3GPP TSG-RAN WG2 #123 R2-23XXXXX

Toulouse, France, August 21 – 25, 2023

Agenda Item: X.Y.Z

Source: Ericsson

Title: Outcome of [Post122][059][AIML]

Document for: Discussion

# 1 Introduction

The scope of the discussion is given by the following email thread:

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| * [Post122][059][AIML] TR text proposal (Ericsson)   Scope: Assemble agreed figure, tables etc into a TR baseline TP. Identify discussion points that seems essential to progress RAN2 TP in the near term  Intended outcome: Agreeable TP,  Deadline: Long |

The main purpose of this document is to address the discussion related to the functional framework, specifically regarding the data/information flows (i.e., arrows) which we did not have time to discuss online.

If you have not already done so, please refer to the separate document (i.e., RAN2’s TP to the TR) before proceeding with this document. Please note that an Annex has been included in that document listing all RAN2 agreements. The Rapporteur has highlighted those that are captured as TP.

Additionally, please provide any further details you believe are worth addressing in this email discussion as input to Q2 (see below).

**Deadline for comments: Thursday Aug 10th, 2023, 1000 UTC**

**Inactive periods and other planning comments:**

July 1st – 30th 3GPP Inactive Period

August 10 1000 UTC Deadline Long Email Discussions

August 11 1000 UTC Submission Deadline RAN2#123

Below you can find the list of participating companies and their respective responsible delegates.

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| **Company** | **Delegate name** | **Email address** |
| Ericsson | Felipe Arraño Scharager | felipe.arrano.scharager@ericsson.com |
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# 2 Discussion

## 2.1 On the functional framework

The following was agreed during RAN2#122:

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| Functional Arch   * Intention is to cover functional arch in general, e.g. covering both be model based and/or functionality based LCM * “Model Storage” in the figure is only intended as a reference point (if any) for protocol terminations etc for model transfer/delivery etc. It is not intended to limit where models are actually stored. Add a note for this. * Remove “Model” in Model Managemt and Model Inference and for the actions/the arrow form Management to Inference (to reduce the risk for misunderstanding). * Management may be model based management, or functionality based management. Add a mote for this. * With the modifications above Figure 2 from R2-2305327 is agreed |

Figure 2 from [R2-23053207](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_122/Docs//R2-2305327.zip) can be seen below:

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| **Figure 2: Functional architecture of AI for air interface** |

As per the agreements above, the Rapporteur has captured the following Figure in RAN2’s (currently discussed) text proposal for TR 38.843:

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| Figure 4.4-1: Functional framework for AI/ML for NR Air Interface |

Please be aware of the following changes to the names of the data/information flows (i.e., arrows):

* The arrow from Management to Inference has been renamed as “Management Instruction”,
* The arrow from Management to Model Training has been renamed “Monitoring output”,
* The arrow from Inference to Management has been renamed to “Inference Output”.

Arguments to these changes are provided as input to Q1 below.

**Question 1:**

Companies are invited to provide their views on the functional framework in the Figure above (Figure 4.4.-1). Try focusing on the data/information flows (i.e., the arrows), as the main blocks/functions have already been discussed and agreed online. Hence, try answering: should an arrow be optional? Should we rename them? Should we add/remove some? etc...

*Note: As per RAN2’s agreement the Rapporteur’s intention is to update the TR’s Figure that will be submitted to RAN2#123 according to the outcome of the discussion below.*

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| **Company** | **Views** |
| Ericsson | **On the arrow’s names:** We think that we should rename the following arrows as follows:   *Model selection/(de)activation/switching/fallback 🡪 Management Instruction  Monitoring output 🡪 Inference output Performance Feedback / Retraining Request 🡪 Monitoring output*  For the first one, there is a need to generalize what this is intended for.  Further, on the other ones, please look that monitoring data goes into management, then the outcome of management should be “monitoring output”, and the outcome of inference should be “inference output”.   Note that for the “Performance Feedback / Retraining Request”, the Model Training function should be the one to decide whether retraining is needed based on the monitoring output (i.e., not the Management function deciding this).   **On the presence/optionality of arrows and functions (blocks):** *- (arrow) Model Transfer/Delivery Request:* We are not entirely sure why the management function should be in charge of this. In principle, the management entity should simply provide the outcomes of certain model performances. Hence, we are inclined not to proceed with this model (update) request.  Additionally, since we agreed that “Model Storage” is only intended as a reference point, we could also use dashed lines for all arrows from/to the “Model Storage” block (eventually the block itself could also be dashed). |
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[Rapporteur’s Summary]: *To be added…*

1. According to companies’ inputs...
2. RAN2 to …

**Question 2:**

Companies are invited to provide additional comments with respect to RAN2’s TP for the TR. Is there something missing? Is there any other topic that should be addressed by this email discussion? etc…

As per what the Chair has described as scope for this email discussion, companies are also invited to provide views on discussion points that appear essential to progress RAN2’s TP in the near term. Please note that the Rapporteur has already added Editor’s Notes to the TR (highlighting some topics that need further study or/discussion/progress in RAN2).

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| **Company** | **Views** |
| Ericsson | We have tried to stress some points in the TP which RAN2 should start discussing in the near term, these include:   * (Prioritize discussion on) Mechanisms to report updates on applicability of models/functionalities * UE capability reporting considerations (note that RAN1 have agreed some things on this matter, and we believe that RAN2 should have a saying as well). |
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1. According to companies’ inputs...
2. RAN2 to …

[Rapporteur’s Summary]: *To be added…*

# 3 Conclusion

In the previous sections we made the following observations:

[Observation 1 According to companies’ inputs...](#_Toc138684978)

[Observation 2 According to companies’ inputs...](#_Toc138684979)

Based on the discussion in the previous sections we propose the following:

[Proposal 1 RAN2 to …](#_Toc138684980)

[Proposal 2 RAN2 to …](#_Toc138684981)

# 4 References

1. R2-23XXXXX, “R2 input to TR 38.343”, Ericsson, RAN2#123, August 2023, Toulouse, France