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

**Melbourne, Australia, Sept. 9th -10th, 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.

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| **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 tunnel  FFS: the protocol layer for UP tunnel | RRC layer for CP tunnel  FFS: 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. | | | | |

# 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)

**Way forward**

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| **Requirements for data collection for UE sided model training for standardized solution (if standardized) (i.e. Option 1b, 2, 3). Option 1a is not precluded.**   * + 1. The data collected is secured and data integrity and confidentiality for that data is ensured.     2. User data privacy, anonymity and user consent is respected.     3. 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.     4. MNO has full visibility for standardized data.     5. The design is futureproof and extendable.   FFS/study if and how to handle non-standardized data (i.e. partial visibility).  FFS controllability on data collection  Standardized 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 assuming the requirements above are agreed.

Discussions on 1b) ask SA2 about the feasibility of option 1b)

* **Tmobile thinks that SA2 don’t know the requirements and anything relying on SLA wouldn’t meet the requirements.**
* **QC thinks that we should ask SA2 as we couldn’t reach the conclusion in RAN2 given lack of expertise.**
* **Apple thinks that SA3 should receive an LS as the first three requirements.**
* **Nokia thinks that the LS should be send to SA and we should at least indicate that solution 2 and 3 meet the requirements and SA can proceed in defining the solution. For option 1b) we should list the requirements including the fact that SLA doesn’t meeting the requirement and ask about their understanding about the requirements.**
* **Futurewei thinks that RAN2 should have more discussions and then ask something specific to SA.**
* **DT agrees with TM and Nokia, and we should indicate to SA to start option 2 and 3, even though they have a preference for option 2. Option 1b doesn’t need to be further considered.**
* **Vodafone thinks that having an understanding of data volume would be useful for SA2. ZTE thinks that we should indicate to SA that option 2 and 3 are feasible. Samsung would like to ask the feasibility for option 2 and 3.**
* **DT wants to indicate that option 1a is a non-standardized solution with no 3GPP specification impact.**
* **Qualcomm is concerned that CP solution wouldn’t be future compliant as the data size and data format wouldn’t be supported with CP even with segmentation.**

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| **WF**   * **SA input is required for further decision on which solutions to proceed with. RAN will consider SA input in making a final decision in RAN#106.** * **RAN extends the study item on data collection by one quarter. Checkpoint in RAN#106 on how to proceed** * **Send an LS to SA** * Provide the table and reference to TR 38.843 * Provide requirements agreed in RAN for a standardized solution (if standardized). * Provide facts in terms of what RAN2 couldn’t reach consensus on. * Reference to LS for message size R1-2310681 (RAN1 is still discussing) * The solutions developed need to meet the requirements. Ask SA to provide input on the solutions 1b, 2, and 3. at the beginning of LS that all solutions in the table are under consideration in RAN. * Input from SA will be used by RAN in RAN#106 to use in order to make a decision on how to proceed |

TBD What does RAN2 do in Q4 (extend study)????

* Data format for BM and positioning priority 1
* Partial visibility need

# 3 Conclusion

Copy the final requirement and WF once finalized