**3GPP TSG-CT WG4 Meeting #110-eC4-223193**

**E-Meeting, 12th – 20th May 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Support of Broadcast MBS Session with an AMF set being deployed | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | C4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBS | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It should be made it clear how a Broadcast MBS session interworking with an AMF Set (as discussed in C4-223192) when the AMF for a Broadcast MBS session has failed:  1. Another AMF in the same AMF set may be selected by an implementation specific mechanism for this Broadcast MBS session, this AMF will notify the MB-SMF this.  2.When the MB-SMF detects the AMF which was handling the MBS session has failed, the MB-SMF may reselect an alternative AMF by sending a MBS Broadcast Context Update Request message with an indication to AMF2 that it needs not trigger any NGAP message to deliver N2 container - MBS Session Information Request Transfer, but just to store it for future potential NG-RAN restoration, so that the AMF becomes the serving AMF for this broadcast MBS session and is responsible for restoration | | | | | | | | |
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| ***Summary of change:*** | | A couple of requirements enabling a broadcast MBS session interworking with AMF Set feature are proposed. | | | | | | | | |
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| ***Consequences if not approved:*** | | It is ambiguous how a broadcast MBS session would interwork with AMF set feature, or the benefit for AMF set is not utilized. | | | | | | | | |
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| ***Clauses affected:*** | | 8.x.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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

#### 8.x.2.4 Selecting an alternative AMF for a Broadcast MBS Session at AMF failure

When the AMF selected by the MB-SMF to start a Broadcast MBS Session fails without restart, to support the restoration procedure to restore an Broadcast MBS Session in a restarted NG-RAN as specified in 8.x.2.2 and 8.x.2.3, another AMF in the same AMF set needs to be selected to become the serving AMF for this broadcast MBS session and to be responsible for restoration. This may be done by one of the following solutions:

- another AMF is selected in the same AMF set by an AMF implementation specific mechanism, and this AMF sends a Namf\_MBSBroadcast\_ContextStatusNotify Request message to the MB-SMF to notify this optionally containing an updated binding indication; or

- when the MB-SMF detects that the AMF which was handling the Broadcast MBS session has failed without restart and no Namf\_MBSBroadcast\_ContextStatusNotify Request is received from any AMF of the AMF set as described in the first bullet, the MB-SMF may reselect an alternative AMF by sending a Namf\_MBSBroadcast\_ContextUpdate Request message with an indication that the alternative AMF needs not trigger any NGAP message to deliver the N2 container - MBS Session Information Request Transfer, but just to store it for future potential NG-RAN restoration.



Figure 8.x.2.4-1 Selecting an alternative AMF at AMF failure.

1. A Broadcast MBS Session has been established in the network.

2. The AMF1 has failed without restart.

3. Alternative A: another AMF2 in the same AMF set is selected by an AMF implementation specific mechanism.

4. The AMF2 sends Namf\_MBSBroadcast\_ContextStatusNotify to the MB-SMF that the AMF2 becomes the AMF controlling the Broadcast MBS Session context.

5. The MB-SMF acknowledges the notification and will send subsequent signalling message for this Broadcast MBS Session via the AMF2.

6. Alternative B: the MB-SMF detects that the AMF1 has failed without restart either via HTTP/2 PING Frame for directly connected, or via notifications from the NRF for the NF Status Change when it has subscribed such event, and that no Namf\_MBSBroadcast:ContextStatusNotify Request is received from any AMF of the AMF set as described in Alternative A.

7. The MB-SMF selects an alternative AMF pertaining to the same AMF set using the Binding Indication provided by the old AMF or using the NF profile of the old AMF.

8. The MB-SMF sends a Namf\_MBSBroadcast\_ContextUpdate Request including a MBS Session ID, the corresponding MBS Service Area, a MBS Session Information Request Transfer, and sets the "noNgapSignallingInd" to "true" to request the AMF2 to be the AMF for the Broadcast MBS Session to handle subsequent MBS session signaling and be responsible for triggering restoration procedures for NG-RAN failure with or without restart. The AMF may consider to not trigger any NGAP signalling towards NG-RANs covering the MBS service area.

NOTE 1: Upon receiving any subsequent NGAP Broadcast MBS Session signalling from an alternative AMF, the NG-RAN will send any later NG-RAN initiated MBS session signalling towards this alternative AMF.

NOTE 2: If the AMF does not trigger any NGAP signaling towards NG-RANs covering the MBS service area, before receiving any subsequent NGAP Broadcast MBS Session signalling from an alternative AMF, a NG-RAN can initiate a NGAP Broadcast MBS Session signaling procedure (e.g. Broadcast MBS Session Release Required) to a third AMF, e.g. AMF3, in which case the NG-RAN expects a response from AMF3. However, this does not affect that the AMF2 is the AMF responsible for the Broadcast MBS Session, e.g. to handle subsequent Namf\_MBSBroadcast\_ContextUpdate request messages or to restore the Broadcast MBS session at a NG-RAN restart. How the NGAP initiated Broadcast MBS Session signaling is handled between AMF3 and AMF2 is implementation specific (e.g. to update the broadcast MBS session context that the MBS session has been stopped in the NG-RAN).9. The AMF responds the Namf\_MBSBroadcast\_ContextUpdate Request message.

10. The AMF2 continues with the procedures as specified in clauses 8.x.2.2 and 8.x.2.3.

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