3GPP TSG-RAN WG2 Meeting #112-e R2-2011133

E-meeting, 2 – 13 Nov 2020

**Title:** [DRAFT] **Reply LS on RAN impact of FS\_5MBS Study**

**Response to: S2-2006044**

**Release: Release 17**

**Work Item: FS\_5MBS, NR\_MBS-Core**

Source: Huawei [will be RAN2]

**To: SA2, RAN3, SA**

**Cc: RAN**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments:** **N/A**

# 1 Overall description

RAN2 thanks SA2 for their LS on RAN impact of FS\_5MBS Study. RAN2 would like to inform SA2 about the following agreements which may be relevant for SA2 work for this study:

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| * For Rel-17, R2 specifies two *modes*:

 **1: One *delivery mode* for high QoS (reliability, latency) requirement, to be available in CONNECTED (possibly the UE can switch to other states when there is no data reception TBD)** **2: One *delivery mode* for “low” QoS requirement, where the UE can also receive data in INACTIVE/IDLE (details TBD).** **R2 assumes (for R17) that delivery mode 1 is used only for multicast sessions.**  **R2 assumes that delivery mode 2 is used for broadcast sessions.**  **The applicability of delivery mode 2 to multicast sessions is FFS.*** No data: When there is no data ongoing for the multicast session, the UE can stay in RRC\_CONNECTED. Other cases FFS
* It is up to SA2 to decide whether the multicast session activation/deactivation mechanism is supported or not, and RAN2 will discuss if there is any RAN2 impacts based on SA2 inputs.
* It is up to SA2 to decide on the support of local MBS service, and RAN2 will discuss the RAN2 impacts based on SA2 inputs.
* In general, Information of MBS services/groups subscribed by the UE (e.g. TMGI) and QOS requirements of a MBS service should be provided to RAN. Detail information e.g. for PTM PTP switch if any is FFS.
* In order to support the lossless handover for 5G MBS services, at least DL PDCP SN synchronization and continuity between the source cell and the target cell should be guaranteed by the network side to realize. The design of specific approach to realize this can be involved with WG RAN3.
* From network side, the source gNB may forward the data to the target gNB and the target gNB will deliver the forwarding data. Meanwhile, the SN STATUS TRANSFER should be extended to cover the PDCP SN for MBS data; Then (TBD after or in parallel) the UE receives the MBS in the target cell by the target cell according to target configuration.
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Regarding the exact questions that SA2 asked RAN2 and RAN3 to feedback on, RAN2 would like to provide the following answers

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| 1. *There are different proposals how to handle the CM-IDLE/CM-CONNECTED state transitions:*
	1. *UE within a multicast MBS session shall stay in CM-CONNECTED state,*
	2. *UE can receive data of a multicast MBS session also while in CM-IDLE state.*
	3. *UEs can transition into CM-IDLE while no multicast MBS data are transmitted.*
	4. *Some solutions propose that 5G CN may trigger notification to CM-IDLE and/or CM-CONNECTED mode UEs (e.g. paging CM-IDLE mode UEs) for establishing transmission resources for an multicast MBS session when data of an multicast MBS session are ready to be delivered.*
	5. *Some solutions propose that the multicast MBS session can be deactivated by the network while no multicast MBS data are transmitted to save power.*
	6. *Some solutions propose that the network can activate the multicast MBS session and trigger notification to UEs when multicast MBS data are transmitted again.*

*SA2 would appreciate RAN2 and RAN3 feedback on the above and comments, if any.* |

**RAN2 response:**

* For multicast MBS sessions, RAN2 agreed that the UE in RRC\_CONNECTED state can receive multicast data. Other RRC states are FFS.
* When there is no data ongoing for a multicast session, RAN2 agreed the UE can be kept in RRC\_CONNECTED state, and other RRC states are FFS.
* RAN2 agreed it is up to SA2 to decide whether the multicast session activation/deactivation mechanism is supported or not. RAN2 will discuss if there is any RAN2 impacts based on SA2 inputs.

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| 1. *Some Xn/N2 handover solutions in the SA2 study are documented in the TR.*
	1. *Some solutions consider to have temporary MBS data forwarding from S-RAN to the T-RAN, to address potential data loss or duplication in case of a UE moving to a T-RAN supporting 5MBS.*
	2. *Some solutions have left forwarding FFS and would appreciate RAN feedback on possibilities for forwarding at Xn/N2 handovers with considerations of minimization of data loss, data duplication and complexity.*
	3. *Some solutions introduce HO for local MBS service that can only transmit data in a certain area, which has impact on RAN for service area restriction.*

*SA2 would appreciate RAN2 and RAN3 feedback and considerations on these solutions and topics.* |

**RAN2 response:**

* For a and b, RAN2 agreed that the source gNB may forward the data to the target gNB and the target gNB will deliver the forwarding data during mobility.
* RAN2 agreed it is up to SA2 to decide on the support of local MBS service. RAN2 will discuss the RAN2 impacts based on SA2 inputs.

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| 1. *SA2 is debating whether broadcast (i.e. without the network’s awareness about UEs receiving broadcast contents and for other use cases than the ones excluded already for Rel-17) should be further down-scoped in Rel-17 for remaining broadcast requirement in the SID. Some companies have provided solutions on broadcast (which are documented in the TR).*

*SA2 would like to ask SA, RAN, RAN2 and RAN3 for feedback on broadcast support in Rel-17.* |

**RAN2 response:**

RAN#89e has already concluded that the NR-based broadcast is within the scope of RAN WI for NR MBS in Rel-17, and RAN2 will work on the broadcast solutions.

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| 1. *Some solution suggests the 5GC sends MBS assistance information to RAN for PTP/PTM delivery method decision and switching.*

*SA2 would appreciate RAN2 and RAN3 feedback on the above and comments, if any.* |

**RAN2 response:**

RAN2 agreed that at least information of MBS services/groups subscribed by the UE (e.g. TMGI) and QoS requirements of a MBS service should be provided to RAN for MBS operation in general. RAN2 has not concluded whether any information from CN is needed, e.g. for PTP/PTM delivery method decision and switching.

# 2 Actions

**To SA2, SA, RAN3 group:**

**ACTION:**

RAN2 respectfully asks SA2, SA and RAN3 to take the above feedback into account.

# 3 Dates of next RAN2 meetings

TSG-RAN2 Meeting #113e Jan 25 – Feb 05, 2021 E-Meeting

TSG-RAN2 Meeting #113b-e April 12 – April 20, 2021 E-Meeting