**3GPP TSG-SA4 Meeting #118-e *S4-220533***

**Online, 6th – 14th April 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **draft CHANGE REQUEST** | | | | | | | | |
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|  | **26.501** | **CR** | **<CR#>** | **rev** |  | **Current version:** | **17.1.0** |  |
|  | | | | | | | | |
| *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:*** | draft CR on use cases for newly defined 5GMS event | | | | | | | | | |
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| ***Source to WG:*** | S4 | | | | | | | | | |
| ***Source to TSG:*** | Huawei, HiSilicon | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EVEX | | | | |  | ***Date:*** | | | 8 April 2022 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | 17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In the EVEX, new 5GMS event types are introduced. However there are no use cases to clairify how the consumer makes use of the exposed 5GMS event types. | | | | | | | | |
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| ***Summary of change:*** | | Adding new use cases for the newly defined 5GMS event types. | | | | | | | | |
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| ***Consequences if not approved:*** | | Use cases for new 5GMS event types are missing. | | | | | | | | |
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| ***Clauses affected:*** | | Annex X | | | | | | | | |
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|  | | **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:*** | |  | | | | | | | | |

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| **First Change (All new text)** |

Annex X (informative)  
Use Cases for 5GMS event exposure

# X.1 Introduction

This annex describes Use Cases related to the exposure of events relating to 5G Media Streaming by the Data Collection AF insrantiated in the 5GMS AF.

# X.2 QoE metrics for downlink media streaming

The Use Case for exposing QoE metrics for downlink media streaming as an event is in clause 6.4 of TS 23.288 [?].

# X.3 Consumption of downlink media streaming

The 5GMSd Client collates feedback reports on currently consumed downlink media streaming content according to a provisioned Consumption Reporting Configuration it obtains from the Service Access Information for its Provisioning Session. The consumption reports include the media player entry point URL, the start time, duration and UE locations. The Media Session Handler sends the consumption reports to 5GMSd AF for subsequent event exposure to subscibed Event consumers.

The 5GMSd Application Provider subscribes to downlink media streaming consumption events from the Data Collection AF. With the exposed event, the 5GMS Applcation Provider performs data analytics to determine, for example, which media content is most popular in the 5GMS System, which media content is most popular at a specific location, or which portions of the media content are consumed. This helps the 5GMSd Application Provider to optimise distribution of the most popular media content in the 5G System.

Alternatively, the NWDAF subscribes to this event for data analytics, exposing the results to the 5GMSd Application Provider.

# X.4 Invocation of dynamic policies

The Media Session Handler invokes the Dynamic Policy API on the 5GMS AF via M5 to request a specific policy and charging treatment to be applied to a particular downlink media streaming application data flow. As a result, the 5GMS AF invokes appropriate service operations on Network Functions in the 5G Core, e.g. Npcf\_Policy‌AuthorizationorNnef\_AFSession‌With‌QoS, to effect the requested network QoS policy change. The 5GMS AF obtains status information (policy accepted, rejected, etc) about these service operation invocations, and policy enforcement information , such as the enforcement method selected and the enforcement bit rate. After recording the invocation of the dynamic policies, the 5GMSd AF report these records to its subordinate Data Collection for exposure to subscribed Event consumers.

The event for invocation of dynamic polices may include the timestmap when the Media Session Handler invokes the dynamic function in 5GMSd AF, the requested policy template identifier, the status information, etc.

The Event Consumer AF within the 5GMSd Application Provider or the NWDAF subscribes to events of this type from the Data Collection AF. Using the details about the invocations for dynamic policies, the 5GMSd Application Provider or the NWDAF analyse the network quality provided by the MNO and the dynamic network requirements for this media streaming service.

Alternatively, the NWDAF exposes analytics results to the 5GMSd Application Provider enabling the 5GMS Application Provider to optimise the media streaming serivce, e.g. provisioning more appropriate policy templates or negotiating more suitable Service Level Agreement (SLA) with the MNO.

# X.5 Invocation of AF-based Network Assistance

The Network Assistance feature enables a UE to receive a bit rate recommendation from a 5GMS AF providing the Network Assistance server function.

The 5GMS AF uses the Npcf\_PolicyAuthorization notification or Nnef\_MonitoringEvent procedure to receive notifications of network QoS changes, e.g. estimation of throughput, recommendation of a bit rate. The 5GMS AF receives these policy change notifications asynchronously.

The 5GMS AF reports the invocation of AF-based network assistance to its subordinate Data Collection AF, including information about requested QoS and recommended QoS. The Data Collection AF subsquently exposes this UE data to the Event Consumer AF within the 5GMS Application Provider. Using this information, the 5GMS Application Provider is able to optimise is use of the 5GMS System, e.g. fast congestion window adjustment.

The NWDAF subscribes to events of this type at the Data Collection AF. Based on the requested QoS and recommended QoS in the exposed events, the NWDAF analyses whether the current network deployment or status can support the currently provisioned media streaming services, and exposes these results to the OAM for better network optimization.

# X.6 Media streaming access activity

## X.6.1 Downlink media streaming access activity

In downlink 5G Media Streaming, the 5GMS AS acts as a CDN (e.g., edge server) in the hosting and delivery of streaming media content that it has ingested. The corresponding media streaming access activity (i.e., CDN access logs) available at the 5GMSd AS are reported to the Data Collection AF instantiated in the 5GMSd AF for subsequent event exposure to the Event Consumer AF in the 5GMSd Application Provider.

The 5GMS Applicatrion Provider uses information in the exposed events (e.g. the number of unique users and the access history for different media content items) to improve its CDN content distribution.

Alternatively, the NWDAF subscribes to events of this type and analyses the total volume of data delivered by the 5GMSd AS or the average response time to downlink media requests in order to optimise the 5GMS System deployment or to demonstrate to the 5GMS Application Provider that the SLA for downlink media streaming has been satisfied.