3GPP TSG-RAN WG3 Meeting #129-bis R3-257236

**Prague, Czech Republic, 13 – 17 October 2025**

Agenda Item: 12.2.1

Source: ZTE Corporation (moderator)

Title: Summary of Offline Discussion for CB: # 21\_AIMLMultiHop

Document for: Discussion

# 1 Introduction

**CB: # 21\_AIMLMultiHop**

**- TP to capture the agreement in appropriate way**

**- transfer the multi-hop UE trajectory prediction in UE associated message?**

**- discuss the above open issues**

(ZTE - moderator)

Summary of offline discussion in [R3-257236](file:///D%3A%5C3GPP%20Standardization%5CRAN3%5CRAN3%23129bis%5Cagenda%5CInbox%5CR3-257236.zip)

# 2 For the Chair Notes

Editor’s Note: For Rel-20 study/work items, please consider that when agreements/FFSes are captured in a TP, additional inclusion in the Chair Notes may be unnecessary (particularly for stage 3 details).

**Propose the following:**

**The delivery of the measured&predicted cell-based multi-hop UE trajectory should not involve impact of the core network.**

**The request and report to support measured multi-hop UE trajectory between gNBs should utilize the Data Collection Reporting Initiation procedure and Data Collection Reporting procedure.**

**To be discussed online:**

**WA: The cell-based multiple-hop UE trajectory prediction is transferred to the target NG-RAN node via the Handover Preparation procedure.**

**Common understanding:**

* **The cell-based multiple-hop UE trajectory can be updated to remove the past visited cell(s).**
* **When UE moves to unpredicted target cell, the serving gNB can discard the cell-based multiple-hop UE trajectory prediction**

# 3 Discussion

Following the online discussion, the discussion how to transfer the predicted multiple-hop UE trajectory, via Handover Request message or Data Collection Request message.

Based on what we captured in the stage2 spec for single hop UE trajectory:

Cell-based UE trajectory prediction, which can be used, e.g., for the Mobility Optimization use case, is transferred to the target NG-RAN node via the Handover Preparation procedure to provide information for, e.g., subsequent mobility decisions. Cell-based UE trajectory prediction is limited to the first-hop target NG-RAN node.

From the moderator’s perspective, the Rel-19 study phase should focus on extending the definition of cell-based UE trajectory prediction, while maintaining consistency with the principles agreed in Rel-18. Moreover, according to the protocol design, the **predicted multi-hop UE trajectory** is a **per-UE measurement**. Therefore, if this measurement needs to be transferred over the Xn interface, it must be carried in a **UE-associated message**, rather than a non-UE-associated message.

**Proposal 1: The delivery of predicted multi-hop UE trajectory can continue to be carried in the Handover Request message to the next target gNB.**

**WA: The cell-based multiple-hop UE trajectory prediction is transferred to the target NG-RAN node via the Handover Preparation procedure.**

**The cell-based multiple-hop UE trajectory can be updated to remove the past vistied cell(s).**

**When UE moves to unpredicted target cell, the serving gNB can discard the cell-based multiple-hop UE trajectory prediction**

Nokia: What’s the benefits of multiple-hop UE trajectory?

Huawei, ZTE: For subsequent mobility decisions.

For the measured multi-hop UE trajectory across gNBs, the collected measurement results should be forwarded to the initial gNB. This allows the initial gNB to evaluate and analyze the end-to-end performance of the trajectory prediction and mobility optimization.

Following is the solutions captured in the online meeting:

* Option 1: Parallel transmission from each hop gNB to the initial source gNB (i.e., Node2 to Node1, Node3 to Node1)



* Option 2: Hop-by-hop transmission (i.e., Node3 to Node2, Node2 to Node1)



* Option 3: Final-hop to initial-hop transmission (i.e., Node2 to Node3, Node3 to Node1)
* Option 4: Measured UE trajectory transfer via AMF (i.e. Node3 to AMF, AMF to Node1).

Before discussing the options above, the following principle should be agreed first:

* The delivery of the measured multi-hop UE trajectory should not involve impact of the core network.
* The delivery of the measured multi-hop UE trajectory should minimize the specification impacts.
* The request and report to support measured multiple-hop UE trajectory should utilize the Data Collection Initiation procedure and Data Collection Update procedure.

**Proposal 2: Agree the above proposal of principles.**

Capture the following agreements in the TP:

- Correct the scope in TR38.745.

- Capture the definition of multip-hop UE trajectory prediction “Multi-hop predicted UE trajectory across gNBs consists of a list of cells belonging to one or more gNBs where the UE is expected to connect and these cells are listed in chronological order.”

- Capture the deployment of mulit-hop UE trajectory.

# 4 Annex – TP to 38.745

4.1 Multiple-hop UE trajectory

4.1.1 Use case description

*Editor’s Note: Capture the description of use case*

In Rel-18, the cell-based UE trajectory prediction is limited to the first-hop target NG-RAN node.

Multi-hop predicted UE trajectory across gNBs consists of a list of cells belonging to one or more gNBs where the UE is expected to connect and these cells are listed in chronological order.

For the measured multi-hop UE trajectory across gNBs, the collected measurement results should be forwarded to the initial gNB. This allows the initial gNB to evaluate and analyze the end-to-end performance of the trajectory prediction and mobility