**3GPP TSG-CT WG4 Meeting #99eC4-204116v1**

**E-Meeting, 18th – 28th August 2020**

**Source: ZTE**

**Title: Solution for Header Enrichment for HTTPS**

**Spec: 3GPP TR29.820**

**Agenda item: 6.1.3**

**Document for: Approval**

**1. Introduction**

This contribution provides a solution for Header Enrichment for HTTPS.

**2. Proposal**

It is proposed to agree the following changes to 3GPP TR29.820 v0.1.0.

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\* \* \* First Change \* \* \* \*

## 6.X Solution #X: Header Enrichment for HTTPS

### 6.X.1 Description

When HTTPS schema is used, HTTP messages are transmitted in encrypted SSL/TLS packets. Before sending HTTP message to the remote server, the client shall first perform SSL/TLS handshake procedure to set up SSL/TLS connection with the remote server.

The initial SSL/TLS handshake messages are exchanged in clear text, which provides possibility to the UPF to insert some customized information in the initial SSL/TLS handshake messages. A simple way is, when detecting an initial SSL/TLS handshake message (i.e. ClientHello message) from an UE, the UPF can append additional SSL/TLS extension to the SSL/TLS handshake message to carry customized field names and values. If security sensitive information is carried in additional SSL/TLS extensions, such customized information should be secured by certain application level encrypt methods which are known to the operator’s UPF and the remote HTTPS server, e.g. by pre-configuration.

In order to support Header Enrichment for HTTPS, both SMF and UPF shall be enhanced to support corresponding functionalities.

To instruct the UPF to detect SSL/TLS packets and perform Header Enrichment for HTTPS, the SMF shall:

- Create UL PDR for detecting uplink SSL/TLS packets towards the remote server;

- Create FAR and associate it to the UL PDR. In the FAR, provide header field names and values which are required to be inserted into SSL/TLS handshake messages. And set the Header Type of Header Enrichment IE to “SSL/TLS” (or set to “HTTPS”).

Upon instruction from the SMF, the UPF shall:

- Install the UL PDR and FAR, and keep monitoring uplink IP packets from the UE and check whether it is SSL/TLS packets;

- Once SSL/TLS packets from the UE is detected, further inspect whether the SSL/TLS packets carries initial SSL/TLS handshake message from the UE (i.e. ClientHello message);

- Once the initial SSL/TLS handshake message from the UE is detected, insert additional SSL/TLS extension and carry the required field names and the values in the additional SSL/TLS extension, and finally forward the altered SSL/TLS packets onwards.

### 6.X.2 Impacts

SMF:

- Indicate to UPF that detection of SSL/TLS handshake message is required and indicated header field names and values are to be inserted to SSL/TLS handshake message;

UPF:

- Detect SSL/TLS handshake message from UE;

- Insert the required header field names and values to the detected SSL/TLS handshake messages from UE.

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