**3GPP SA WG2 Meeting #165 S2-2410534**

**Hyderabad, India, 14-18 October 2024**

Title: [Draft] Reply LS on Application-Layer FEC Awareness at RAN

Response to: Reply LS on Application-Layer FEC Awareness at RAN (R2-2405781/S2-2409567)

Release: Release 19

Work Item: XRM\_Ph2

Source: SA2

To: RAN2

Cc: SA4

**Contact Person:**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** [**mailto:3GPPLiaison@etsi.org**](mailto:3GPPLiaison@etsi.org)

Attachments: -

**1. Overall Description:**

SA2 would like to thank RAN2 for the Reply LS on Application-Layer FEC Awareness at RAN and would like to provide the following feedback.

SA approved the XRM\_Ph2 WID in SP-241385, which includes the following

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| * Enhancements to provide AL-FEC awareness, content ratio over Control plane for NG-RAN.   NOTE: Whether to do enhancements for AL-FEC awareness at RAN are subject to RAN-level enhancements of RLC Acknowledged Mode (RLC AM) for XR as per RP-240791 and further feasibility analyses and feedback from RAN WG2. RLC UM is not intended to be supported in this release due to concerns shared so far from RAN WG2 (see R2-2405781), pending further status update from RAN WG2. |

The XRM\_Ph2 WID in SP-241385 also refers to TR 23.700 clause 8, which contains the following principles for normative work:

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| Normative work for AL-FEC awareness at NG-RAN will be based on the following principles:  - When requesting or updating QoS for a DL flow, an AF may provide to PCF/NEF - together with PDU Set QoS parameters - the content ratio for the flow. An AF may provide either PSIHI or content ratio for a flow.  - If a PCF receives the content ratio from an AF, then the PCF may include the content ratio in PCC rules that it provides to the SMF.  - The SMF provides content ratio to NG-RAN when establishing/modifying a QoS flow.  **- If NG-RAN supports PDU Set content ratio awareness and has received content ratio information for a QoS flow, then NG-RAN may consider content ratio information as follows:**  - **If NG-RAN needs to discard PDUs of the QoS flow during congestion, then NG-RAN may use the content ratio information for discarding.**  **NOTE 1: The principles concluded for AL-FEC awareness at RAN (as above) is subject to RAN-level enhancements of RLC Acknowledged Mode (RLC AM) for XR as per RP-240791 and further feasibility analyses and feedback from RAN WG2. RLC UM is not intended to be supported in this release due to concerns shared so far from RAN WG2 (see R2-2405781), pending further status update from RAN WG2.**  **NOTE 2: RAN can, e.g. primarily discard obsolete AL-FEC PDUs of each PDU Set.**  **NOTE 3: There is no difference in terms of how many PDUs NG-RAN will be discarded for a given QoS flow. In other words, NG-RAN will not discard more PDUs if content ratio information is provided for a QoS flow compared to when no content ratio information is provided for the same QoS flow. This scheme merely allows NG-RAN to select the PDUs to be discarded to ensure that the original content can still be recovered at the receiver.**  NOTE 4: Since there is no difference how many PDUs will be discarded, there are no impacts to existing congestion control algorithms. |

Related to this agreement, SA2 would like to ask the following questions:

**Question 1: Can RAN2 confirm applicability of AL-FEC awareness at RAN for DL based on the above principles for RLC AM mode, also considering RAN-level enhancements of RLC Acknowledged Mode (RLC AM) for XR as per RP-240791?**

With respect to RLC UM, RAN indicated in R2-2405781 that "RAN2 does not think it is possible for NG-RAN to determine reliably whether a PDU has been successfully delivered over an unacknowledged-mode data bearer." After sending the previous LS in S2-2405625, SA2 clarified the principles for potential use of content ratio information for discarding of PDUs during congestion as listed above.



**Question 2: Please provide feedback on use of content ratio information for discarding of PDUs during congestion for RLC UM based on the above principles?**

**2. Actions:**

**To RAN2:**

**ACTION:** RAN2 is kindly requested to provide feedback accordingly.

**3. Date of Next TSG SA WG2 Meetings:**

TSG-SA2 Meeting #166 18-22 November 2024 Orlando, FL, USA

TSG-SA2 Meeting #AH 24-28 January 2025 Electronic meeting