**3GPP TSG-SA5 Meeting #157 *S5- 245998d2***

Hyderabad, India, 14 - 18 October 2024

**Source: NEC, Intel, Huawei, ZTE, Deutsche Telekom**

**Title: pCR TR 28.858 clarifications into ML model transfer use case**

**Document for: Approval**

**Agenda Item: 6.19.1**

# 1 Decision/action requested

***The group is asked to discuss and approve the attached proposal.***

# 2 References

[1] 3GPP TR 28.858 v0.2.0; Study on Artificial Intelligence / Machine Learning (AI/ML) management Phase 2

# 3 Rationale

# Current description of the Managing ML Model Transfer in RAN use case [1] is very abstract and can benefit from some further clarifications. In addition, some relevant corrections are also introduced

# 4 Detailed proposal

*Add the following changes to TR 28.858 [1]:*

***1st change***

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[x] 3GPP TR 38.843; Study on Artificial Intelligence (AI)/Machine Learning (ML)
for NR air interface.

***Next change***

### 5.4.2 Managing Model transfer/delivery

5.1.2.1 Description

The ML model transfer/delivery (clause 7.2.1.4) in TR 38.843 [x] addresses number of potential solutions for model delivery/transfer to the UE, including the following solution:

*“Solution 4b: OAM can transfer/deliver AI/ML model(s) to UE.”*

According to RAN, AI/ML model transfer refers to the delivery of an AI/ML model over the air interface while AI/ML model delivery refers to delivery of an AI/ML model from one entity to another.

Note: the specific details of the solution 4b identified by RAN as documented in TR 38.843 [x] as one of the potential solutions for model delivery to UE is yet to be investigated by SA5.

5.4.2.2 Use cases

5.4.2.2.1 Relation of ML model delivery in RAN to ML model loading in SA5

“AI/ML model delivery” corresponds to the “OAM→RAN→UE scenario” in TR 38.843. As the interaction over air interface between gNB and UE is outside the scope of SA5, what is referred to as “delivery” in RAN corresponds to ML Model Loading in SA5 for which the existing solutions for ML model loading in TS 28.105 could be reused for the model transfer process between OAM and the gNB.

5.4.2.3 Potential Requirements

The requirements documented in TS 28.105 [2], clause 6.4.1.3 are applicable for AI/ML model delivery to gNB. Further clarifications into clause 6.4.1.3 should be further discussed and decided during the normative phase.

***Next change***

# 6 Conclusions and recommendations

For the development of Rel-19 normative specifications, it is recommended to

* specify information models for enabling knowledge-based transfer learning according to the solution in clause 5.1.1.4.
* specify information models for coordination of AI/ML Inference as described in the solution in clause 5.5.1.4.
* specify information models for orchestrating AI/ML Inference as described in the solution in clause 5.5.1.4
* specify information models for managing the progression of inference emulation according to the solution in clause 5.3.1.4.

## 6. 4 AI/ML deployment

### 6.4.X Managing ML Model Transfer in RAN

***End of changes***