**3GPP TSG-RAN WG3 Meeting #129 R3-25xxxx**

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

**Agenda item: 21.3**

**Source: Nokia, Nokia Shanghai Bell, ZTE Corporation, Ericsson**

**Title: (TP for BL CR for TS 38.300) enhancements to Stage-2**

**Document for: Discussion and Decision**

# 1 Introduction

This contribution proposes following modifications to BL CR for TS 38.300.

* To clarify the PDU Set based handling can also be enabled based on the DL PDU Set Information Marking Support Indication received from SMF, and delete the related EN.
* Other editorial changes.

# Annex – TP for BL CR to TS 38.300

***-----------------Start of the Changes-------------------***

### 16.15.2 Awareness

XR-Awareness relies on QoS flows, PDU Sets, Data Bursts and traffic assistance information (see TS 23.501 [3]).

The following **PDU Set QoS Parameters** may be provided by the SMF to the gNB as part of the QoS profile of the QoS flow:

- PDU Set Delay Budget (PSDB): as defined in TS 23.501 [3], upper bound for the duration between the reception time of the first PDU (at the UPF for DL, at the UE for UL) and the time when all PDUs of a PDU Set have been successfully received (at the UE in DL, at the UPF in UL). When available, supersedes the PDB of the QoS flow.

- PDU Set Error Rate (PSER): as defined in TS 23.501 [3], upper bound for a rate of non-congestion related PDU Set losses between RAN and the UE. When available, it supersedes the PER of the QoS flow.

NOTE 1: In this release, a PDU set is considered as successfully delivered only when all PDUs of a PDU Set are delivered successfully.

- PDU Set Integrated Handling Information (PSIHI): indicates whether all PDUs of the PDU Set are needed for the usage of PDU Set by application layer, as defined in TS 23.501 [3].

NOTE 2: For a given QoS flow, the PDU Set QoS parameters are common for all PDU Sets but can be different for UL and DL, and the PDU Set QoS parameters shall include a PSIHI and/or both PSDB and PSER.

The PDU Set based handling can be enabled based on the PDU Set QoS Parameters, or based on the DL PDU Set Information Marking Support Indication received from SMF.

During the Xn-handover preparation procedure, the source gNB sends the stored PDU Set QoS Parameters as part of the QoS profile to the target NG-RAN node. For NG handover, the AMF provides the PDU Set QoS parameters to the target gNB by means of the NGAP HANDOVER REQUEST message.

The UPF can identify PDUs that belong to PDU Sets, and may indicate to the gNB the following **PDU Set Information** in the GTP-U header:

- PDU Set Sequence Number;

- Indication of End PDU of the PDU Set;

- PDU Sequence Number within a PDU Set;

- PDU Set Size in bytes;

- PDU Set Importance (PSI), which identifies the relative importance of a PDU Set compared to other PDU Sets within the same QoS Flow.

NOTE: PDU Set Information can be provided without PDU Set QoS Parameters.

5GC may provide XR traffic assistance information to gNB through NG AP TSC Assistance Information (TSCAI) as specified in clause 5.37.8 of TS 23.501[3] (for both GBR and non-GBR QoS flows):

- UL and/or DL Periodicity;

- N6 Jitter Information (i.e. between UPF and Data Network) associated with the DL Periodicity.

This assistance information can be used by the gNB to configure DRX to enable better UE power saving.

In addition, 5GC may provide the following information through NG-U as specified in clause 5.37.5.2 of TS 23.501[3]:

- Indication of End of Data Burst in the GTP-U header of the last PDU in downlink: this information can be used by the gNB to push the UE back to sleep when possible.

- Indication of Data Burst Size in the GTP-U header of the first PDUs of the data burst in downlink: this information can be used by the gNB to assist radio resource management.

- Indication of Time To Next Burst in the GTP-U header in downlink: this information represents the interval between the transmission of the last PDU in the current data burst and the first PDU of the next data burst, and can be used by the gNB to assist scheduling in downlink.

During the data forwarding for handover, the source gNB provides the Indication of End of Data Burst, Indication of Data Burst Size, and Time to Next Burst received from the UPF to target gNB in case one or more PDUs of the data burst is forwarded to target gNB.

Finally, 5GC may provide the Multi-modal Service ID (MMSID) to NG-RAN, as part of the QoS parameters of the QoS flow, when establishing and/or updating the corresponding QoS Flows. It is up to the gNB’s implementation to use this information for multi-modality service.

In the uplink, the UE needs to be able to identify PDU Sets and Data Bursts dynamically, including PSI. How this is done is left up to UE implementation but when possible for a QoS flow, this is indicated to the gNB via UE Assistance Information.

***-----------------Next Change-------------------***

##### 16.15.4.2.Z Uplink Rate Control

To enable faster adaptation of the source rate to uplink congestion, in downlink, the gNB can suggest an uplink physical-layer bit rate available to a QoS flow to the UE . In uplink, the UE can request the uplink physical-layer bit rate available to a QoS flow or signal a desired uplink physical-layer bit rate for a QoS flow.

Editor’s Note: exact naming of the procedure can be fixed later on.

The 5GC may provide the gNB the information indicating that the QoS Flow allows rate adaptation in the uplink direction. During the Xn-based handover preparation procedure, the source gNB will forward this information for the QoS flow to the target gNB, which allows target gNB to perform uplink rate control.

***-----------------End of the Change-------------------***