**3GPP TSG-SA WG4 Meeting #133-eS4-251348\_r01**

**Online, 18-25 July 2025**

**Source: Samsung Electronics Co., Ltd.**

**Title: [AvCall-MED] On avatar selection and negotiation call flow**

**Agenda item: 10.7**

**Document for: Agreement**

**1. Introduction**

This contribution provides an updated avatar selection and negotiation call flow, based on the version in S4aR250109 from the post SA4 #132 RTC SWG telco.

**2. Discussion**

During SA4 #132 it was agreed that the capability and rendering mode negotiation should be done via the application data channel, as specified in SA2. A sub clause placeholder for a call flow detailing this procedure on avatar selection and negotiation was also created in the latest version of the base CR.

During the post SA4#132 RTC SWG telco, S4aR250109 was submitted with updates to the procedure, including the addition of ADC and RTP stream establishment for the generic call flow. It was commented that such establishment steps should not be part of the avatar selection call flow, but should be separate – there was an agreement that such details for ADC and RTP stream establishment is needed.

This contribution proposes an updated call flow, clarifying:

* Avatar ID list retrieval options (pre-configured, via bootstrap DC, or via application DC)
* Avatar animation negotiation over ADC

**3. Proposal**

It is proposed to agree the following changes to the latest version of the CR for 3GPP TR 26.264.

\* \* \* First change \* \* \* \*

### A.2.3 Avatar Selection and Negotiation Call Flow

For avatar communication over the IMS data channel, the avatar ID list (a list of the base avatars available in the BAR) is obtained by the UE using one of following options:

- Pre-configured in the UE: The Avatar ID List and/or Avatar Representations are provisioned or downloaded to the UE before any session for the avatar call is established.

- Through bootstrap data channel: The Avatar ID List is fetched by the DC AS from the BAR when the associated Avatar communication application is downloaded and transferred from the DC AS to the DCSF and downloaded to UE through the bootstrap data channel.

- Through application data channel: The Avatar ID List is fetched by the DC AS from the BAR and downloaded to the UE through an application data channel.

Three avatar animation modes are defined for avatar communication over the IMS data channel:

- Sender-centric: the sender UE animates and renders its base avatar before sending it to the receiving UE as 2D video.

- Receiver-centric: the receiving UE animates and renders the sender UE’s base avatar.

- Network-centric: the MF animates and renders the sender UE’s base avatar before sending it to the receiving UE as 2D video.

The decision of which avatar animation mode to use for avatar communication is dependent on the outcome of the capability and Avatar Animation Negotiation procedure via an application data channel, as detailed in figure A.2.3-1.



A.2.3-1: Avatar selection and negotiation call flow

The avatar animation negotiation procedure is based on the avatar type (2D or 3D) and the capability information of the sender/receiver UEs and MF. The capability information includes the animation data type(s) (e.g., text, expression data and motion signals for joints) supported by either UEs or MF. For network centric mode, after avatar animation negotiation, the IMS AS instructs MF to download UE1’s base avatar from BAR, generate animation data from the source data received from UE1, and animate UE1’s base avatar using the animation data received from UE1 or generated by the MF itself.

A.1.0. (optional) An Avatar ID List is pre-downloaded, or pre-configured in UE1.

NOTE: The step A.1.0 is optional; in this step the Avatar ID List is provisioned or downloaded to the UE before any session for the avatar call is setup. The UE and the BAR may interact by means out of the scope of 3GPP.

A.1.1: An IMS session is established between UE1 and UE2, and a bootstrap data channel is established between UE1, the MF and the DC AS.

A.1.2: The Avatar ID List and Avatar Communication App are downloaded to UE1 via the BDC (see details in AC 11.3.1 in TS 23.228 [X]).

A.1.3: A P2A2P application data channel for Avatar Animation Negotiation is established between UE1, MF DC AS and UE2. If the Avatar ID List has not been downloaded in either steps A.1.0 or A.1.2, it may optionally be requested downloaded via this ADC.d

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A.1.3.1. (optional): If the message in step A.1.3 carries parameters including, e.g., an avatar ID downloaded or pre-configured in step A.1.0 or A.1.2, then the avatar ID needs to be further verified by the BAR through a verification request from the DC AS to the BAR. If UE1 requests to obtain an Avatar ID List via a capability negotiation request, the DC AS sends the request to the BAR.

A.1.3.2 (optional) According to the request received in step A.1.3.1, the BAR verifies the avatar ID and sends response to the DC AS. If the avatar ID does not pass the verification by the BAR, an error message is sent to the UE1. If the BAR receives an Avatar ID List request, the BAR (generates and) sends the Avatar ID List to the DC AS.

NOTE: Steps A.1.3.1 and A.1.3.2 are optional. Whether and which user identity(ies) should be used by the user of the sending UE (UE1) and/or the receiving UE (UE2) for the download of the Avatar Representations in the case of a receiving UE rendering mode will be decided by SA WG3 and the procedure will be aligned with SA WG3 decision.

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A.1.4: UE1 selects an avatar representation to be used for the avatar call using the list of available avatar representations known to UE1 via the Avatar ID List.

A.1.5: Avatar Animation Negotiation takes place via the established P2A2P ADC.

A.1.5.1: UE1 sends an avatar animation negotiation request using the ADC through the MF to the DC AS. The message carries parameters which may include an avatar ID associated with the selected avatar representation selected in step A.1.4, animation data types (e.g., text, expression data, or motion signals for joints) supported by UE1, and related rendering requirement or capability information.

A.1.5.2: (optional) Through an established P2A application data channel, MF/DC AS sends a capability negotiation request to the UE2. The message may include the same information as in described in A.1.5.1.

A.1.5.3: (optional) UE2 sends the capability negotiation response to MF/DC AS. The message carries the capability negotiation result related to UE2’s preference.

A.1.5.4: The DC AS gets the avatar type (2D or 3D, from base avatar retrieved from BAR or to be generated by the MF) associated with the avatar ID and confirms the avatar animation negotiation result based on the avatar type and the capabilities supported by UE1, MF and UE2. The capability negotiation result includes the rendering mode and animation method (e.g., by audio, text or expression data and motion signals for joints).   
  
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(optional) To facilitate the negotiation of the rendering mode, the DC AS may interact with the current serving MF to check MF capability through the DC1, DC2, and DC3/DC4 interfaces ~~The request may include rendering requirement or capability information per UE1’s requested.~~ The MF sends a response with its avatar capability information to the DC AS, ~~for further DC AS to make decision,~~ e.g. if network-centric rendering is supported, and if the MF rendering mode or DC AS rendering~~.~~

~~NOTE: If the serving MF is capable of rendering the avatar, the MF indicates its avatar capability information in the response. If the serving MF is not capable of rendering the avatar, the MF will also indicate that in the response with a description of reasoning in the response.~~

Editor’s note : Whether the interaction between DC AS and MF is supported needs confirmation from SA2, in particular the MF response of its capability support to DC AS.

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A.1.5.5: The DC AS sends the capability negotiation response to UE1 through MF. The message carries the capability negotiation result.

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