**3GPP TSG-SA4 #110-e meeting *S4-201033***

**19th– 28th August, 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **26.512** | **CR** |  | **rev** |  | **Current version:** | 1.3.0 |  |
|  | | | | | | | | |
| *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:*** | AF-based Network Assistance | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Inc. | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GMS3 | | | | |  | ***Date:*** | | | 04-08-2020 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This pCR proposes the REST API for AF-based network assistance. The dynamic policy data structure is modified to allow for custom QoS values. The dynamic policy is reused for AF-based network assistance. | | | | | | | | |
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| ***Summary of change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 |

#### 11.5.2.1 DynamicPolicy resource type

Table 11.5.2.1-1: Definition of Dynamic Policy resource



| Property name | Type | Cardinality | Usage | Description |
| --- | --- | --- | --- | --- |
| policyTemplateId | Integer | 1..1 | C/R  U/R | Uniquely identifies the referenced Policy Template from which this Policy Template Instance is derived. |
| externalReference | String | 1..1 | C/R  U/R | provides the external reference to the associated Policy Template. This external reference is used over the M8/M7/M6 to reference to the Policy Template. |
| applicationServiceConfigurationId | String | 1 | C/R  U/R | Uniquely Identifies the 5GMSd Application Service Configuration, which is linked to the Application Service Provider. |
| enforcementMethod | String | 1 | C/R  U/R | Description of the Policy Enforcement Method. The parameter is set by the 5GMSd AF. |
| QoSSpecification | Object | 0..1 | C/RW  U/RW |  |
| marBwUl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| marBwDl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| minDesBwDl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| minDesBwUl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| mirBwUl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| mirBwDl | BitRate | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| desMaxLatency | Float | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| desMaxLoss | Float | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514. |
| Charging | Object | 0..1 | C/R  U/R |  |
| isSponsored | Boolean | 0..1 |  | indicates if the traffic using this policy template is sponsored. |
| isBackground | Boolean | 0..1 |  | indicates if the traffic using this policy template should be background traffic, thus only allowed during certain time of the day. |
| TrafficFiltering | Object | 1..1 | C/RW  U/RW | Provides information to identify the traffic for which a specific policy instance may apply.  Used to determine which traffic is eligible for the current policy template and to identify the associated QoS flow. |
| destinationFQDN | string | 0..1 |  | Destination FQDN(s) or a regular expression as a domain name matching criteria. |
| ApplicationDescriptor | Object | 0..1 |  | The OSId and OSAppId of the application. |
| IPDescriptor | Object | 0..1 |  | The destination IP address, port number, and the protocol above IP. |

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| Second Change |

## 11.6 AF-Based Network Assistance API

### 11.6.1 General

The 5GMS AF shall offer bitrate recommendations and bitrate request API based on existing policy templates that match the filtering criteria for a media streaming session and through the usage of the Npcf\_PolicyAuthorization API either over N5 or the Nnef\_AFSessionWithQoS over N33 interfaces to the PCF.

When serving a media streaming session that belongs to the AF application session context, the AF shall subscribe to the following PCF notifications with the PCF:

* Service Data Flow QoS notification control
* Service Data Flow Deactivation
* resources allocation outcome

If no corresponding AF application session context already exists, the AF shall use the Npcf\_PolicyAuthorization\_Create method with the appropriate service information to create and provision an application session context. The information in the AppSessionContextReqData shall be derived from the policy template.

When requesting QoS provisioning for a media streaming session, the 5GMS AF shall use the configured policy templates of the Provisioning Session to determine the list of the QoS references within the “altSerReqs”. The lowest priority index shall be assigned to the policy template with the lowest QoS requirement and the highest priority shall be assigned to the requested operation point by the UE (if the UE is allowed to use that operation point).

Media streaming sessions shall use exactly one component per session. It is assumed that a signle sub-component is used, unless otherwise indicated.

### 11.6.2 Resource structure

The AF-based Network Assistance API is accessible through the following URL base path:

{apiRoot}/3gpp-m5/v1/network-assistance/{na-subresource}

Table 11.6.2‑1 below specifies the operations and the corresponding HTTP methods that are supported by this API. In each case, the sub-resource path specified in the second column shall be substituted into {na-subresource} in the above URL template.

Table 11.6.2: Operations supporting by the AF-based Network Assistance API

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Sub‑resource path | Allowed HTTP method(s) | Description |
| Create Streaming Session Context | streaming-session-context | POST | Used to create a new Streaming Session Context resource. |
| Read Streaming Session Context | GET | Used to retrieve an existing Streaming Session Context. |
| Update Streaming Session Context | PUT,  PATCH | Used to modify an existing Stremaing Session Context. |
| Delete Streaming Session Context | DELETE | Used to delete an existing Streaming Session Context. |
| Request operation point | streaming-session-context/operation-point | POST | Used to request an operation point. |

### 11.6.3 Data Model

#### 11.6.3.1 StreamingSessionContext resource

The data model for the StreamingSessionContext resource is specified in the following table:

| Property name | Type | Cardinality | Usage | Description |
| --- | --- | --- | --- | --- |
| applicaitonContext | Object | 1 | C/R  U/R | This property holds the information to identify the application context to which this media streaming session belongs. |
| dnn | Dnn | 0..1 |  | See definition in 5.6.2.2 of 29.514. |
| sliceInfo | Snssai | 0..1 |  | See definition in 5.6.2.2 of 29.514. |
| ipDomain | string | 0..1 |  | See definition in 5.6.2.2 of 29.514. |
| ueIpv4 | Ipv4Addr | 0..1 |  | See definition in 5.6.2.2 of 29.514. |
| ueIpv6 | Ipv6Addr | 0..1 |  | See definition in 5.6.2.2 of 29.514. |
| allowedPolicies | array(DynamicPolicy) | 1 | C/R  U/R | A read-only array of operation points that this individual streaming session is allowed to use. Each operation point contains a description of the corresponding downlink and uplink QoS parameters. |
| recommendedPolicy | DynamicPolicy | 0..1 | C/R  U/R | If available, this attribute will contain the currently recommended operation point based on the QoS provisioning information with the PCF for that individual streaming session. This attribute is read-only. |
| requestedPolicyTemplateId | integer | 0..1 | C/RW  U/RW | Indicates the latest requested operation point identifier for the associated media streaming session. |
| requestedPolicy | DynamicPolicy | 0..1 | C/RW  U/RW | is used to request a custom operation point for which the AF does not have a pre-assigned operation point id (e.g. with a provisioned policy template). |
| subscriptionURL | string | 0..1 | C/R  U/R | If available, this property will hold a URL for the session handler to use to subscribe to events notified by the AF and relating to the streaming session. |



### 11.6.4 Operations

#### 11.6.4.1 Create a StreamingSessionContext

This procedure is used by the media session handler to create a streaming session context with the 5GMS AF. If a matching policy template is provisioned, then the AF will apply policies configured by the policy template and as requested by the MSH. Otherwise, the session is assumed to be a best effort session. The AF uses the information in the applicationContext to match and authorize the UE to use a provisioned policy template.

If the procedure is successful, the 5GMSd AF shall generate a resource id representing the new streaming session context resource.

#### 11.6.4.2 Read the StreamingSessionConext properties

This procedure is used by the media session handler to read the current status of the Streaming Session Context resource. In particular, it is used to query the currently recommended operation point information.

#### 11.6.4.3 Request a Policy Template Instance

This procedure is used by the media session handler to request the AF to apply a specific policy template instance, identified through its policy template identifier, or a custom policy template instance with indicated QoS paramters.

If the request is accepted and the Media Session Handler has subscribed for notifications, the Media Session Handler will be notified about the outcome of the request. The Media Session Handler may query the streaming session context resource to find the latest recommended operation point.

#### 11.6.4.4 Subscribe to notifications

The Media Session Handler uses this procedure to detect the URL to use to subscribe/unsubscribe for events related to this streaming session context.

The URL shall point to an MQTT channel that the MSH shall subscribe to, in order to receive notifications related to the streaming session. The message shall be formatted in JSON as a representation of the StreamingSessionContext object.