**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)

**[OPPO view]**

**Position:**

Support option 1, do not support option 2, 3, 4.

**Justification**:

The existing RTP layer header including RTP fixed header, RTP extended header, RTP payload header can be used to identify the PDU Set info with no impact to the XR applications, and the RTP layer header is common used for any access technologies, e.g. 3GPP access or WIFI access. Although in some cases the RTP payload header and RTP extended header may be encrypted, the RTP Fixed Header can still be read, e.g. Marker, sequence number, etc. Therefore, we propose to use existing RTP/SRTP header, especially for the use of RTP Fixed Header Fields.

GTP-U protocol extension affects both 3GPP specs and application server-side app development, i.e., the application needs to support the packet encapsulation specially used for 3GPP access. We don’t think it’s reasonable for application to design different encapsulation headers for different access technologies.

HTTP/RTP header extension should be determined in IETF which is outside the scope of 3GPP. Hence, cannot be supported in this release.

Option3 and option4, the expected traffic patterns may not be matched considering the various conditions for the route between AS and UPF, e.g. jitter, packet lost, out of order packet, and UPF may spend extra time on packet buffering or interaction with other NFs for traffic characteristics detection.

### 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

**[OPPO view]**

**Position:**

The decision of one QoS flow or different QoS flows is based on the SDF level QoS requirements from AF, and thus both Option1 and Option 2.2 could be possible. We do not support option 2.1

**Justification**:

Whether to use different QoS flows or one QoS flow should depend on the design of application server. If an SDF generated by AF only contains the PDU sets with the same importance, the PDU sets with different importance carried in different SDF can be mapped into different QoS flows, e.g., I-frames use the same IP 5 tuple filter, while P-frames use the other IP 5 tuple filter. If an SDF generated by AF contains the PDU sets with different importance, the PDU sets are mapped into a single QoS flow, e.g., I-frames and P-frames share the same IP 5 tuple filter.

In our view, the Q2 is strongly correlated with the Q3. if the answer to Q3 is to identify accurate dependency relationship between PDU Sets for scheduling, it would be better to use one QoS flow, as it is difficult to associate different PDU Sets in different QoS Flows.

### 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.

**[OPPO view]**

**Position:**

Support option 3.

**Justification**:

Although identifying accurate dependency relationship facilitates scheduling, it’s difficult to figure out the accurate dependency relationship between PDU Sets. In addition, Option-1and Option-2 require PDU Sets with different PDU Set importance to be mapped into the same QoS flow. Otherwise, it is complicated to support coordination between multiple QoS flows.

Option-3 is much simpler and more general than others.

### Q4. Support to hierarchical PDU Set:

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

**[OPPO view]**

**Position:**

Prefer option 2.

**Justification**:

PDU Set group may be useful in some cases, but it is relatively complicated to introduce PDU Set group. It’s also difficult for UPF to identify the PDU Sets which belong to the same group. We don’t expect UPF to read the info from the layers beyond RTP layer, e.g. H.264, it’s more complex for the NF to do that.

### 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.

**[OPPO view]**

**Position:**

Have no strong opinions.

**Justification**: