, the PCF derives the required QoS parameters based on the information provided by the UDSF or NEF (MBSF) and determines whether this QoS is allowed (according to the PCF configuration for this AF), and provides the result to the MB-SMF. For policy association creation, the PCF also provides MB Policy Association ID to the MB-SMF.

9. [Optional] The MB-SMF selects an ingress address (IP address and port), or selects an MB-UPF and requests the MB-UPF to select an ingress address. The MB-SMF also selects a tunnel endpoint or request the MB-UPF to select a tunnel endpoint if No Tunnel Endpoint is not received.

If Request Multicast Address is received, the MB-SMF allocates an IP multicast address or requests the MB-UPF to allocates an IP multicast address.

10. [Optional] MB-SMF responds to the NEF (MBSF).

For creation operation, the MB-SMF indicates the SM Context ID and may indicate allocated IP multicast address, ingress address, and/or tunnel endpoint to the NEF (MBSF).

11. [Optional] For creation operation, the NEF (MBSF) updates the MBS Session Parameters for the MBS Session with the selected MB-SMF information, source specific multicast address, ingress address, and/or tunnel endpoint information.

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

12. The NEF (MBSF) responds towards the AF. The NEF (MBSF) may indicate the allocated MBS Session ID, which may be a TMGI or a source specific multicast address, the ingress address, and/or the tunnel endpoint to the AF.

13. [Optional] If Command is received or update of QoS parameters is required, the MB-SMF performs session start/stop/update procedure for multicast service or broadcast service accordingly. For multicast session, the MB-SMF performs (UE or AF requested) session join/leave procedure if needed.

\* \* \* \* End of changes \* \* \* \*