**SA WG2 Meeting ##154 S2-xxx**

**14-18 November 2022, Toulouse, France**

**Source: Meta USA**

**Title: New 5QI for xR media**

**Document for: Discussion and Decision**

**Agenda Item: 10.3**

**Work Item / Release: XRM**

# 1. Introduction

Both SID/WID for “Architecture Enhancements for XR (Extended Reality) and media service” include the following NOTE:

NOTE: Whether to define a network slice type supporting media services can be determined during the normative phase.

Beside the potential new network slide type definition, it is proposed to also discuss the potential new 5QI during the normative phase by adding the following NOTE to the WID:

NOTE 2: Whether to define a new 5QI for supporting media services can be determined during the normative phase.

# 2. Discussion

In the current 5QI definition in TS 23.501, 5QI=80 is cited with “Augmented Reality” as application examples. However, we believe that its current definition (for 5QI=80) is not sufficient. Let’s use 5QI of 2/6/8 that are typically used for Live\_Video/Premimun\_internet\_traffic/Best\_effort\_internet\_traffic for comparison purposes below.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **5QI****Value** | **Resource Type** | **Default Priority Level** | **Packet Delay Budget****(NOTE 3)** | **Packet Error****Rate**  | **Default Maximum Data Burst Volume****(NOTE 2)** | **Default****Averaging Window** | **Example Services** |
| 2 | GBR(NOTE 1) | 40 | 150 ms(NOTE 11,NOTE 13) | **10-3** | N/A | 2000 ms | Conversational Video (Live Streaming) |
|  |  |  |  |  |  |  |  |
| 6 | Non-GBR(NOTE 1) | **60** | 300 ms(NOTE 10,NOTE 13) | 10-6 | N/A | N/A | Video (Buffered Streaming)TCP-based (e.g. www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.) |
| 8 |  | 80 | 300 ms(NOTE 13) | 10-6 | N/A | N/A | Video (Buffered Streaming)TCP-based (e.g. www, e-mail, chat, ftp, p2p file sharing, progressive |
| 80 |  | 68 | **10 ms**(NOTE 5,NOTE 10) | 10-6 | N/A | N/A | Low Latency eMBB applications **Augmented Reality** |
| NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.NOTE 5: A static value for the CN PDB of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface. When a dynamic CN PDB is used, see clause 5.7.3.4.NOTE 10: In both RRC Idle and RRC Connected mode, the PDB requirement for these 5QIs can be relaxed for the first packet(s) in a downlink data or signalling burst in order to permit battery saving (DRX) techniques.NOTE 11: In RRC Idle mode, the PDB requirement for these 5QIs can be relaxed for the first packet(s) in a downlink data or signalling burst in order to permit battery saving (DRX) techniques.NOTE 13: A static value for the CN PDB of 20 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface. |

We believe a new 5QI definition for xR should be more aligned with PER=**10-3** and priority level <= 60 which is similar to premium internet service with 5QI=6. This is because xR with good QoE needs to have at least the same scheduling resource priority at the RAN level with other premium internet traffics but the PER should be performed similarly as with live video stream. The other important factor is PDB which should be kept as 10ms as with 5QI=80.

In other words, we believe the following new 5QI needs to be introduced for xR media service during the normative phase.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **5QI****Value** | **Resource Type** | **Default Priority Level** | **Packet Delay Budget****(NOTE 3)** | **Packet Error****Rate**  | **Default Maximum Data Burst Volume****(NOTE 2)** | **Default****Averaging Window** | **Example Services** |
| new | Non-GBR(NOTE 1) | 60 or better | 10 ms(NOTE 5,NOTE 10) | 10-3 | N/A | N/A | Low Latency xR applications |

# Proposal

**Add the following to the XRM WID:**

NOTE 2: Whether to define a new 5QI for supporting media services can be determined during the normative phase.

**See S2-xxxxxx.**