**SA WG2 Meeting #S2-149E S2-220xxxx**

**14 February – 25 February 2022, Electronic, Elbonia (revision of S2-220xxxx)**

**Source: Futurewei**

**Title: Key Issue for WT#3**

**Document for: Agreement**

**Agenda Item: 9.19**

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

***Abstract of the contribution:****This paper proposes a key issue related to WT#3 to be studied in FS\_XRM.*

# 1 Discussion

The KI description below is related to the proposed Objective 3 of the scope.

*The scope of the SID identifies in Objective 3 some aspects to be studied:*

*Study whether and how the following QoS and policy enhancements for XR service and media service transmission are performed:*

* *Study the traffic characteristics of media service enabling improved network resources usage and QoE.*
* *Enhance QoS framework to support media units granularity (e.g., video/audio frame/tile, Application Data Unit, control information),* *where media units consist of PDUs that have the same QoS requirements.*
* *Support differentiated QoS handling considering different importance of media units. e.g., eligible drop packets belong to less important media units to reduce the resource wasting.*

*NOTE 2: Coordination with RAN WGs may be needed for the above bullets.*

* *Whether and how to support uplink-downlink transmission coordination to meet RTT (Round-Trip Time) latency requirements between UE and N6 termination point at the UPF.*
* *Potential policy enhancements to minimize the jitter, focusing on i.e. requirement provisioning from AF, extension of PCC rule.*

# 2 Proposal

It is proposed to adopt the following changes into TS23.700-60.

 **\* \* \* \* 1st Change \* \* \* \***

# 5 Key Issues

## 5.X Key Issue #X: Differentiated QoS and Policy Enhancements for XR and media services

### 5.X.1 Description

XR and media traffic need high throughput, low latency, and high reliability in many cases. The traffic patterns of these applications are also characterized by bursts of traffic which can cause rapid changes in network congestion levels. Furthermore, packets of an application frame have dependency with each other, and different packets/frames within a flow impact user experience differently (e.g., I-frame, P-frame in a video stream). Randomly dropping packets of a flow in case of heavy overload may cause more damage than the loss of just the packet.

The study should investigate if enhancing the current QoS framework to support differentiated QoS handling for packets/frames within a flow can help to better manage congestion and overload at network bottlenecks. The mechanisms should complement the current 3GPP QoS framework as well as techniques where application transport end points react and reduce traffic sending rate (e.g., ECN).

The following aspects shall be studied:

* Study the traffic characteristics and media unit granularity to be used to determine eligible drop packets.
* What information (if any) that can be used to assist with differentiated QoS.
* Investigate how to improve network efficiency and manage network congestion with differentiated QoS handling for packets/frames within a flow.
* Consider application server – UE flows (e.g., cloud AR/VR, gaming) and UE – UE flows (e.g., drones) traffic patterns for differentiated QoS.
* Investigate policy enhancements to support differentiated QoS.

**\* \* \* \* End of Changes \* \* \* \***