**3GPP TSG-CT WG4 Meeting #94C4-194499**

**Portoroz, Slovenia; 07th – 11th October 2019**

Title: LS on 3GPP CT WG4 feedback on QUIC network level troubleshooting capabilities

Work Item: FS\_QUIC

Source: 3GPP CT WG4

To: IETF QUIC

Cc:

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**1. Overall Description:**

3GPP CT WG4 is performing a feasibility study on the potential usage of QUIC protocol for the 3GPP 5G Core Network in 3GPP°TR°29.893 (last version available via the following link: <https://www.3gpp.org/ftp/Specs/archive/29_series/29.893/29893-120.zip>). 3GPP CT WG4 is currently waiting for the release of the first official version of QUIC RFC in order to resume and conclude this study.

3GPP CT4 WG hence reviewed the IETF draft-ietf-quic-transport-19 and would like to provide the following feedback on network level troubleshooting capabilities of QUIC as compared to TCP (cf. clause°9.6.3 of 3GPP TR°29.893 for more details):

*-* QUIC replaces both TLS and TCP. One of the main differences indeed is that QUIC encrypts the transport headers in addition to the payload, which is highly relevant for the network level troubleshooting matters. The existing Network OAM (Operation And Maintenance) solutions which are designed to make use and act on TCP headers would hence not be able to troubleshoot QUIC traffic and even less be easily adaptable to perform this task.

- QUIC includes an optional measurement bit, named spinbit, which allows in-path probes to measure both the round trip delay and the decomposition of the delay on both sides of symmetrical path.

- As of version 19, QUIC specifications do not support packet loss measurements.

- To enable an in depth analysis of the performance (e.g. flow control, etc.) between a consumer 3GPP 5G core Network Function (NF) and a producer NF, the decryption of the entire QUIC message is often required in order to read the transport parameters of the QUIC packet header. Contrary to HTTP/2 over TLS, this has the side effect of decrypting and revealing application layer information to network probes.

**2. Actions:**

**To IETF QUIC group**

**ACTION:** 3GPPCT WG4 kindly asks IETF QUIC WG to take the above feedback into consideration in QUIC version 1 specification and provide a feedback (especially on the highlighted points).

**3. Date of Next CT4 Meetings:**

3GPP TSG CT4#95 11th – 15th November 2019 Reno, US

3GPP TSG CT4#96 24th – 28th February 2020 Sophia Antipolis, FR