**3GPP TSG-SA4 Meeting #114-e *S4-210813***

**19th – 28th May 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **pseudo CHANGE REQUEST** | | | | | | | | |
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|  | **26.803** | **CR** |  | **rev** |  | **Current version:** | 1.2.0 |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Considerations on Media Application Relocation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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 can be 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | Provides a discussion of application context relocation for media applications. | | | | | | | | |
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| ***Summary of change:*** | |  | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
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| ***Clauses affected:*** | |  | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| First Change |

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

AC Application Client

ACR Application Context Relocation

AF Application Function

…

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| Second Change |

### 6.3.4 Application Context Relocation for EAS instances

There are generally two types of Application Context Relocation (ACR) procedure depending on whether the Target EAS is instantiated in the same Data Network (DN) as the Source EAS, or in a different DN:

1. *ACR to a different DN:* A relocation forced by a change to the DNAI. This may be triggered by mobility of the UE, for instance. In this case, the DNN and S-NSSAI are expected to be different for the target EAS instance. The PDU session will have a different PDU Session Anchor for each DN as shown in figure 6.3.4‑1 below.

2. *ACR within the same DN:* A relocation within the same DN is requested, e.g. by the AF or application, e.g. for load-balancing or to satisfy latency requirements.



Figure 6.3.4‑1: Application Context Relocation to a different Data Network

The following mechanisms may be used to support ACR to a different DN:

1. Subscription to events related to the PDU session.

2. Traffic influence through Nsmf\_EventExposure\_AppRelocationInfo or Nnef\_TrafficInfluence\_AppRelocationInfo.

3. *IP address replacement:* The AF may request that the UPF performs address translation, replacing the IP address and port number of the Source EAS with that of the Target EAS.

4. *PSA buffering:* The AF may request that data from the old PDU Session Anchor (PSA) be buffered and forwarded to the new PSA prior to forwarding any other data.

The AF (in the context of the present document, the 5GMS AF) is expected to expose ACR event notifications to EAS instances as described in clause 8.6.3 of TS 23.558 [3]. The relocation of the EEC context between the Source EES and the Target EES is described in clause 8.9.1.4 of [3].

Applications may be categorized into the following classes with regards to ACR:

1. *Relocation is transparent to the application:* These applications typically do not rely on the EAS maintaining context for the application.

For example, media streaming applications using HTTP expect transactional processing per request, and subsequent requests may be processed by a different EAS instance without reference to previous requests.

2. *Relocation is tolerated by the application with relatively low complexity:* These applications typically require maintaining some session state at the EAS. The application may tolerate interruptions or delays during the relocation of the application context.

Examples are media applications that perform video processing tasks to create AR overlays, or game spectator applications.

3. *Relocation is disruptive to the application:* These applications require maintaining complex session state and rely on low-latency operation. A decision on relocating these applications has to be carefully considered and only performed on absolute need basis.

Examples are split rendering applications such as online gaming.

The AF is able through traffic influencing to indicate if an EAS instance may be relocated or not. It is also able to select the set of tools that are suitable to support relocation of application context for a particular EAS instance. In the case of 5G Media Streaming, this configuration information could be provided to the 5GMS AF through its M1 provisioning interface.