**3GPP TSG-RAN WG3 Meeting #128** **R3-253832**

**Malta, MT, 19 - 23 May, 2025**

**Agenda item: 21.3**

**Source: Huawei, CMCC, China Telecom**

**Title: (TP for XR BL CR for TS 38.300) Support of UL rate control**

**Document for: Discussion and Decision**

1. Introduction

In RAN3 127bis meeting, RAN3 has agreed the NGAP TP (R3-252489) and the XnAP TP (R3-252490) to capture the following agreements:

* Introduce an indication in NGAP, to allow the SMF to inform the gNB which QoS flow(s) are subject to uplink rate control.
* Introduce the same indication in XnAP to inform target gNB.

But the stage 2 description is missing. This paper provides the stage 2 TP for 38.300, to capture the above agreements.

Annex. TP for BL CR for TS 38.300

*CHANGES START*

16.15.4.2 Layer 2 Enhancements

16.15.4.2.1 Assistance Information

In order to enhance the scheduling of uplink resources for XR, the following improvements are introduced:

- One additional buffer size table to reduce the quantisation errors in BSR and DSR (defined below) reporting (e.g. for high bit rates):

- Whether, for an LCG, the new table can be used in addition to the regular one is configured by the gNB;

- When the new table is configured for an LCG, it is used whenever the amount of the buffered data of that LCG to be reported is within the range of the new table, otherwise the regular table is used.

- Delay Status Report (DSR) of buffered data via a dedicated MAC CE:

- Triggered for an LCH when the remaining time before discard of any buffered PDCP SDU goes below a configured threshold (threshold configured per LCG by the gNB);

- When triggered for an LCH, reports the amount of data buffered with a remaining time before discard below the configured threshold, together with the shortest remaining time of any PDCP SDU buffered that has not been transmitted in any MAC PDU.

- Reporting of uplink assistance information (jitter range, burst arrival time, UL data burst periodicity, possibility for the UE to identify PDU sets and/or PSI) per QoS flow by the UE via UE Assistance Information. In case target gNB receives the burst arrival time from source gNB during the handover preparation procedure, the target gNB may use it by considering the SFN offset of the source gNB.

16.15.4.2.2 Discard

When the PSIHI indicates that all PDUs of the PDU Set are needed for a QoS flow, as soon as one PDU of a PDU set is known to be lost, the remaining PDUs of that PDU Set can be considered as no longer needed by the application and may be subject to discard operation at the transmitter to free up radio resources.

NOTE 1: It cannot always be assumed that the remaining PDUs are not useful and can safely be discarded. Also, in case of Forward Error Correction (FEC), active discarding of PDUs when assuming that a large enough number of packets have already been transmitted for FEC to recover without the remaining PDUs is not recommended as it might trigger an increase of FEC packets.

In uplink, the UE may be configured with PDU Set based discard operation for a specific DRB. When configured, the UE discards all packets in a PDU set when one PDU belonging to this PDU set is discarded due to discard timer expiry.

The gNB may perform downlink PDU Set discarding based on implementation by taking at least PSDB, PSI, PSIHI parameters into account.

In case of congestion, for downlink, the gNB may perform PDCP SDU discarding based on PSI. For uplink, dedicated downlink signalling is used to request the UE to apply a shorter discard timer to PDCP SDUs belonging to *low importance* PDU Sets in PDCP.

NOTE 2: How PDU Sets are identified as *low importance* is left up to UE implementation. When a PSI is available, it can be used according to the guidelines specified in TS 26.522 [58].

The transmitting PDCP entity can inform the receiving one of gaps in the sequence of transmitted PDCP SN, resulting from PDCP SDU discard, via a PDCP control PDU.

16.15.4.2.x Uplink Rate Control

The gNB can determine which QoS flows support uplink rate control based on an indication provided by SMF. The indication is included in the QoS profile of each QoS flow.

During the Xn-based handover preparation procedure, the source gNB will forward the indication for each QoS flow which allows uplink rate control to the target gNB.

*CHANGES END*