3GPP TSG-RAN WG3#127bis R3-252424

Wuhan, China, 7-11 April 2025

**Agenda item: 13.2 Support for inter-CU LTM**

**Source: Nokia, Samsung, Huawei, Ericsson, LG Electronics, CATT, Ofinno, ZTE, NEC**

**Title:**  **(TP to BL CR TS 38.300) Inter-CU LTM Procedure**

**Document for: Discussion and Decision**

# 1 Introduction

TP reflecting agreements from RAN3#127bis.

# Text Proposal for TS 38.300

**<< First Change >>**

##### 9.2.3.5.X C-Plane Handling of inter-gNB L1/L2 Triggered Mobility

This procedure is used for the case when the UE moves from one gNB to another gNB during NR operation for LTM. Figure 9.2.3.5.X-1 shows the inter-gNB LTM procedure for intra-NR.



Figure 9.2.3.5.X-1: Signalling procedure for inter-gNB LTM

The procedure for inter-gNB LTM is as follows:

1. The UE sends a *MeasurementReport* message (L3 measurement result) to the source gNB containing measurements of neighbouring cells.

2. The source gNB decides to configure inter-gNB LTM.

3. The source gNB requests inter-gNB LTM for one or more candidate cells belonging to one or more candidate gNB(s). The source gNB initiates a HANDOVER REQUEST message per candidate cell containing one candidate cell ID and the CSI resource configuration for subsequent LTM. The source gNB may request the candidate gNB(s) to provide the CSI-RS configuration.

4. Admission Control may be performed by the candidate gNB(s).

5. The candidate gNB(s) prepares the LTM configuration(s) and sends inter-gNB response (HO REQUEST ACKNOWLEDGE) to the source gNB including the generated RRC configurations for the accepted candidate cell. The candidate gNB(s) may also include the CSI-RS configuration upon request.

6. The source gNB sends an LTM CONFIGURATION UPDATE to the candidate gNB(s) to update the LTM configurations of candidate cell(s). The source gNB may include the common CSI-RS resource configuration.

7. The candidate gNB(s) sends the LTM CONFIGURATION UPDATE ACKNOWLEDGE message to the source gNB. The candidate gNB(s) may also provide the CSI-RS report configuration.

*Editor’s Note: FFS on whether step 6 and 7 are mandatory or optional.*

NOTE : Step 6 may also be triggered after step 14, or after step 17 by implementation for subsequent LTM.

8. The source gNB sends an *RRCReconfiguration* message to the UE.

9. The UE stores the LTM candidate configurations and sends an *RRCReconfigurationComplete* message to the source gNB.

9a If early data forwarding is applied, the source gNB sends the EARLY STATUS TRANSFER message.

10/11. Early synchronization to some LTM candidate cell(s) belonging to the candidate gNB(s) may be performed. The candidate gNB(s) sends the TA INFORMATION TRANSFER message to the source gNB if early TA acquisition is performed to the candidate gNB(s).

12. The UE performs L1 measurements on the configured LTM candidate cell(s) and transmits L1 measurement reports to the source gNB. L1 measurement should be performed as long as RRC reconfiguration (step 8) is applicable.

13. The source gNB determines to initiate inter-gNB LTM.

14. The source gNB decides to execute cell switch to a target cell and transmits an LTM cell switch command MAC CE triggering cell switch by including a target configuration ID which indicates the index of the candidate configuration of the target cell, a beam indicated with a TCI state or beams indicated with DL and UL TCI states, and a timing advance command for the target cell, if available. The UE switches to the target cell and applies the candidate configuration indicated by the target configuration ID.

15. The source gNB sends the CELL SWITCH NOTIFICATION message to the target gNB to indicate the initiation of Cell Switch command to the UE.

16. The target gNB detects the UE access. The UE performs the random access procedure towards the target cell, if UE does not have valid TA of the target cell as specified in clause 5.18.35 of TS 38.321[6].

17/18. The target gNB sends the HANDOVER SUCCESS message to the source gNB to inform that the UE has successfully accessed the target cell. In return, the source gNB sends the SN STATUS TRANSFER message following the principles described in step 7 of Intra-AMF/UPF Handover in clause 9.2.3.2.1.

NOTE : Data forwarding may be initiated as soon as the source gNB triggers the inter-gNB LTM cell switch for the UE in Step 14.

19. The UE sends an *RRCReconfigurationComplete* message to the target gNB.

20. The new source gNB (i.e., the target gNB) sends the LTM CONFIGURATION UPDATE message including the new KgNB\* to the candidate gNBs.

21. The candidate gNB(s) responds the LTM CONFIGURATION UPDATE ACKNOWLEDGE message to the new source gNB.

22. The new source gNB may send the UE CONTEXT RELEASE message to inform the old source gNB to release radio and C-plane related resources associated to the UE context if no LTM candidate cell(s) exist in the old source gNB. Any ongoing data forwarding may continue.

**<< End of Changes >>**