TSG SA4#113e meeting ***Tdoc S4-210442***

April 6-14, 2021

**Title:** Draft Reply LS to SA2 on hold and forward buffer support for VIAPA services

**Response to:** S4-210407 (S2-2102014)

**Source:** 3GPP SA4

**To:** 3GPP SA2

**Cc:** 3GPP SA1

**Contact Person:**

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**1. Overall Description:**

SA4 thanks SA2 for the LS on hold and forward buffer support for VIAPA services. Specifically, we understand SA2’s question to SA4 to be whether it is expected, in the transport of professional audio and video application content, for 5GS to perform network-based de-jittering of media streams (e.g., via hold/forward buffering) such that AV samples do not arrive at the recipient media playout device earlier than the expected arrival time.

SA4 subsequently discussed this matter, and based on also checking related reference information in TS 22.263, TS 23.700, IEEE 802.1Qbv and SMPTE ST 2110-10, we have the following observations:

* Professional audio and video applications already contain de-jitter buffers to accommodate time variability of inter-packet arrivals at the receiving device.
* Allowing packets to arrive earlier than just-in-time for decoding and playout can often be exploited to provide Application Layer Forward Error Correction (FEC) and therefore improve error resiliency. Such mechanisms use the early availability of subsequent packets (e.g., N+3) carrying redundant information to compensate or correct for loss of the current packet that needs to be decoded and played out (e.g., N). In fact, SA4 has developed and specified forward error correction technologies for voice that would not work as well if all packets were held in the system to prevent early delivery.

Therefore, in response to the SA2 question, SA4 is of the opinion that professional audio and video applications do not expect nor require the 5GS to de-jitter the traffic (e.g., by use of hold/forward buffering).

**2. Actions:**

SA4 kindly asks SA2 to take into account the above response from SA4, and provide us any related feedback or questions.

**3. Date of Next SA4 Meetings:**

SA4#114-e 19 – 28 May 2021 E-meeting

SA4#115-e 18 – 27 August 2021 E-Meeting

SA4#116 15 – 19 November 2021 Marbella, ES