**Agenda item:** 10.7

**Source:** Nokia

**Title: [AvCall-MED] Call Setup and Capability Negotiation Call Flows**

**Document for** Discussion andAgreement

# Introduction

In this contribution, we propose content for the base CR on Avatar Communication that introduces the call flow on call setup and capability negotiation.

In TR 26.813, clause 8.3.1, it is indicated that BAR (Base Avatar Repository) stores the Base Avatar Representations and their associated Avatar IDs. Furthermore, One or more Base Avatars may be stored for a user, and each Base Avatar is identified with an Avatar ID. Accordingly, in clause 8.3.2.1, when UE sends capability negotiation requests using the application data channel through MF to the DC AS. The message for capability negotiation requests carries parameters including an avatar id chosen by UE. The current call flows start from the point where the UE has obtained the avatar ID without detailed description.

In TS 23.228, AC.11.3, it is indicated that the avatar ID list can be downloaded via application data channel or pre-configured in the UE locally.

Also, in TR 33.790 clause 7.2, as part of the Conclusions for Key Issue #2: Security of IMS based Avatar Communication: Avatar ID sent by the UE1 should be verified by the IMS network about whether it belongs to the UE1.

Therefore, it is necessary to address the related procedures and details in the call flow during the call setup and capability negotiation, and to align with SA2 and SA3 related work.

# Proposed Changes

#### 8.3.2.1 Call Setup and Capability Negotiation

The parameters of the session are negotiated if UE centric mode or network centric mode is needed. This includes exchanging capability information, media and metadata descriptions and formats. The involved entities agree on assignment of avatar generation, animation tasks and media requirements.

For Avatar communication over IMS data channel, the list of Avatar ID(s) and/or Avatar Representations is downloaded to the UE by following options:

- Pre-configured in the UE: The Avatar ID List and/or Avatar Representations is provisioned or downloaded to the UE before a data channel for avatar call is setup.

- 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 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 application data channel.

##### 8.3.2.1.1 Network Centric



Figure 22: Network Centric Call Setup and Capability Negotiation Flow

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

 0. (optional) Avatar ID List Download through Bootstrap Data Channel (see details in AC 11.3.1 in TS 23.228[x] ) or Avatar ID pre-configured in UE1.

NOTE: The step 0 is optional. The Avatar ID List is provisioned or downloaded to the UE before a data channel for avatar call is setup. The UE and the BAR may interact by means out of the scope of 3GPP.1: An audio/video session is established between UE1 and UE2.

2: The bootstrap and application data channels are established between UE1 and IMS.

3: The UE1 sends a capability negotiation request using the application data channel through MF to the DC AS. The message carries parameters may including an avatar id chosen by UE1 (if the avatar ID is downloaded or pre-configured in UE1) and animation data types (e.g., text, expression data and motion signals for joints) supported by UE1.

 If UE1 does not have any downloaded and pre-configured avatar ID, it may request to obtain Avatar ID List through the established application data channel via capability negotiation request. 4. (optional): If the message in step 3 carries parameters including e.g. an avatar ID downloaded and pre-configured at step 0, then the avatar ID might need for further verification by BAR, the DC AS sends the request to BAR. If UE1 requests to obtain Avatar ID List via capability negotiation request, the DC AS sends the request to the BAR.

5. (optional) According to the request received in step 4, BAR verifies the avatar ID and send response to the DC AS. If the avatar ID does not pass the verification by BAR, an error message will be 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: Step 4 and 5 are optional. Whether and which user identity(ies) should be used by the user of the sending UE (UE#1) and/or the receiving UE (UE#2) for downloading of the Avatar Representations in receiving UE rendering mode will be decided by SA WG3 and the procedure will be aligned with SA WG3 decision.

6: The DC AS sends an avatar capability request to MF.

7: The MF responses its avatar capability information to the DC AS.

NOTE1: The step 6 and 7 are optional. The DC AS can decide MF’s avatar capability based on its local configuration.

NOTE2: The service of avatar capability provided by MF will be further defined in CT1/CT4 if needed.

8: 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 capability negotiation result based on the avatar type and the capability supported by UE1 and MF. The capability negotiation result includes the animation method (e.g., by audio, text or expression data and motion signals for joints).

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

10: The subsequent procedure continues.

# Proposals

We propose to add above procedures into the base CR on Avatar Communication.