3GPP TSG-RAN WG3 Meeting #129 draft R3-255832

Bengaluru, India, 25 – 29 August, 2025

**Agenda item: 11.4**

**Source: Nokia, FiberCop, Deutsche Telekom**

**Title: (TP to TS 38.425) Stage 3 NR User Plane Updates**

**Document for: Text Proposal**

# 1 Introduction

This is a TP for the BLCR to TS 38.425, introducing the necessary updates for NR user plane protocol layer services related to delay reporting as part of UE Performance feedback.

# Annex TP to BLCR for TS 38.425

<<<<<<<<<<<<<<<<<<<< Start of the Changes >>>>>>>>>>>>>>>>>>>>

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 29.281: "General Packet Radio System (GPRS) Tunnelling Protocol User Plane (GTPv1-U)".

[3] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[4] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[5] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[6] 3GPP TS 36.322: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Link Control (RLC) protocol specification".

[7] 3GPP TS 38.322: "NR; Radio Link Control (RLC) protocol specification".

[8] 3GPP TS 23.501: "System Architecture for the 5G System".

[9] 3GPP TS 36.401: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Architecture description".

[x] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

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5.2 NR user plane protocol layer services

NOTE 1: In this section, NR user plane protocol layer services are also applicable to E-UTRA PDCP. With this understanding, each instance of NR PDCP can be replaced by E-UTRA PDCP.

The following functions are provided by the NR user plane protocol:

- Provision of NR user plane specific sequence number information for user data transferred from the node hosting NR PDCP to the corresponding node for a specific data radio bearer.

- Information of successful in sequence delivery of NR PDCP PDUs to the UE from the corresponding node for user data associated with a specific data radio bearer.

- Information of NR PDCP PDUs that were not delivered to the UE or not transmitted to the lower layers.

- Information of NR PDCP PDUs transmitted to the lower layers for user data associated with a specific data radio bearer.

- Information of downlink NR PDCP PDUs to be discarded for user data associated with a specific data radio bearer;

- Information of the currently desired buffer size at the corresponding node for transmitting to the UE user data associated with a specific data radio bearer.

- Information of the currently desired data rate in bytes at the corresponding node for transmitting to the UE user data associated with a specific data radio bearer;

- Information of successful in sequence delivery of NR PDCP PDUs to the UE from the corresponding node for retransmission user data associate with a specific data radio bearer;

- Information of NR PDCP PDUs transmitted to the lower layers for retransmission user data associated with a specific data radio bearer.

- Information of the specific events at the corresponding node.

- Information on Radio Link Quality from the corresponding node for user data associated with a specific data radio bearer.

- Information for QoS monitoring and UE performance delay monitoring from the corresponding node for user data associated with a specific data radio bearer.

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### 5.4.3 Transfer of Assistance Information

5.4.3.1 Successful operation

NOTE 1: In this section, PDCP duplication and delay measurement related information are not applicable to E-UTRA PDCP.

The purpose of the Transfer of Assistance Information procedure is to provide assistance information to the node hosting the NR PDCP entity. Such information may be taken into consideration by the node hosting the NR PDCP entity for UP management and optimisation procedures.

An NR user plane protocol instance making use of the Transfer of Assistance Information procedure is associated to a single data radio bearer only.

The Transfer of Assistance Information procedure may be invoked if

- the corresponding node decides to send the Radio Quality Assistance Information and/or the PDCP duplication activation suggestion to the node hosting the NR PDCP entity for the concerned data radio bearer or,

- the corresponding node decides to send the Radio Quality Assistance Information to the node hosting the NR PDCP entity for the concerned RLC entity.

The Transfer of Assistance Information procedure may be invoked if the corresponding node is configured to perform the QoS monitoring or UE performance delay monitoring and to send the monitoring results to the node hosting the NR PDCP entity for the concerned data radio bearer.

The ASSISTANCE INFORMATION DATA frame may include one or more Radio Quality Assistance Information. The information shall consist of the information indicated in the Assistance Information Type.

The ASSISTANCE INFORMATION DATA shall be sent, if supported, when the corresponding node receives a DL USER DATA PDU including the Assistance Information Report Polling Flag set to 1.

The ASSISTANCE INFORMATION DATA frame may include the PDCP Duplication Activation Suggestion, which informs the node hosting the NR PDCP entity of the suggestion from the corresponding node on whether to activate or not activate DL PDCP duplication. The node hosting the NR PDCP entity may take this information into account to take a decision on whether to activate or not activate PDCP duplication.

The ASSISTANCE INFORMATION DATA frame may include the UL Delay or/and DL Delay measured by the corresponding node. The node hosting the NR PDCP entity may take this information into account to calculate the whole UL or/and DL delay of RAN.

The ASSISTANCE INFORMATION DATA frame may include UL Congestion Information and/or DL Congestion information measured by the corresponding node. The node hosting the NR PDCP entity shall, if supported, take this information into account to perform ECN marking in the NG-RAN node, or to further send it to the UPF for ECN marking or information exposure as specified in TS 23.501 [8].

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**Figure 5.4.3.1-1: Successful Transfer of Assistance Information Data**

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5.5.3.48 UL Delay DU Result

**Description:** This field indicates UL delay measured at the corresponding node in milliseconds for the concerned DRB over Uu interface. It is encoded as an Unsigned32 binary integer value. The node hosting PDCP entity shall, if supported, use this information to calculate the total UL delay for the concerned DRB and it may report the calculated total UL delay to the UPF for the purpose of QoS monitoring as specified in [8]. The node hosting PDCP may also use this information for the purpose of deriving UE performance feedback as specified in TS 38.300 [x] and it may report it to the gNB-CU-CP, upon request. This information element is not applicable to E-UTRA PDCP.

**Value range:** {0..232-1}.

**Field length:** 4 octets.

5.5.3.49 DL Delay DU Result

**Description:** This field indicates DL delay measured at the corresponding node in milliseconds for the concerned DRB over Uu interface. It is encoded as an Unsigned32 binary integer value. The node hosting PDCP entity shall, if supported, use this information to calculate the total DL delay for the concerned DRB and it may report the calculated total DL delay to the UPF for the purpose of QoS monitoring as specified in [8]. The node hosting PDCP may also use this information for the purpose of deriving UE performance feedback as specified in TS 38.300 [x] and it may report it to the gNB-CU-CP, upon request. This information element is not applicable to E-UTRA PDCP.

**Value range:** {0..232-1}.

**Field length:** 4 octets.

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