**SA WG2 Meeting #143E S2-21xxxxx**

**24 February - 09 March 2021, Electronic (revision of S2-21xxxx)**

**Source: ZTE**

**Title: Discussion on performance Measurement per QoS Flow**

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**Agenda Item: 8.6.2**

**Work Item / Release: eATSSS\_Ph2 / Rel-17**

*Abstract of the contribution:*

# 1. Introduction

It was concluded in TR 23.700-93 that:

*4) The PMF protocol shall be enhanced to support RTT and Packet Loss Rate measurements per QoS flow.*

However according to clause 6.3.2.3 in the TR 23.700-93, there are two ways to enforce the PMF measurement per QoS flow. There is no conclusion which way should be used for normative work.

Another open issue is how to determine which QoS flow subject for PMF measurement.

This paper proposes discussion on these two open issues.

# 2. Discussion

**Question 1**: How to determine which QoS flows are subjected for PMF measurement.

In order to determine the QoS flow subject for PMF measurement, the following factor should be considered

1. The Resource Type: the QoS flow must be non GBR type
2. The Steering Functionality: the QoS flow is associated with traffic with steering functionality set to "ATSSS-LL". If the QoS flow is associated ONLY with traffic with steering functionality set to "MPTCP", the QoS flow is not subject for PMF measurement.
3. The Steering Mode: the QoS flow is used for traffic with Steering Mode set to " Smallest Delay" or " Load-Balancing "

All these information are availabe in both UE and UPF for each QoS flow. Therefore it is possible that UPF and UE can make their own decision which QoS flows are subject for PMF measurement.

**Question 2**: How to enforce the PMF measurement per QoS flow

As described in clause 6.3.2.3 in the TR 23.700-93 there are two ways to enforce the PMF measurement per QoS flow, as except below:

Option 1) Different PMF addresses/port numbers are allocated per access with each QoS flow. The SMF provides the PMF addresses/port numbers per access associated with the QoS flow in UE Measurement Assistance Information to the UE when the QoS flow is established. The SMF provides the traffic descriptors of the new PMF address/port number in the QoS rule/N4 rule to the UE/UPF so the UE/UPF can map the PMF message over the assoicated QoS flow.

Option 2) Single PMF address/port number is used per access. This is similar as Rel-16 ATSSS. For uplink PMF message, the PMF in the UE provides the QFI together with the PMF message to AS layer and the AS layer determines the QoS flow according to the QFI received from upper layer. The UPF receives the QFI within the GTP-U header. There is no need to include QFI within the PMF messages. For downlink PMF message, as the QFI may not be sent in SDAP over Uu interface, the QFI should be included within the PMF message so the UE can knows which QoS flow the PMF message is sent over.

Option 1) is more aligned with current 5GC QoS model. According to the discussion on Question 1, not all QoS Flows are subject for PMF measurement, therefore the PMF address/port number per QoS flow is not big issues.

Option 2) needs UE specific implementation in AS layer to determine the QoS flow for uplink PMF message based on the QFI provided by upper layer, instead of the QoS rules.

We needs also consider the following conclusion for KI#2:

*7. The QUIC-based steering functionality shall be defined as a low-layer steering functionality and shall support one multipath QUIC connection per QoS flow*

In order to establish multipath QUIC connection per QoS flow, it is reasonable to allocate different PMF addresses/port numbers for each QoS flow. Therefore option 1) is preferred.

# 3. Proposal

It is proposed to discuss the about questions and agree on the way forward.