**3GPP TSG-SA WG6 Meeting #36-e S6-200395**

**E-meeting, 24th – 28th Feb 2020 (revision of S6-xxxxxx)**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.280** | **CR** | **0239** | **rev** | **1** | **Current version:** | **16.5.0** |  |
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| *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:*** | Clarification and correction on media direction | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Hisilicon | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | enh2MCPTT | | | | |  | ***Date:*** | | | 2020-02-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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:*** | | In 10.7.3.9 Multi-server bearer coordination inn 23.280, the MC service server can use the MBMS bearer discovered from the MBMS bearer control role to deliver the group call downlink media to the receing participants.  However, the arrows representing the media in Figure 10.7.3.9.2.1-1: Multiple server MBMS procedure and Figure 10.7.3.9.2.2-1: Multiple server MBMS procedure are confusing, which seems that the media from the talker is controlled and distributed at the the MC service server 1.  This CR is proposed to modify the figures and descriptions to reflect the functionality of MC service server 1. | | | | | | | | |
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| ***Summary of change:*** | | Modify media description in the clause 10.7.3.9.2.1 and clause 10.7.3.9.2.2 | | | | | | | | |
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| ***Consequences if not approved:*** | | Misunderstanding of MC service server functionality. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.7.3.9.2.1, 10.7.3.9.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1st change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

###### 10.7.3.9.2.1 MBMS bearer coordination independent on broadcasted media

The procedure in this sub clause may be used when two or more MC service servers are serving users in the same area and are configured to share MBMS bearers for that specific area. The MC service servers may be of the same kind or different kind. The MC service servers are not participating in the same group call, which means that each MC service server broadcast media independently of each other.

Pre-conditions:

- All MC service servers are configured with the contact information of those MC service servers that are configured to take the MBMS bearer control role.



Figure 10.7.3.9.2.1-1: Multiple server MBMS procedure

1. The MC service server 1 evaluates whether multicast is desired for each service area in which MC service group members are located, based upon the locations, affiliation status and other factors.

2. The MC service server 1 determines whether another MC service server has already established a bearer with coverage for the MBMS service area where multicast is desired. To do this, the MC service server 1 consults a pre-configured list of MC service servers and sends them a discover bearer request. This request may be sent to several MC service servers.

NOTE 1: MC service servers of the same type can be configured to discover bearers from a single server. The single server then becomes a centralized entity for MBMS bearer control for the MC service. Similarly, all MC service servers of all types can be configured to discover bearers from a single server. The single server then becomes a centralized MBMS bearer controller for all MC services.

3. The MC service server 2 (MBMS bearer control role) responds with a discover bearer response indicating whether there is an MBMS bearer available in the specific MBMS service area with the requested bandwidth. The discover bearer response message includes the TMGI of the bearer that is shared between the MC service servers. If the bearer of interest has insufficient bandwidth, the polling MC service server 1 may resort to unicast, or may allocate another bearer for the congested area. If a duplicate bearer is allocated for the same area, the bearer should not be shared with other servers and may be torn down as soon as the congestion on the original bearer clears up, in order to conserve resources.

For any MBMS service areas not covered by another MC service server, the MC service server 1 prepares to distribute media to those MBMS service areas via multicast by setting up a bearer. The bearer set up by the MC service server 1 may then become available for other MC service servers (controlling role) for other MC service groups.

4. The MC service server 1 performs the MBMS bearer announcement and the MBMS listening reporting according relevant procedures specified in this specification. If the MC service server 2 is authorized to receive MBMS related location information from the users utilizing the services from MC service server 1, the MC service server 2 may optionally do the MBMS bearer announcement and handling the listening reports on behalf of MC service server 1. Listening reports shall in this case be sent to both MC service server 1 and MC service server 2.

5. The MC service server 1 sends a media distribution request to the MC service server 2 (MBMS bearer control role). The media distribution request is sent to reserve the specified capacity in the MBMS bearer.

6. MC service server 2 (MBMS bearer control role) sends a media distribution response to the MC service server 1 indicating whether the request can be supported and supplies details about the bearer.

7. The MC service server 1 establishes a group communication session via the bearer, informing MBMS connected MC service clients 1 and 2 that a group communication session is about to start on the MBMS bearer. This step is equivalent to MapGroupToBearer in MCPTT.

8a. The media sent is from the MC service client 2 to be delivered to other participants of the group communication.

8b. MC service server 1 receives the media sent from MC service client 2.

NOTE 2: The figure above does not visualize the participating server(s) for the MC service group and controlling server for the MC service group. The uplink media from talker is sent to all participating servers for the MC service group which are the servers that decide on unicast or multicast transmission.

9. The MC service server 1 forwards the media to MC service server 2 (MBMS bearer control role).

10. The MC service server 2 (MBMS bearer control role) distributes the media to MBMS served MC service client 1 via multicast.

11. The MC service server 1 sends a media distribution release request, informing the MC service server 2 (MBMB bearer control role) to request the MC service server 2 (MBMS bearer control role) to release the capacity that was reserved in step 5.

12. The MC service server 2 (MBMS bearer control role) respond to the request by sending a media distribution release request.

###### 10.7.3.9.2.2 MBMS bearer coordination within one group call

The procedure in this sub clause may be used when two MC service servers are serving users in the same area and are configured to share MBMS bearers for that specific area. The MC service servers are of the same kind, and the MC service servers may participate in the same group call, and by that have a need to broadcast the same content.

Pre-conditions:

- All MC service servers are configured with the contact information of those MC service servers that are configured to take the MBMS bearer control role.

Figure 10.7.3.9.2.2-1: Multiple server MBMS procedure

1. The MC service server 1 evaluates whether multicast is desired for each service area in which MC service group members are located, based upon the locations, affiliation status and other factors.

2. The MC service server 1 determines whether another MC service server has already established a bearer with coverage for the MBMS service area where multicast is desired. To do this, the MC service server 1 consults a pre-configured list of MC service servers and sends them a discover bearer request. This request may be sent to several MC service servers.

NOTE 1: MC service servers of the same type can be configured to discover bearers from a single server. The single server then becomes a centralized entity for MBMS bearer control for the MC service. Similarly, all MC service servers of all types can be configured to discover bearers from a single server. The single server then becomes a centralized MBMS bearer controller for all MC services.

3. The MC service server 2 (MBMS bearer control role) responds with a discover bearer response indicating whether there is an MBMS bearer available in the specific MBMS service area with the requested bandwidth. The discover bearer response message includes the TMGI of the bearer that is shared between the MC service servers. If the bearer of interest has insufficient bandwidth, the polling MC service server 1 may resort to unicast, or may allocate another bearer for the congested area. If a duplicate bearer is allocated for the same area, the bearer should not be shared with other servers and may be torn down as soon as the congestion on the original bearer clears up, in order to conserve resources.

For any MBMS service areas not covered by another MC service server, the MC service server 1 prepares to distribute media to those MBMS service areas via multicast by setting up a bearer. The bearer set up by the MC service server 1 may then become available for other MC service servers (controlling role) for other MC service groups.

4. The MC service server 1 performs the MBMS bearer announcement and the MBMS listening reporting according relevant procedures specified in this specification. If the MC service server 2 is authorized to receive MBMS related location information from the users utilizing the services from MC service server 1, the MC service server 2 may optionally do the MBMS bearer announcement and handling the listening reports on behalf of MC service server 1. Listening reports shall in this case be sent to both MC service server 1 and MC service server 2.

NOTE 2: Step 1-4 is also performed by MC service server 3, but is not shown in the procedure to make it easier to read.

5. The MC service client 2 initiate a group call that is subject for multicast transmission. In this scenario there are more than one MC service server (i.e. MC service server 1 and MC service server 3) that serves MC service clients that are affiliated to the group, and by that should receive the media in the group call.

6a. The MC service server 1 sends a media distribution request to the MC service server 2 (MBMS bearer control role). The media distribution request includes the MC group identifier. This indicates that the media distribution request is used for this specific group call.

6b. The MC service server 3 sends a media distribution request to the MC service server 2 (MBMS bearer control role). The media distribution request includes the MC group identifier. This indicates that the media distribution request is used for this specific group call.

7a. The MC service server 2 (MBMS bearer control role) sends a media distribution response to the MC service server 1 indicating whether the request can be supported and supplies details about the bearer. This also includes details on which media stream that should be used for broadcasting the media on the MBMS bearer. This information is used in the MapGroupToBearer message sent by the MC service server when setting up the group call.

7b. The MC service server 2 (MBMS bearer control role) sends a media distribution response to the MC service server 3 indicating that the group call is already transmitted on the MBMS bearer by another MC service server. Based on the information, the MC service server 3 could decide to not broadcast media if media is already being broadcasted.

8a. The media sent is from the MC service client 2 to be delivered to other participants of the group communication.

8b. MC service server 1 receives the media sent from the MC service client 2.

8c. MC service server 3 receives media sent from the MC service client 2..

NOTE 3: The figure above does not visualize the participating server(s) for the MC service group and controlling server for the MC service group. The uplink media from talker is sent to all participating servers for the MC service group which are the servers that decide on unicast or multicast transmission.

9. The MC service server 1 forwards the media to MC service server 2 (MBMS bearer control role).

10. The MC service server 2 (MBMS bearer control role) distributes the media to MBMS served MC service client 1 via multicast.

11. The MC service server 1 sends a media distribution release request, informing the MC service server 2 (MBMS bearer control role) to request the MC service server 2 (MBMS bearer control role) to release the capacity that was reserved in step 5. The media distribution release request shall only be sent when the group call is terminated. 12. The MC service server 2 (MBMS bearer control role) respond to the request by sending a media distribution release request.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*