**3GPP TSG-SA WG4 Meeting #127 S4-240199**

**Sophia Antipolis, France, 4**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **26.565** | **pCR** |  | **rev** | **01** | **Current version:** | **1.0.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

|  |
| --- |
|  |
| ***Title:***  | Requirements on 5G System for SR MSE |
|  |  |
| ***Source to WG:*** | Nokia, Qualcomm Inc. |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | SR\_MSE |  | ***Date:*** | 22-01-2024 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Clause 6 of the latest version of TS 26.565 v 1.0.0 is left incomplete.  |
|  |  |
| ***Summary of change:*** | This CR proposes new architecture and text for clause 6.  |
|  |  |
| ***Consequences if not approved:*** | Clause 6 and associated sub-clauses will remain incomplete.  |
|  |  |
| ***Clauses affected:*** | 6. 1 (new).  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

|  |
| --- |
| 1st Change |

# 2 References

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

[2] Khronos, The OpenXR API, <https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html>

[3] W3C, WebXR Device API, [WebXR Device API (immersive-web.github.io)](https://immersive-web.github.io/webxr/)

 [4] Khronos, WebGL Specification 1.0, [WebGL Specification (khronos.org)](https://registry.khronos.org/webgl/specs/latest/1.0/)

 [5] W3C, Web Audio API, [Web Audio API (w3.org)](https://www.w3.org/TR/webaudio/)

[8] 3GPP TS23.501, System architecture for the 5G System (5GS).

[9] 3GPP TS23.503, 5G;Policy and charging control framework for the 5G System (5GS).

[10] 3GPP TS26.857, 5G Media Service Enablers.

|  |
| --- |
| End of change |

|  |
| --- |
| 2nd Change |

## 6 Prerequisites

The below section provides guidance on the requirements on the 5G system in order to host a split rendering session.

## 6.1 Requirements on 5G System

### 6.1.1 Pre-requisites

Pre-requisites document what is expected to be available either from the 5G System (i.e. certain functionalities of the 5G System) or from implementation (for example functions available on the device). These pre-requisites may be considered to be part of the specification (as reference to an external specification), but it is important to identify this separately in order to clearly demarcate the boundaries of the split rendering MSE with respect to other functions. Pre-requisites include, but are not limited to:

* The split rendering session should be within the 5G system specified as per [8] that supports functionalities and procedures to configure the quality of service (QoS) and charging information for the split rendering streaming sessions, specified as per [8].
* The split rendering session should be within the 5G system specified as per [8] that supports functionalities and procedures to configure the policy and charging control (PCC) information for the split rendering streaming sessions, specified as per [9].
* The split rendering server functionality should be within the 5G system specified as per |8] that supports for the discovery of and access to edge resources that support the split rendering server functionality.

### 6.1.2 Architecture

The basic concept of the Media Service Enabler is to support third-party media delivery over the 5G System [10].

Figure 6.1-1 extends the above basic architecture to provide to the Application Provider a set of 3GPP-specified functions, possibly both on UE and network side, in order to simplify operations.



Figure 6.1-1: Addition of SR MSE to 5G-based media delivery

These functions are bundled as a Split Rendering Client (SRC) core functions on the UE side and Split Rendering Server (SRS) functions on the network side and offered to the Application Provider as follows:

- The service may be provisioned on the network side using an RTC Application Function. The provisioning reference point is summarized as RTC-1.

- User plane data may be exchanged with the Application Provider using an Ingest/Egest interface, RTC-2. Generally, this is a generic IP-based interface that directly uses N6 and the UPF. However, the SRS may offer specific Application Server functions at RTC-2.

- On the UE side, the functions of a SRC are accessed through a well-defined client API, RTC-6, that is aligned with other device APIs. The SRC may make use of other device functions that are expected to be accessible via existing device APIs.

- The SRC Client may be decomposed into C*ore Functions* defined in the relevant Media Service Enabler specification, and *External Device Reference Functions* that are accessed through well-defined APIs RTC-7.

- The SRC connects to the 5G network and may make use of Application Functions associated with this split rendering session. Those functions are exposed through RTC-5.

- User data is exchanged with the SRS (if any) through RTC-4, which may define specific requirements on the usage of protocols, codecs, formats etc.

|  |
| --- |
| End of change |

|  |
| --- |
|  3rd Change |

## 6.2 Requirements on Device APIs and Functionality

The following assumptions for the split rendering client are made:

* The SRC may have access to an XR runtime through a well-defined API such as the OpenXR [2] or WebXR [3] APIs.
* The SRC has access to 3D graphics library, such as. WebGL [4], and to an audio rendering engine, such as WebAudio [4].
* The split rendering server functionality should be within the 5G system specified as per |8] that supports the Application Provider with a set of functions that can be easily accessed in the same way that device functions are accessed today, namely through well-defined device APIs. The Application Provider can also use regular IP connectivity to operate its application.

|  |
| --- |
| End of change |