**3GPP TSG-RAN WG3 Meeting #123-Bis *R3-242180***

**Changsha, China, 15th Apr – 19th Apr 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.300** | **CR** | **-** | **rev** |  | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NEC, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_AIML\_NGRAN-Core | | | | |  | ***Date:*** | | | 2024-04-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In previous RAN3 meetings, there were several LSs back and forth between SA5 and RAN3 regarding the Energy Cost (EC) metric specified by RAN3 in the context of the Rel-18 RAN AI/ML Energy Saving use case, and RAN3 included lots of detailed explanation in the LSs. Hence, it is necessary to add a summary related to OAM aspects for the Energy Saving use case in the Stage2 specification in order to avoid further misunderstanding. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add OAM requirments on EC configuration.  Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has no impact on the protocol or functionality.This CR can be considered isolated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The OAM requirments of AI/ML in NG-RAN are missing in the specification which may cause misunderstanding when deploying the feature. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 16.20.x | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<Start of change>**

16.20 Support of AI/ML for NG-RAN

16.20.1 General

Support of AI/ML for NG-RAN, as a RAN function, is used to facilitate Artificial Intelligence (AI) and Machine Learning (ML) techniques in NG-RAN.

The objective of AI/ML for NG-RAN is to improve network performance and user experience, through analysing the data collected and autonomously processed by the NG-RAN, which can yield further insights, e.g., for Network Energy Saving, Load Balancing, Mobility Optimization.

16.20.2 Mechanisms and Principles

Support of AI/ML for NG-RAN requires inputs from neighbour NG-RAN nodes (e.g., predicted information, feedback information, measurements) and/or UEs (e.g., measurement results).

Signalling procedures used for the exchange of information to support AI/ML for NG-RAN, are use case and data type agnostic, which means that the intended usage (e.g., input, output, feedback) of the data exchanged via these procedures is not indicated.

AI/ML algorithms and models are out of 3GPP scope, and the details of model performance feedback are also out of 3GPP scope.

Support of AI/ML for NG-RAN does not apply to ng-eNB.

For the deployment of AI/ML for NG-RAN the following scenarios may be supported:

- AI/ML Model Training is located in the OAM and AI/ML Model Inference is located in the NG-RAN node;

- AI/ML Model Training and AI/ML Model Inference are both located in the NG-RAN node.

The following information can be configured to be reported by an NG-RAN node:

- Predicted resource status information;

- UE performance feedback;

- Measured UE trajectory;

- Energy Cost (EC).

The collection and reporting are configured through the Data Collection Reporting Initiation procedure, while the actual reporting is performed through the Data Collection Reporting procedure.

The collection of measured UE trajectory and UE performance feedback is triggered at successful Handover.

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.

16.20.x OAM requirements

OAM configures the minimum and maximum energy consumption values corresponding to the minimum and maximum EC values respectively, based on a unified mapping rule within a defined area.

OAM configures a time interval which is used to average the reporting NG-RAN node’s consumed energy.

**<End of change>**