**3GPP TSG RAN WG3#126R3-247872**

Orlando, FL, USA, November 18 – 22, 2024

**Title: [DRAFT]** Reply LS on FS\_VMR\_Ph2 solution impacts to RAN

**Response to:** LS in R3-243021 (S2-2405822) on FS\_VMR\_Ph2 solution impacts to RAN

**Release:** Rel-19

**Study Item:** FS\_VMR\_Ph2

**Source:** Qualcomm **[to be: RAN3]**

**To:** SA2

Cc: RAN2

**Contact person:**

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

Attachments: None

**1. Overall Description:**

RAN3 would like to thank SA2 for their LS on FS\_VMR\_Ph2 solution impacts to RAN (R3-243021/S2-2405822). RAN3 has further discussed question 3:

*-* ***Question 3****: To support mobility of the MWAB, some solutions assume that the MWAB-gNB can instantiate two cells (with same gNB ID or different gNB ID), and handover connected UEs between the two cells. The different gNB IDs use case is driven by the need to change AMF if the MWAB moves into a geographic area where a different AMF must be chosen to serve UEs. SA2 would like to ask RAN3 to confirm if this can be supported or not.*

RAN3 confirmed SA2’s assumptions in the following agreement:

“The ‘two logical gNB solution’ can support UE’s AMF change during WAB-gNB mobility.”

RAN3 has discussed the following solutions that allow change of the UE’s AMF with a *single* logical WAB-gNB

**Solution 1: Using single WAB-gNB with single cell and changing TAC**

* The WAB-gNB establishes a separate NG-C connection with the new AMF.
* It reports the initial TAC, TAC1, only to the initial AMF and the new TAC, TAC2, only to the new AMF.
* The WAB-gNB cell updates the SI from TAC1 to TAC2.
* For UE in RRC CONNECTED state:
  + When receiving the SI update, the UE performs an MRU, which is forwarded by the WAB-gNB to the initial AMF. The WAB-gNB includes TAC2 as part of the User Location Information to the initial AMF. Based on TAC2 of the received ULI, the initial AMF initiates an AMF reallocation to the new AMF. There is no handover procedure to be performed for the purpose of UE’s AMF change.
* For UE in RRC IDLE/INACTIVE state:
  + When receiving the SI update, the UE performs an MRU, which is forwarded by the WAB-gNB to the new AMF. The new AMF retrieves the UE’s context from the initial AMF.

**Solution 2: Using single WAB-gNB with two cells and different TACs**

* The WAB-gNB establishes a separate NG-C connection with the new AMF.
* It instantiates a second cell whose SI includes only TAC2, while the first cell’s SI only includes TAC1.
* It reports TAC1 only to the initial AMF and TAC2 only to the new AMF.
* For UE in RRC CONNECTED state:
  + The WAB-gNB initiates an NG handover from the first cell to the second cell for the UE. When the initial AMF receives the HO Required message, it decides to conduct an inter-AMF handover to the new AMF based on the TAC2 included in the Target ID IE of the HO Required message, and forwards the HO signalling to the new AMF. After all UEs have been handed over, the WAB-gNB discontinues operation of the first cell.
* For UE in RRC IDLE/INACTIVE state:
  + When operation of the first cell is discontinued, the UE reselects the second cell and performs an MRU, which is forwarded by the WAB-gNB to the new AMF. The new AMF retrieves the UE’s context from the initial AMF.

**2. Actions:**

**To SA2 group.**

**ACTION:** RAN3 would like to ask SA2 to provide feedback on whether either of these two single-gNB solutions can be achieved without CN impact, and whether there is a need for a solution with a single logical WAB-gNB.

**3. Date of Next RAN3 Meetings:**

TSG-RAN WG3 Meeting #127, February 17 to 21, 2024 Maastricht, NL

TSG-RAN WG3 Meeting #127bis, April 7 to 11, 2024 Wuhan, China