**3GPP TSG-RAN WG3 Meeting #115-e *R3-222625***

**Online, 21st February 3rd March 2022**

**Title: [DRAFT]** LS on further outstanding issues in TS 23.247

**Response to:**

**Release:** Release 17

**Work Item:** 5MBS, NR\_MBS-Core

**Source:** Ericsson (will be RAN3)

**To:** SA2, RAN2

**Cc:**

**Contact Person:**

#### Name:

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**Attachments:** -

# 1. Overall Description:

RAN3 would like to provide further feedback on issues contained in the latest version of TS 23.247 concerning NG-RAN.

## 1.1 first feedback

RAN3 would like to inform SA2 that RAN3 has agreed on two schemes to enable neighbouring gNBs allocating the same PDCP SN to MBS user data packets

**alternative 1** foresees theMB-UPF to associate identical sequence number information on NG-U/N3mb to gNBs allowing them to translate the NG-U/N3mb sequence numbers into PDCP Sequence Numbers which enables UEs at inter-gNB handover to detect duplicates and, if configured, request retransmissions.

**alternative 2** enables NG-RAN nodes sharing a common UP entity comprising (SDAP)/PDCP protocol entities and a NG-U/N3mb termination at NG-RAN.

RAN3 denotes such entity a “shared NG-U termination”, referenced by a GTP-U tunnel address.

Consequently, UEs receiving MBS user data issued through such a “shared NG-U termination” are able, at inter-gNB handover to detect duplicates and, if configured, request retransmissions - in the same way as in alternative 1.

**combination of alternatives 1&2:** RAN3 agreed that it is possible to combine both schemes and apply it for both, broadcast and multicast MBS sessions.

**Protocol support for alternative 1** is foreseen in TS 38.415, the NG-U User Plane protocol.

**Protocol support for alternative 2:**

RAN3 is discussing the possibility to support exchange availability of “shared NG-U terminations” via the NG-C/N2 interface in the following way:

- if the gNB is able to “offer” a “shared NG-U termination”, it provides a reference to the MB-SMF.

- in turn, the MB-SMF would provide information about “available NG-U termination”, as offered by gNBs, to other gNBs on a per MBS Session(/Area Session ID) basis.

The resulting architectural and protocol impacts require SA2 feedback. Assumed protocol changes are outlined below:

- for broadcast: At *MBS Session Start for Broadcast* and *MBS Session Update for Broadcast*.

- for multicast: At *Establishment of shared delivery toward RAN node* and *Multicast session update*.

## 1.2 second feedback

RAN3 has reviewed all the Editor’s Notes in the latest version of TS 23.247 §7.2.3 concerning mobility between gNBs supporting NR MBS:

*7.2.3.2 Xn based handover from MBS supporting NG-RAN node*

*7.2.3.3 N2 based handover from MBS supporting NG-RAN node*

*Editor's note: Details on data forwarding, if applicable, needs to wait for RAN WGs.*

**RAN3 feedback**

RAN3 agreed to support synchronisation of PDCP SN allocation and NG-RAN in Rel-17 will support re-transmission of packets for NR MBS. Data forwarding between gNBs supporting NR MBS is supported and will be specified.

## 1.3 third feedback

RAN3 has discussed minimisation of data loss during handover from non-supporting NG-RAN node to supporting node and agreed to enable detection and removal of duplicates using the same Core Network Sequence Numbers over both the unicast N3 tunnel and shared N3 tunnel.

# 2. Actions:

**To SA2 and RAN2 group.**

**ACTION: take into account the RAN3 feedback.**

**3. Date of Next TSG-RAN WG3 Meetings:**

TSG-RAN WG3 Meeting#116-e 16th - 27th May 2022

TSG-RAN WG3 Meeting#117 22nd - 26th August 2022