**Source: Huawei (Rapporteur)**

**Title: KI#4 and KI#5, key questions for company view collection**

This document is to collect company views on key questions of KI#4 and #5 to facilitate the following conclusion discussion. Please kindly provide your company views on the following questions before EoB of Sep 16th. The rapporteur will collect the views and propose summary/way forwards/SoH for further discussion afterwards.

### Q1: How does UPF identify DL PDU Set info?

* Option 1: use existing IETF RTP/SRTP RFC and draft
* Option 2: Define/extend N6 protocols to carry related info
  + Option 2.1: extend GTP-U protocol
  + Option 2.2: extend HTTP header (S2-2205830)
  + Option 2.3: extend RTP header
* Option 3: UPF implementation based on e.g. traffic characteristics.
* Option 4: UPF interacts with NWDAF(S2-2205838)

**[Company view]**

**Position: Support Option 1 and Option 3.**

**Justification**:

For Option 1, UPF can make the best use of RTP/SRTP header /NAL unit header information as defined in IETF specs. Taking the SA4 LS as an example, SA4 has analyzed to map RFC7798 (H.265) and RFC6184 (H.264) to PDU Set concept. The LS also shows the operation for H.265/H.264 Fragmentation Unit Packets as a potential scenario (*The first packet of the PDU Set is lost, all other packets of the fragmentation units are useless, whereas of the last packet is lost, the decoder can use all packets except the last one. Obviously, in this example scenario, the first packet is “more important” than the last one*). This operation is also applicable to the RTP header identification as defined in draft-ietf-avtext-framemarking.

Option 2.2 and Option 2.3 may be useful in encrypted traffic. However, these options depend on IETF works and need to be considered to future release.

If the RTP/SRTP header is encrypted, Option 3 may be applicable.

Option 4 is similar to Option 3 except for NWDAF analytics. The NWDAF can be useful for no-real time analytics. So Option 4 is not suitable for PDU Set identification.

### Q2. How to deliver PDU Set importance information to RAN:

* Option 1: use different QoS Flows with different priority level. PDU Set importance is mapped to existing QoS flow priority.
* Option 2: use one QoS flow for different PDU Set with different priority level
  + Option 2.1: use different sub-QoS Flow within one QoS Flow, and using sub-QoS flow Identifier in GTP-U header
  + Option 2.2: use PDU Set importance information in GTP-U header

**[Company view]**

**Position: No strong opinions for each option.**

**Justification**:

### Q3: Support to PDU Set dependency-based scheduling

* Option 1: Identify accurate dependency relationship between PDU Sets for scheduling.
* Option 2: In some scenario (e.g. closed GOP), the decoding of the non-I frames between two successive I frames always directly or indirectly relies on the 1st I frame of the two successive I frames. If the 1st I frame is in error, the non-I frames can be dropped until the next I frame. (proposed in S2-2205839)
* Option 3: If a PDU Set is depended by others, it can be considered as more important during scheduling. But the scheduling will not further consider the accurate dependency relationship.

**[Company view]**

**Position: Support Option 3.**

**Justification**:

For Option 1, it’s difficult for UPF to identify accurate dependency relationship, especially spatial-temporal coding use cases. Option 2 is only used for limited use cases such as closed GOP. Option 3 approach is simple and available to various video coding use cases.

### Q4. Support to hierarchical PDU Set:

* Option 1: introduces PDU Set group. (S2-2205938)
* Option 2: not support.

**[Company view]**

**Position: Support Option 2.**

**Justification**:

NAL unit header contains video slice type (e.g. I slice, P slice) and the dependency information of the video flame to which the video slice belongs. When the PDU Set is a video slice, the PDU Set can indicate the flame dependency by using NAL unit header or RTP header (defined in draft-ietf-avtext-framemarking).

### Q5. On “*Whether to drop a PDU Set in case PSDB is exceeded*”, do we need further define “*PDU Set Discard Time*” (A PDU Set shall be dropped in case this time is exceeded (sol 25 etc):

* Option 1: Support
* Option 2: not support.

**[Company view]**

**Position: Open for further discussion.**

**Justification**:

When we reach the consensus for the definition of PSDB, the discussion of PDU Set Discard Time may be started.