**3GPP TSG-WG SA2 Meeting #153E e-meeting *S2-2208568r36***

**Elbonia, October 10 – 17, 2022 (revision of S2-220xxxx)**

**Source: Huawei, HiSilicon, China Mobile, KDDI, Lenovo, Nokia, Nokia Shanghai Bell, Xiaomi, vivo, Sony**

**Title: KI#4&5: Evaluation and Conclusion**

**Document for: Approval**

**Agenda Item: 9.19**

**Work Item / Release: FS\_XRM / Rel-18**

*Abstract: Evaluation and conclusion for KI#4&5 is proposed.*

# 1. Introduction

This paper proposes the evaluation and conclusion for KI#4&5 together.

# 2. Text Proposal

It is proposed to capture the following changes vs. TR 23.700-60.

\* \* \* \* First change (all new texts) \* \* \* \*

## 8.X Conclusions for KI#4 and KI#5

The following aspects are concluded as principles for the normative work to support the following two key issues:

- Key Issue #4: PDU Set integrated packet handling

- Key Issue #5: Differentiated PDU Set Handling

NOTE: Further PDU Set handling for Uplink will be studied and led by RAN WG. SA2 can align with RAN’s progress and decision for Uplink, if any.

Editor's note: Whether and how to address the charging offset issue of DL PDU set eligible dropping by the NG-RAN is FFS.

### 8.X.1 Control plane enhancements for supporting PDU Set in downlink

#### 8.x.1.1 PDU Set QoS Parameters

PDU Set QoS treatment is determined using dynamic or non-dynamic PCC.

The following PDU Set QoS parameters are defined to support PDU Set handling:

- PDU Set Error Rate:The PSER defines an upper bound for the ratio between the number of PDU Sets not successfully received and the total number of PDU Sets sent towards a recipient measured over a measurement window.

Editor’s Note: the criteria for determining whether a PDU Set is successfully delivered or not are FFS

- PDU Set Delay Budget

Editor’s Note: The definitions of PSER and PSDB are FFS. For PSDB, it needs further study the impact due to N6 jitter.

- Whether all PDUs are needed for the usage of PDU Set by application layer (PDU Set Integrated Indication).

Editor’s Note: it is FFS “Whether a PDU Set is still valid in case PSDB is exceeded ” is needed. It should be discussed together with the definition of PSDB, specially about the boundary of PSDB.

If PDU Set based QoS handling is used, PCF determines the above PDU Set QoS Parameters based on information provided by AF (described in 8.X.2) and/or local configuration. The PDU Set QoS parameters are sent to SMF as part of PCC rule, then SMF sends them to RAN.

#### 8.X.1.2 AF Information Provisioning

PDU Set related assistance information provisioning by AF is supported for dynamic PCC. AF may provision one or more of the following PDU Set related assistance information to NEF/PCF during AF QoS request procedure:

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- PDU Set QoS parameters listed in clause 8.x.1.1.

- Burst periodicity

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### 8.X.2 User plane enhancements for supporting PDU Set in downlink

#### 8.X.2.1 PDU Set Information

The following PDU Set related information may be identified by UPF to support PDU Set based handling:

- PDU Set Identifier

- Optional, Start PDU and End PDU of the PDU Set

- PDU SN within a PDU Set

- Optional, Number of PDUs within a PDU Set

NOTE: Either one among Start/End PDU of the PDU Set and Number of PDUs within a PDU Set needs to be supported.

- Optional, PDU Set Size in Bytes

- PDU Set Importance

Editor’s Note: Support of PDU Set dependency (i.e. dependency information between frames/slices/layers) are FFS. (Potential SoH)

#### 8.X.2.2 PDU Set Information identification on UPF and supported N6 protocols

The detection and marking of the DL PDU Sets sent to the NG-RAN shall be done by the PSA UPF.

PSA UPF may identify the PDU Set based on instruction from SMF and packet header of N6 protocols:

- by matching RTP/SRTP header and payload (RFC 3550/3711/6184/7798/draft-ietf-avtcore-rtp-vvc/draft-ietf-avtext-framemarking are supported).

Editor’s Note: whether support PDU Set identification information in new RTP is pending toSA4 5G\_RTP WI.

NOTE: In above cases, it is assumed that the RTP/SRTP header and/or payload necessary for the identification of PDU Set Information is not encrypted.

- by UPF implementation, e.g., PDU Set detection based on traffic characteristics. IP header parameters DSCP/TOS, IP port, IPv6 flow label may be used to detect PDU set, however detailed mechanisms in UPF for PDU Set information identification will not be standardized.

Editor’s Note: Other N6 protocols, i.e. HTTP/MASQUE, GTP-U, IP/TCP/UDP/QUIC options, carrying PDU Set information are FFS. (Potential SoH)

#### 8.X.2.3 Delivering PDU Set Information to RAN

PDU Set Information (listed in 8.X.2.1) are informed by UPF to RAN via GTP-U header of user plane packet.

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Editor’s Note: Whether PDU Set importance is used for mapping different QoS Flows, sub-QoS Flows, or included in GTP-U header is FFS. (Potential SoH)

### 8.X.3 PDU Set based QoS handling

RAN performs PDU Set based QoS handling based on received PDU Set QoS Parameters via control plane, and PDU Set Information received via user plane. The details of RAN behaviours are defined in RAN WG.

Editor’s Note: Whether UPF supports PDU set dropping and informs downstream nodes (either UPF or RAN node) is FFS

\* \* \* \* End of changes \* \* \* \*