**3GPP TSG RAN meeting #105 RP-242352**

**Shanghai, China, June 17-20, 2024**

**Source:** RAN2 Chair (InterDigital)

**Title:** Moderator's summary on offline discussion about RAN2 aspects on REL-19 WI NR\_AIML\_air

**Agenda Item:** 9.3.1.3

**Document for:** Discussion/Decision

# 1 Introduction

Offline

Table from 38.843

Table 7.2.1.3.2-1. Analysis of different data collection options for UE-side model training.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **Option****Aspect** | **Option 1a)** | **Option 1b)** | **Option 2** | **Option 3** |
| **First termination entity** | Training entity (e.g., Over-The-Top (OTT) server) | Server for data collection for UE-side model training | Inside the CN  | Inside OAM domain |
| **AI/ML-specific Data Transfer Path** | UE to OTT server via either 3GPP or non-3GPP network | UE ->Server for data collection for UE-side model training/OTT server(Note 4) | UE-> CN -> Server for data collection for UE-side model training/OTT server(Note 4) | UE-> gNB->OAM -> Server for data collection for UE-side model training/OTT server(Note 4) |
| **UP/CP tunnel** | UP tunnel (for the case of data transfer from UE to OTT server via 3GPP network) | UP tunnel  | CP tunnel (provided that the data volume remains within the NAS signalling capacity)FFS: UP tunnel (Note 7) | CP tunnel (provided that the data volume remains within the RRC signalling capacity)FFS: UP tunnel(Note 7) |
| **Protocol layer for data transfer** | Application layer | Application layer | NAS layer for CP tunnelFFS: the protocol layer for UP tunnel | RRC layer for CP tunnelFFS: the protocol layer for UP tunnel |
| **Controllability of MNO on data transfer(Note 1)** | No AI/ML specific controllability | FFS: level of controllability(Note 5) | Full controllability  | Full controllability |
| **Solution for network controllability** | N/A (the OTT server can directly request data from the UE) | Example: per PDU sessions  | Via NAS procedure or FFS other procedures | Via RRC procedure |
| **Possible Options for Visibility of data content in MNO and Data format (Note 2, Note 3)**  | No standardized visibility | FFS on level of visibility(Note 5) | Opt A) Full visibility for standardized data contents.Opt B) Partial visibility for partially standardized data contents. (Note 6)Opt C) No standardized visibility.(Note 6) | Opt A) Full visibility for standardized data contents.Opt B) Partial visibility for partially standardized data contents. (Note 6)Opt C) No standardized visibility.(Note 6) |
| **Impacted WGs** | N/A | SA2, SA3, RAN2, RAN3, CT1 | SA2, SA3, RAN3, RAN2, CT1 and CT3 | RAN2, RAN3, SA3, SA5, SA2 |
| * Note 1: Full controllability: The MNO can manage data transfer to the server for UE-side data collection, without the need of SLA. This includes initiating, terminating, and fully managing data transfer.
* Note 2: Visibility of data content signifies that the MNO can, at least, be aware of, access, and comprehend the data without the need of SLA.
* Note 3: The following options are identified to realize the different levels of data content visibility to the MNO:
	+ Full visibility for standardized data content.
	+ Partial visibility for partially standardized data content (e.g. UE proprietary information can be included transparently together with the standardized data message).
	+ No standardized visibility (e.g. only UE proprietary information can be included transparently).
* Note 4: The potential involvement of NF or other higher layers entities/functionalities should be discussed in other WGs. Impact on the OTT server is not in the scope of RAN2 discussion.
* Note 5: RAN2 cannot reach consensus on the level of MNO controllability and visibility possible via solution 1b without input from SA groups.
* Note 6: RAN2 has not concluded on the need for partial and no visibility options.
* Note 7: RAN2 could not reach consensus on the feasibility of UP solution in options 2 and 3.
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# 2 Discussion

## Data collection requirement

Discussion on requirements for data collection.

We will focus the discussion on should be requirements for transfer collected data over Uu for standardized solution (if RAN would standardize a solution)

**Full controllability**

**MNO Full visibility**

**Requirements for data collection for UE sided model training for standardized solution (if standardized) (i.e. 1b, 2, 3). 1a is not precluded.**

* + 1. Data collected is secured (integrity and confidentiality).
		2. Safeguards user data confidentiality/privacy/anonymize/user consent .
		3. Ensures data integrity. (FFS refine the first three bullets to cover privacy and confidentiality)
		4. The MNO has full control of the standardized data collection transfer process and can manage data transfer to the server for UE-side data collection, without the need of SLA for this purpose. This includes initiating, terminating, and fully managing data transfer
		5. MNO full visibility for standardized data.
		6. Futureproof and extendable design

FFS/study if and how to handle non-standardized data (i.e. partial visibility).

Solutions should follow the principle of aiming to minimize air interface overhead and impact to NW operation

Definition:

* Visibility of data content signifies that the MNO can, at least, be aware of, access, and comprehend the data without the need of SLA.
* The following options are identified to realize the different levels of data content visibility to the MNO:
	+ - * + Full visibility for standardized data content.
				+ Partial visibility for partially standardized data content (e.g. UE proprietary information can be included transparently together with the standardized data message).
				+ No standardized visibility (e.g. only UE proprietary information can be included transparently).

**Discussion**

* **Apple asks how we can achieve 2 and 3 without the SLA agreement**
* **Qualcomm thinks that full visibility should be only for the standardized data part. Samsung would like to also allow the partial visibility as we can’t guarantee that all data will be standardized. ZTE thinks that partial visibility will not guarantee security and confidentiality. BT thinks that are two aspects, the data is AI/ML but doesn’t have to always have full visibility on what the content means. CATT thinks that partial visibility can be for non defined date. Qualcomm thinks that for future extendibility we need to consider partial visibility. Verizon thinks that the requirement from operators is clear – full visibility. Interdigital explains that we need to separate whether it is possible to decode everything transferred. Futurewei thinks it is scary to say “full” visibility right away and if we go this way of standardizing everything we will end up going with 1a.**
* **Oppo thinks that if the vendors want to send non-standarized data they can use option 1a)**
* **Qualcomm explains that the operators would identify the data they want to be standardized would have full visibility, but we need to understand what the UE does with other data.**
* **Ericsson asks if this means that we would have to go to RAN1 and standardize the formats. Qualcomm thinks that we should have containers and how we define what is in the container we need to offer flexibility. Ericsson thinks that this is longer term thing and we will also have to consider 6G eventually.**
* **NTT Docomo thinks that we need to give flexibility and not follow similar solution as MTD which wasn’t that successful.**

## Solutions

Discussions on how to proceed with solutions and LS to SA2