**Source: China Mobile Com. Corporation**

**Title:** **iRTCW-defined functions for 3D representation**

**Agenda Item: 10.5**

**Document for: Discussion and Agreement**

1. **Introduction**

The volumetric-type 3D video data can be directly compressed using V3C, or analysed and converted for animating an avatar [1]. This generic 3D avatar is trained with neutral and expression data captured from a RGBD camera, after that movement and compressed audio are transmitted to animate a 3D avatar. This document will discuss and give the extra functions for 3D representation based on the functions and entities specified in TS26.506 [2].

# **Discussion**

When avatar is trained with neutral and expression data in iRTC client,a content server sends generic avatar content to the WebRTC application through a data channel.

- video pre-processors need to train personalized neutral and expression information when session setup and [fetch expression information](C:/Users/cmcc/AppData/Local/youdao/dict/Application/9.2.0.0/resultui/html/index.html" \l "/javascript:;) during the session.

- video encoders need to compress these information to share.

- Activation needs to integrate audio, video and interactive information in data channel to animate a 3D avatar

When avatar is trained with neutral and expression data in WebRTC functional entities, a media server performs personalized avatar with neutral and expression information and generic people from UE and a content server.

- video pre-processors and encoders need to [fetch expression information](C:/Users/cmcc/AppData/Local/youdao/dict/Application/9.2.0.0/resultui/html/index.html" \l "/javascript:;) compress input from RGBD camera during the session

- Activation needs to integrate audio, video and interactive information in data channel to animate a 3D avatar

The volumetric-types used to represent generic people can be generated in media server because of non-real-time requirement.

Therefore, the above discussion can extend iRTCW-defined functions.

1. **Proposal**

It is proposed to revise the following change in clause 9.2.4 of the iRTCW permanent document.

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| **1st Change** |

### **9.2.4.1 Trusted WebRTC signaling server**

The trusted WebRTC signaling server is used to setup and manage MNO-operated WebRTC applications. They offer a standardized signaling protocol for the session setup to both parties of the WebRTC session. The WebRTC signaling server will handle the offer/answer exchange and will have access to the SDP in both directions.

The WebRTC signaling server is used to set up a data channel(s) of the WebRTC session. The data channel is used for preparing non-real-time 3D information, generic avatar objects, and user input during the session.

The WebRTC signaling server may use that knowledge to offer network assistance and other 5G features to the endpoints of the WebRTC session.

**9.2.4.2 Inter-working function**

This function provides inter-working functionality to enable MNO-facilitated WebRTC sessions that involve end-points across different MNOs. They may for example provide cross-network signaling functionality to allow WebRTC signaling server that are hosted in different networks to communicate, in order to establish and manage the WebRTC sessions.

### **9.2.4.3 Trusted media server**

A media server may be offered by the MNO to support WebRTC sessions. It may offer a wide range of functionality such as:

* a content server that serves content  (e.g., non-real-time 3D representation and generic avatar objects) to the WebRTC application, e.g.  through a data channel.
* media processing functionality: used by the WebRTC application as a relay that performs some media processing function such as transcoding, recording, 3D reconstruction, personalized neutral and expression information etc.
* scene composition functionality: the server may compose a 3D representation and distribute it to several point-to-point WebRTC sessions
* MCU functionality: the server may offer multi-party conferencing functionality to merge a number of point-to-point WebRTC sessions
* SFU (Selective Forwarding Unit) functionality: the server may offer the selection, copy, and forwarding functionality of IP steams produced by multiple WebRTC endpoints (i.e., participants).

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| **Change End** |

1. **References**

[1] S4-230450 iRTCW Permanent Document 0.4.0

[2] 3GPP TS 26.506 V1.1.0 (2023-02)