3GPP TSG-WG SA4 Meeting #127-bis-e *S4-240640*

Online, Apr 8 – 12, 2024 (revision of S4-240xxx)

**Source: Huawei, HiSilicon**

**Title: [FS\_5G\_RTP\_Ph2] Key Issue #X: Application-layer FEC awareness for PDU Set handling**

**Document for: Approval**

**Agenda Item: 10.8**

**Work Item / Release: FS\_5G\_RTP\_Ph2 / Rel-19**

# Introduction

As agreed in SP-240482, how to enhance the PDU Set handling with the awareness of Application-layer FEC with collaboration with SA2/RAN2 is to be studied. The Key Issue is proposed in this paper.

# 2. Text Proposal

It is proposed to capture the following changes vs. TR 26.822.

\* \* \* \* First change \* \* \* \*

# 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".

[X] 3GPP TR 23.700-70:" Study on architecture enhancement for Extended Reality and Media service (XRM); Phase 2".

\* \* \* \* Second change \* \* \* \*(all new text)

## 5.x Key Issue #x: Application-layer FEC awareness for PDU Set handling

### 5.X.1 Description

The application layer FEC mechanisms are widely used to improve packet transmission robustness in the presence of packet losses without going through packet retransmissions that create a delay often incompatible with real-time constraints.

In the draft TR 23.700-70 [X] of FS\_XRM\_Ph2, Key Issue #1 is proposed to study the enhancement of PDU Set based handling considering the appliance of FEC mechanism in the application layer as shown below:

*whether, what and how PDU Set based handling (e.g. new standardized 5QI, enhancements to Alternative QoS profiles, FEC, etc.) and PDU Set information (including Control Plane and/or User plane information) provided by the AF/AS are enhanced.*

For now, in the draft TR 23.700-70[X], plenty of solutions have been proposed and discussed. The basic idea is to provide the FEC related information to the NG-RAN via the control plane or user plane. The FEC related information could be the redundancy ratio or the marks to differentiate the source and repair PDUs. With the awareness of the application layer FEC, the NG-RAN can optimize the PDU Set delivery accordingly.

However, the basic assumptions on the possible and common application layer FEC mechanisms are not clear from SA2 perspective and lots of ENs are installed in [X] that collaboration with SA4 is needed.

Therefore, it’s proposed to study:

- Identfiy the feasible FEC mechanism(s) which can be used to support the awareness for PDU Set handling and are (to be) widely used for low-latency real-time communication, such as split rendering;

Editor’s Note: This is based on the outcome of the study on the Enhancements for application-layer FEC support in Key Issue #Y.

- how to avoid/minimize the impact to the application layer if any for the PDU Set handling with FEC awareness?

- whether and how to assist the 5GS to get aware of the application layer FEC?

Editor’s Note: Collaboration with SA2/RAN2 is needed.