3GPP TSG-RAN WG3 Meeting #125 R3-244742

Maastricht, NL, from 19th to 23rd 2024

Agenda Item: 11.4

Source: ZTE Corporation

Title: (TP to TR 38.743) AI/ML for NG-RAN Rel-18 Leftovers

Document for: Text Proposal

# 1 Introduction

This TP follows discussions in R3-244700.

# 2 Text Proposal

# 5 Rel-18 Leftovers and solutions

Editor Note: Such topics are listed here for further selection/down selection for normative work.

## 5.1 Mobility optimization for NR-DC

Editor Note: Capture the description and its potential standard impacts.

### 5.1.1 Use case description

Mobility optimization for NR-DC can be improved by the support of AI/ML function.

Mobility Optimization for NR-DC is studied by assuming inference at the MN only. The main use case is limited to Dual Connectivity only and Conditional Dual Connectivity procedures are out of scope.

In case of NR-DC architecture, the following solutions are possible:

- AI/ML Model Training is located in the OAM and AI/ML Model Inference is located in the MN;

- AI/ML Model Training and Model Inference are both located in the MN.

### 5.1.2 Potential Standard impacts

The Dual Connectivity procedure (e.g., MN-initiated SN addition, MN-initiated SN change) is enhanced to tigger the collection of measured UE performance.

Note: Potential standard impacts can be further discussed during normative phase.

## 5.2 Split architecture support for Rel-18 use cases

Editor Note: Capture the description and its potential standard impacts.

### 5.2.1 Use case description

The split architecture should be enhanced to support the Rel-18 use cases, e.g, Load Balancing, Energy Saving, and Mobility Optimization.

In case of CU-DU architecture, the following solutions are possible:

- AI/ML Model Training is located in the OAM and AI/ML Model Inference is located in the gNB-CU(-CP);

- AI/ML Model Training and Model Inference are both located in the gNB-CU(-CP).

### 5.2.2 Potential Standard impacts

The following standard impacts are listed for subsequent Rel-19 normative work compared with what was specified during Rel-18.

- The details of signaling measured UE performance metrics from gNB-DU to gNB-CU-CP and/or from gNB-CU-UP to gNB-CU-CP needs further discussion during normative phase.

- Measured Energy Cost from gNB-DU to gNB-CU

## 5.3 Energy saving enhancements

Editor Note: Capture the description and its potential standard impacts.

## 5.4 Continuous MDT collection targeting the same UE across RRC states

Editor Note: Capture the description and its potential standard impacts.

### 5.4.1 Use Case Description

The problem of continuous data collection for management-based MDT can be described as follows: a UE in the NG-RAN can be configured with management-based Logged MDT when in RRC\_Idle and RRC\_Inactive states and with management-based Immediate MDT when in RRC\_Connected state. Differently from signalling-based MDT, in management-based MDT, a UE is not uniquely identified in the MDT activation. Therefore, when a UE transits to RRC\_Connected state from RRC\_Idle/RRC\_Inactive (during which Logged MDT data have been collected) or when a UE is handed over between gNBs, the network does not have standardized means to select again the same UE for continuous MDT for subsequent MDT data collection.

The Data Collection continuity in this scenario can be split into two tasks as below:

**- Problem A (measurement continuity)**: how to ensure that the same UE collecting MDT measurements during the same RRC state and across different RRC states.

**- Problem B (trace correlation)**: how to ensure that the TCE which eventually receives the MDT reports can associate the received logged and immediate MDT measurements to a continuous data collection period from the same UE.

### 5.4.2 Potential Standard impacts

Potential solutions to resolve the problems above can be further discussed during normative phase.