3GPP TSG- Meeting # S4-250519

, , - revision of S4aR250090

**Source: InterDigital Communications, Nokia and Qualcomm Inc.**

**Title:** **[SR\_IMS] Pseudo-CR on MF Profiles**

**Spec:** **3GPP TS 26.567 v1.0.1**

**Agenda item: 10.5**

**Document for: Discussion and Agreement**

1. **Introduction**

In the previous RTC SWG telcos, the proposal on Media Function capabilities and the service profiles was discussed and endorsed in the contribution S4aR250090.

The RTC SWG has agreed to continue work on developing the MF capabilities and service profiles for support of split-rendering over IMS.

1. **Proposal**

We propose that the following change to be added to draft TS 26.567.

\* \* \* 1st Change \* \* \* \*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[3] 3GPP TS 26.264: "IMS-based AR Real-Time Communication".

[4] 3GPP TS 23.501: "System architecture for the 5G System (5GS); Stage 2".

[5] 3GPP TS 26.565: "Split Rendering Media Service Enabler".

[6] 3GPP TS 26.119: "Device Media Capabilities for Augmented Reality Services".

[7] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

[8] 3GPP TS 26.565: "Split Rendering Media Service Enabler".

[9] OMA-ERELD-DM-V1\_2-20070209-A: "Enabler Release Definition for OMA Device Management, Approved Version 1.2".

[10] 3GPP TS 28.405; "Management of Quality of Experience (QoE) measurement collection; Control and configuration"

[11] IETF RFC 3550 (2003): "RTP: A Transport Protocol for Real-Time Applications".

[12] IETF RFC 4960 (2007): "Stream Control Transmission Protocol".

[13] IETF RFC 8261 (2017): "Datagram Transport Layer Security (DTLS) Encapsulation of SCTP Packets".

[14] IETF RFC 8831 (2021): "WebRTC Data Channels".

[x] 3GPP TS 29.510: “Network function repository services; Stage 3".

\* \* \* 2nd Change \* \* \* \*

4.5.1 Media Function (MF) Capabilities

*Editor’s note: Additional details of MF Capabilities are FFS.*

An MF providing split rendering services specified in this document shall comply with NRF registration and discovery procedures specified in AC.7.4.2 of TS 23.228. [ with the MF capabilities type “AR”].

The capabilities required for an MF to support split rendering are specified as SR service profiles each identified by a unique URN. To support split rendering specified in this specification, an MF shall support SR service profile Basic defined in clause 4.5.1.1, and may support other SR service profiles for minimum interoperability. An MF shall list the urn of each SR service profile it supports as a MediaCapability in an MfInfo object as respectively defined in clauses 6.1.6.3.2 and 6.1.6.2.119 of TS 29.510 [x] in its NF profile when registering to an NRF.

#### 4.5.1.1 MF Service Profiles for SR

#### 4.5.1.1.1 Profile Basic

MF shall support:

- Scene description processing capabilities as specified in **SD-Rendering-glTF-Core** in TS 26.119 [6].

- Video encoding capabilities required to encode video complying with the capabilities specified in Annex Y.3 in TS 26.114 [7].

- Audio and speech encoding capabilities required to encode audio and speech complying with the capabilities specified in clause Y.4 of TS 26.114 [7].

#### - The type **urn:3gpp:split-rendering:mf:profile:Basic** shall be included in the Split Rendering Configuration defined in clause A.1.3 when the MF signals the SR-DCMTSI client in terminal.4.5.1.1.2 Profile Advanced

MF shall support the basic profile and the following media processing capabilities:

- Scene description processing capabilities SD-Rendering-gltf-ext1, SD-Rendering-gltf-ext2 and SD-Rendering-gltf-interactive as specified inclause 10.4.5 of TS 26.119 [6].

- Video encoding capabilities required to encode video complying with the capabilities specified in clause 10.4.3 of TS 26.119 [6].

- Audio and speech encoding capabilities required to encode audio and speech complying with the capabilities specified in clause 10.4.4 of TS 26.119 [6].

- The type **urn:3gpp:split-rendering:mf:profile:Advanced** shall be included in the Split Rendering Configuration defined in clause A.1.3 when the MF signals the SR-DCMTSI client in terminal.

\* \* \* 2nd Change \* \* \* \*

## A.1.3 Split Rendering Configuration

The SR-DCMTSI client shall send a split rendering session configuration information to the MF and if applicable, to the DC AS after successful establishment of a split rendering session and before starting the rendering loop. The session configuration shall be in JSON format and shall follow the format in Table A.1.3-1.

Table A.1.3-1 Split Rendering Configuration Format

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Cardinality | Description |
| renderingFlags | Array(SR\_CONFIG\_FLAGS) | 0..1 | Provides a set of flags to activate/deactivate selected rendering functions. The defined SR\_CONFIG\_FLAGS are:FLAG\_ALPHA\_BLENDINGFLAG\_DEPTH\_COMPOSITIONFLAG\_EYE\_GAZE\_TRACKING |
| splitRenderingMFProfile | array(URN) | 0..1 | A list of supported split-rendering service profile identifiers for the MF. The profile identifiers are listed in clause 4.5.1.1 for each profile. |
| splitRenderingFeatures | array( SR\_FEATURE\_FLAGS) | 0..1 | A list of split-rendering features supported by the SR-DCMTSI client. The supported features flags are:ADAPTIVESEAMLESS\_ADAPTIVEDELAY\_ADAPTIVE |
| deviceCapabilities | Object | 0..1 | If the SR-DCMTSI client is implemented by a device defined in TS 26.119 [4], clause 6.2.5., device capabilities may be listed here |
| spaceConfiguration | Object | 0..1 | The space configuration is typically sent by the split rendering server to the split rendering client. Upon reception of this information, the SR client uses this information to create the reference and action spaces as well as to agree on common identifiers for the XR spaces. |
|  referenceSpaces | Array | 0..1 | An array of reference spaces and their identifiers. |
|  id | number | 1..1 | A unique identifier of the XR space in the context of the split rendering session. |
|  refSpace | enum | 1..1 | One of the defined reference spaces in OpenXR. These may be: XR\_REFERENCE\_SPACE\_TYPE\_VIEW, XR\_REFERENCE\_SPACE\_TYPE\_LOCAL, or XR\_REFERENCE\_SPACE\_TYPE\_STAGE. |
|  actionSpaces | Array | 0..1 | An array of action spaces that need to be defined by the split rendering client in the XR session.  |
|  id | number | 1..1 | A unique identifier of the XR space in the context of the split rendering session. |
|  actionId | number | 1..1 | Provides the unique identifier of the action. |
|  subactionPath | string | 1..1 | The subaction path identifies the action, which can then be mapped by the XR runtime to user input modalities. |
|  initialPose | Pose | 0..1 | Provides the initial pose of the new XR space’s origin. |
| viewConfiguration | Object | 0..1 | Conveys the view configuration that is configured for the XR session. |
|  type | Enum  | 1..1 | The type indicates the view configuration. Defined values are MONO and STEREO. Other values may be added. |
|  width | number | 1..1 | The recommended width of the swapchain image. |
|  height | number | 1..1 | The recommended height of the swapchain image. |
|  compositionLayer | string | 1..1 | An identifier of the selected composition layer. |
|  minPoseInterval | number | 0..1 | The minimum time interval between two consecutive pose information instances sent to the network, in milliseconds. |
|  fovs | Array | 0..1 | An array that provides a list of the field of views (FoV) associated with each view. |
|  fov | Object | 1..n | Indicates the four sides of the field of view used for the projection of the corresponding XR view.The number of views n is determined by the *type* enum of the *viewConfiguration*. Both the *viewPoses* in the Pose Format and the *fovs* arrays shall be ordered in a consistent way (i.e., a same index can be used to retrieve the view pose and the related FoV information). |
|  angleLeft | number | 1..1 | The angle of the left side of the field of view. For a symmetric field of view this value is negative. |
|  angleRight | number | 1..1 | The angle of the right side of the field of view. |
|  angleUp | number | 1..1 | The angle of the top part of the field of view. |
|  angleDown | number | 1..1 | The angle of the bottom part of the field of view. For a symmetric field of view this value is negative. |
|  environmentBlendMode | enum | 1..1 | The type indicates the environment blend mode configuration. Defined values are OPAQUE, ADDITIVE and ALPHA\_BLEND. Other values may be added. |
| actionConfiguration | Array | 0..1 | This contains a list of the actions that are to be defined by the SR client. |
|  action | Object | 1..n | A definition of a single action object. |
|  id | number | 1..1 | A unique identifier of the action. |
|  actionType | enum | 1..1 | The type of the action state. This can be a Boolean, float, vector2, pose, vibration output, etc. |
|  subactionPaths | string | 1..n | An array of subaction paths associated with this action. The split rendering client will provide the state of all defined sub-action paths. |
| extraConfigurations | Object | 0..1 | A placeholder for addition configuration information. |

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