3GPP TSG|WG-SA4 #119-e S4-220628

Online, 11th – 19th May 2022 (revision of S4-220515)

**Source: Qualcomm Incorporated**

**Title: WID on Split Rendering Media Service Enabler**

**Document for: Approval**

**Agenda Item: 10.8**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Split Rendering Media Service Enabler

Acronym: SR\_MSE

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | X |  | X |  |  |
| Don't know |  |  |  |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Feature |
| X | Building Block |
|  | *Work Task* |
|  | Study Item |

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
|  | Study Item on 5G Media Service Enablers | Outlines concept of MSEs |

**Dependency on non-3GPP (draft) specification:**

# 3 Justification

Advances in computer graphics and machine learning have enabled a wide range of new experiences and applications for users. From remote gaming to autonomous driving, complex and power-hungry processing is required to achieve the desired user experience. As an example, recent games are reverting to ray tracing and global illumination to offer a physically based rendering solution that will mimic the physical world accurately and immerse the user in the game scene.

The 5G system offers several capabilities that would pave the way for making these demanding media services available to all users, independently of their end device capabilities. For example, access to edge computing would allow the rendering of complex 3D scenes in powerful edge servers and then displaying them on the user’s end devices. This functionality is denoted as Split Rendering. It is also supported by QoS allocation to ensure that the operation takes place smoothly. The applications of split rendering may vary widely and its usage for AR has been studied in TR26.998 clause 8.6. The TR states as part of its conclusions in clause 9 that a split rendering media service enabler to support EDGAR devices is to be defined. Other non-AR applications, such as immersive 6DoF streaming and online gaming are also set to benefit from a split rendering MSE to deliver highly immersive experiences to their users.

This work item will develop a Media Service Enabler that packages all the required enablers and defines the required formats and protocols to make split rendering accessible to media service and application providers. The package is aligned with the philosophy of Media Service Enablers and envisions deployments as an SDK that is offered to application developers.

The scope of this WID is limited to the interface between the Split-rendering EAS and the UE. The end-to-end application setup and management is out-of-scope of this WID.

NOTE: this work item does not intend to cover transcoding or AR conversational use cases and does not specify how the media that is to be rendered by the split rendering AS is received.

# 4 Objective

The work item will have the following objectives:

* reference and specify the necessary profiles for edge, QoS allocation, and network assistance functionality for the split rendering Media Service Enabler (based on 5G\_AREA, and iRTCW work items)
* reference and specify the necessary RTP configurations for real-time media transport (based on 5G\_RTP) on the link between the 5GMS AS/EAS and the UE
* specify the control protocols for establishing and managing split rendering sessions between the 5GMS AS/EAS and the UE
* select and profile the media formats and the corresponding media transport protocols for split rendering (based on MeCAR) to be exchanged between the Split rendering AS EAS and the UE
* define edge requirements, such as the EAS profiles, as well as edge discovery and relocation configurations appropriate for split rendering
* develop any necessary APIs to use the split rendering Media Service Enabler control functions (i.e. session setup, Edge discovery, QoS, QoE reporting, …) by the application on the UE
* provide guidelines on how to decide on rendering split between split rendering server and UE

This work will align and contribute to the aforementioned ongoing work items.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
| TS | 26.XXX | Split Rendering Media Service Enabler |  |  | Bouazizi, Imed, Qualcomm Incorporated, bouazizi@qti.qualcomm.com |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Bouazizi, Imed, Qualcomm Incorporated, bouazizi@qti.qualcomm.com

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Qualcomm Incorporated |
| AT&T |
| Tencent  |
| Huawei |
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