**3GPP TSG-RAN WG3 Meeting #129 R3-255759**

**Bengaluru, India, 25 – 29 August 2025**

**Agenda item: 21.3**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Summary of offline discussion before online session**

**Document for: Discussion and Decision**

# 1 Introduction

This contribution provides summary of offline discussion before the online session.

# 2 For the Chair’s Notes

**Proposals to be agreed:**

**For Unnecessary RLC retransmission avoidance:**

* (WA: to be checked before online session) gNB-CU provide signalling to the gNB-DU to enable or disable unnecessary RLC retransmission avoidance via F1AP.
* Add the text in F1-U spec, e.g. gNB-DU performs the required behavior as defined in TS 38.322.

**For UL Timely RLC retransmission, no enhancement is needed.**

**For DL Timely RLC retransmission:**

* (WA: to be checked before online session) Adopt Option 1 “CU based solution” that CP inform UP for the thresholds and CU inform DU for retransmission/poll

**For UL Rate Control / Recommended bit rate to gNB-DU:**

* no impact to NGAP

**Following topics to be discussed during online session:**

For UL Rate Control / Recommended bit rate,

* Whether F1AP enhancement is needed.
* Option 1: gNB-CU provides Recommended UL bit rate info per QoS flow to gNB-DU.
* Option 2: No additional information
* whether need coordination between MN and SN.
* RAN3 assumes the gNB does not need to inform the SMF for the rate control information, unless it is required by SA2.

For Support of DL PDU Set Information Marking Support Indication, RAN3 develop TPs based on Contribution 5573 ([15]), 5733 ([26]) and 5298 ([7]).

For QNC: RAN3 discuss whether use general term (e.g. GBR QoS) rather the specific QoS parameter (e.g. GFBR, PDB, etc) to describe the QNC notification.

For MMSID: RAN3 discuss whether using the STRING format defined in CT3 specification also for RAN3 specifications.

For support of exposure of available bitrate, decision to be made based on the reply LS from SA2.

# 3 Unnecessary RLC retransmission avoidance

Last RAN3 agreed following:

*Reuse the existing PDCP discard indication in F1-U to indicate the gNB-DU to stop the transmission/retransmission of a RLC SDU or the segment of a RLC SDU. FFS on how to capture this agreement.*

There are different views on whether need enhancement to F1-C/U. Contribution 5417 ([13]) proposes to introduce enhancement based on following reasons:

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| According to the RLC specification in TS 38.322 [2], the RLC entity on the gNB-DU will discard the indicated SDUs if they haven’t been submitted to lower layers. If the RLC SDU or a segment thereof has already been submitted to lower layers, it will not be affected.  …  *------ Excerption from TS 38.322 ------*  5.4 SDU discard procedures  When indicated from upper layer (e.g. PDCP) to discard a particular RLC SDU, the transmitting side of an AM RLC entity or the transmitting UM RLC entity shall discard the indicated RLC SDU, if neither the RLC SDU nor a segment thereof has been submitted to the lower layers. The transmitting side of an AM RLC entity shall not introduce an RLC SN gap when discarding an RLC SDU.  *------*  To support DL unnecessary retransmission avoidance, the gNB-DU’s behaviour upon receiving the F1-U indication should be re-defined. The functionality should be configurable. When it is configured, the gNB-DU adopt the new discard behaviour, i.e., stop the transmission and retransmission for the indicated SDUs regardless of whether they are submitted to lower layers. Otherwise, the legacy discard procedure is applied.  To facilitate the new discard behaviour at gNB-DU, the gNB-CU can provide signalling to the gNB-DU to enable or disable unnecessary RLC retransmission avoidance via F1AP. Specifically, the gNB-CU can carry the configuration signalling in the UE CONTEXT SETUP/MODIFICTION REQUEST messages, to indicate the gNB-DU to stop transmission/retransmission for the SDUs for a DRB when the corresponding discard indication is received.  ***Proposal 1*: The gNB-CU indicates the gNB-DU to stop the transmission/retransmission for the SDUs indicated by the F1-U discard indication via F1AP signalling.**  According to the above analysis, RAN3 should specify the configuration signalling in F1AP. Besides, the gNB-DU’s behaviour defined in TS 38.425 should also be updated to support the new mechanism for avoiding unnecessary retransmission. Specifically, the case when the gNB-DU is configured to stop the transmission/retransmission for the indicated SDUs should be added additionally. |

Contribution 5409 ([11]) proposes following:

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| it makes sense to introduce a new IE in the DL USER DATA frame specifically indicates the PDCP PDU associated with an RLC SDU, or a segment of the RLC SDU, for which the transmission and retransmission should be stopped.  **Proposal: Introduce a new IE in the DL USER DATA frame specifically indicates the PDCP PDU associated with an RLC SDU, or a segment of the RLC SDU, for which the transmission and retransmission should be stopped.** |

**Moderator:** The discard behaviour in RLC is defined in TS 38.322 Section 5.4. Current TS 38.322 Running CR does not modify Section 5.4 yet. Not sure whether RAN2 will update the discard behaviour in TS 38.422 Section 5.4

* **F1AP:** In case a new discard behaviour is added in TS 38.322 Section 5.4, further question is whether/how gNB-DU know it should use the new discard.
* Option 1: enhance F1AP to enable or disable unnecessary RLC retransmission avoidance.
* Option 2: No enhancement to F1AP. The gNB-DU generates the new RLC configuration for the UE, so the gNB-DU know the new discard is to be performed.
* **F1-U:** whether need to introduce enhancement to TS 38.425.

**Proposal 1-1: RAN3 to discuss whether need enhancement to F1-C, i.e. gNB-CU can provide signalling to the gNB-DU to enable or disable unnecessary RLC retransmission avoidance via F1AP.**

**Proposal 1-2: RAN3 to discuss whether introduce a new IE in the DL USER DATA frame specifically indicates the PDCP PDU associated with an RLC SDU, or a segment of the RLC SDU, for which the transmission and retransmission should be stopped.**

**Summary of offline discussion:**

Lenovo: RAN2 will add the discard in a new section

HW: gNB-DU generate the new RLC config for UL, but not for DL.

ZTE, Ericsson: no enhancement to F1-AP

Lenovo: same handling for UL and DL. In case only for DL, need indication.

* **Proposal 1-1: WA: gNB-CU provide signalling to the gNB-DU to enable or disable unnecessary RLC retransmission avoidance via F1AP.**

gNB-DU is configured to stop the transmission/retransmission for the indicated SDUs should be added additionally.

HW: add reference to 38.322

* **Proposal 1-2: Add the text in F1-U spec, e.g. gNB-DU performs the required behavior as defined in TS 38.322.**

# 4 UL Timely RLC retransmission

Most companies propose no enhancement is needed for UL Timely RLC retransmission. Contribution 5323 ([8]) proposes:

1. For UL autonomous RLC Re-Tx and enhanced polling request , CU generates the new PDCP configuration parameters *remainingTimeBasedPollingThreshold* and *remainingTimeBasedReTxThreshold* for the PDCP SDU. CU will send PDCP new configuration parameters to CU-UP via E1-AP Signaling messages.

**Moderator**: it is unclear on the behavior in the CU-UP.

**Proposal 2: For UL Timely RLC retransmission, RAN3 discuss whether the CU send PDCP new configuration parameters to CU-UP via E1-AP Signaling messages.**

**Summary of offline discussion:**

* **Proposal 2: For UL Timely RLC retransmission, no enhancement is needed.**

# 5 DL Timely RLC retransmission

There are different views on the enhancement to support DL Timely RLC retransmission. The proposals can be categorized into two major options:

**Option 1: CU based solution. CP inform UP for the thresholds. CU inform DU for retransmission/poll.**

**Option 2: DU based solution. CU send the info to DU, then DU decide when need to perform retransmission/poll**

**Proposal 3: For DL Timely RLC retransmission, RAN3 discuss following options**

* **Option 1: CU based solution. CP inform UP for the thresholds. CU inform DU for retransmission/poll.**

**ZTE, Huawei, CATT**

**Impact E1AP, F1-U**

* **Option 2: DU based solution. CU send the info to DU, then DU decide when need to perform retransmission/poll**

**Ericsson, Nokia, Lenovo**

**Impact F1AP**

**Summary of offline discussion:**

Ericsson: Option 2, similar to DSR

HW: Option 2 affects RLC

Need further check on whether Option 2 has RAN2 impact

* **WA: Adopt Option 1 “CU based solution” that CP inform UP for the thresholds and CU inform DU for retransmission/poll**

# 6 UL Rate Control / Recommended bit rate to gNB-DU

Online session agreed **CU sends the uplink rate control indication per QoS flow over F1 to DU.**

There are different views on whether additional assistance information from CU to DU. Following options were proposed:

- Option 1: Recommended UL bit rate info per QoS flow QC, Samsung, ZTE

- Option 2: No additional information NEC, Huawei, CATT, Nokia, Ericsson

**Proposal 4-1: RAN3 to discuss whether CU provide additional assistance information for UL rate control**

**Whether need coordination for DC**

Contribution 5279 ([5]) and Contribution 5389 ([9]) proposes the coordination between MN and SN, e.g. to only send one MAC CE to UE.

**Proposal 4-2: RAN3 to discuss whether need coordination between MN and SN.**

**Whether gNB need to inform SMF for the rate control information (i.e. the recommended rate sent to UE)**

Contribution 5389 ([9]) and Contribution 5717 ([23]) proposes the gNB may inform SMF/UPF when UL rate control MAC CE send to UE in order to coordinate with CN for congestion handling.

**Moderator:** This is not required by SA2, and it is unknown how the CN uses this information. Unless it is required by SA2, RAN3 cannot make the decision. It is recommended that companies submitted the proposals in SA2.

**Proposal 4-3: RAN3 assumes the gNB does not need to inform the SMF for the rate control information, unless it is required by SA2.**

**Summary of offline discussion:**

* **agree no impact to NGAP**
* continue the discussion on Option 1/2

# 7 Support of DL PDU Set Information Marking Support Indication

Contribution 5573 ([15]), 5733 ([26]) and 5298 ([7]) proposes Stage-2/3 TP to introduce the DL PDU Set Information Marking Support Indication IE in E1AP and F1AP. It is suggested to develop TPs based them.

**Proposal 5: RAN3 develop TPs based on Contribution 5573 ([15]), 5733 ([26]) and 5298 ([7]).**

**Summary of offline discussion:**

Not discussed during offline session.

# 8 Clean-up for QNC

Contribution 5610 ([17]) and 5611 ([18]) raised an issue for the inconsistency between RAN3 specs and SA2 spec. According to TS 23.501, QoS parameters including GFBR, PDB and PER should be considered for QNC. The NG-RAN shall send notifications of “GFBR can no longer (or can again) be guaranteed” when it determines that the GFBR, PDB or PER of the QoS profile cannot be fulfilled (or can be fulfilled again). When PDU Set QoS parameters PSDB and PSER are included in the QoS profile, the NG-RAN uses PSDB and PSER to supersede PDB and PER when determining whether to send the notifications.

**Moderator**: it is only **one** codepoint sent to CN, so the CN can only know whether the GBR QoS is met or not met, but not possible to know whether it’s a specific parameter (e.g. GFBR and/or PDB and/or PER) is met or not met. Moderator suggest update current text to be general, e.g. “to indicate that the **GBR QoS** … cannot be fulfilled…”, rather to mention a specific parameter (e.g. GFBR or PDB or PER).

**Proposal 6: RAN3 to discuss whether use general term (e.g. GBR QoS) rather the specific QoS parameter (e.g. GFBR, PDB, etc) to describe the QNC notification.**

**Summary of offline discussion:**

Not discussed during offline session.

# 9 MMSID

In current RAN3 BL CR, the MMSID is defined as OCTET STRING (SIZE (1)), while CT3/CT4 spec defines MMSID as a string.

**TS 29.514:**

MultiModalId string Contains a multi-modal service identifier.

It is unclear whether RAN3 need to align with CT spec.

**Proposal 7: RAN3 discuss whether using the STRING format defined in CT3 specification also for RAN3 specifications.**

**Summary of offline discussion:**

Not discussed during offline session.

# 10 Support of exposure of available bitrate

# **Let’s wait for the reply LS from SA2**

Not discussed during offline session.

# 11 Other issues

Please add any missing issues.

**Issue #: (Company) description of the issues**

**Issue #1:**

# References

1. R3-255013, Reply to LS on Indicating Time to the Next Data Burst (TTNB) (RAN2(Qualcomm))
2. R3-255014, Reply LS to SA2 on XR rate control (RAN2(vivo))
3. R3-255297, (TP to BL CR for TS 37.340) Discussion on the remaining issues for Rel-19 XR (Nokia, Nokia Shanghai Bell)
4. R3-255215, Discussion on RLC enhancement (NEC)
5. R3-255279, Remaining issues on XR uplink rate control (Ofinno, LLC)
6. R3-255280, (TPs for TS 38.423, TS 37.340) Support of UL rate control (Ofinno, LLC)
7. R3-255298, (TP for BL CR for TS 38.300) enhancements to Stage-2 (Nokia, Nokia Shanghai Bell, ZTE Corporation, Ericsson)
8. R3-255323, R19 XR Signaling Enhancements (Qualcomm Incorporated)
9. R3-255389, Discussion on XR rate control (vivo)
10. R3-255408, (TP to XR BLCR for 38.473) On Timely RLC Retransmission (Lenovo)
11. R3-255409, (TP to XR BLCR for 38.425) On Unnecessary RLC Retransmission Avoidance (Lenovo)
12. R3-255416, Discussion on UL rate control (Huawei)
13. R3-255417, (TP for XR BL CRs) Discussion on RLC enhancements for XR (Huawei)
14. R3-255422, (TP for BL CR for TS 38.473) enhancements to support timely RLC retransmissions (Nokia, Nokia Shanghai Bell)
15. R3-255573, [TP for BL CR TS 37.483] Support of DL PDU Set Information Marking Support Indication (Ericsson, ZTE Corporation, Nokia, Nokia Shanghai Bell)
16. R3-255574, [TP to XR BL CR for 38.413] RAN status indication of Available data rate reporting (Ericsson)
17. R3-255610, (TP for XR BL CR for TS38.300) Clean-up for QNC (Huawei, CMCC, China Telecom)
18. R3-255611, (TP for XR BL CR for TS37.340) Clean-up for QNC (Huawei, CMCC, China Telecom)
19. R3-255638, (draft LS to SA2) Discussion on other aspects for NR XR enhancements (Samsung)
20. R3-255639, (TP to BLCR for TS 38.473 and TS 38.413) NR XR enhancements (Samsung)
21. R3-255647, Disccsion on NR XR Enhancements for others (CATT)
22. R3-255648, (TP for 38.473 and 38.425) NR XR enhancement for others (CATT)
23. R3-255717, Discussion on XR RAN Awareness and UL Rate Control (Meta)
24. R3-255731, [TP to BLCR 38413, 38473, 37483, 38425, 38300] TPs for XR remaining issues on UL Bit Rate Control and Timely RLC retransmission (ZTE Corporation)
25. R3-255732, Discussion on remaing issues in XR with draft reply LS to SA2 (ZTE Corporation)
26. R3-255733, [TP for BL CR TS 38.473] Support of DL PDU Set Information Marking Indication (ZTE Corporation, Nokia, Nokia Shanghai Bell, Ericsson)