**Source: T-Mobile USA**

**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)

**[T-Mobile USA view]**

**Position:**

Option 1 and Option 2 (Prefer 2.2 and 2.3)

**Justification**:

Operators will support many different XRM customers/applications, some will utilize the IETF existing markings, and thus implementations will need to be able to support these, even though they may be less optimal than applications that apply the HTTP or RTP extensions. The HTTP and RTP extensions are required to support operator provided XRM services (e.g. IMS XRM communications under development in FS\_RTC), and enable optimal performance for providers choosing to use these extensions. Extending GTP-U beyond the UPF is problematic as it changes the nature of the N6 interface.

### 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

**[T-Mobile USA view]**

**Position:**

Option 2 (Prefer 2.2)

**Justification**:

Option one while simple will quickly exhaust QOS Flows in the network, complicate RAN mapping, and make troubleshooting difficult. We prefer Option 2.2 as this will provide better backwards compatibility to existing services (which don’t use sub-QOS flows) and allowing RAN to continue to provide prioritization and other QOS actions for each packet.

### 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.

**[T-Mobile USA view]**

**Position:**

Option 3

**Justification**:

Simpler to use a priority; if priority is low and the available BW is limited then the unimportant packets/frames will be dropped first, if BW is sufficient then packets/frames don’t need to be dropped.

### Q4. Support to hierarchical PDU Set:

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

**[T-Mobile USA view]**

**Position:**

Option 2

**Justification**:

PDU set group further complicates the network and UE.

### 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.

**[T-Mobile USA view]**

**Position:**

Option 1

**Justification**:

This is probably needed if only priority is used to ensure any un-needed packets/frames in the PDU set are dropped. Different services and PDU set types may need this timer to be different depending on setup configuration of the PDU set type. This will be something determined by the network operator or communicated via the NEF when the external AS setups the PDU set.