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

 **Electronic Meeting, Telco, May 19-28, 2021**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **26.512** | **CR** | **<CR#>** | **rev** | **<Rev#>** | **Current version:** | **16.2.1** |  |
|  |
| *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 |  | Radio Access Network |  | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Correction on Dynamic Policy parameters  |
|  |  |
| ***Source to WG:*** | Ericsson LM |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5GMS3 |  | ***Date:*** | 12.5.2021 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The NEF APIs Nnef\_AfSessionWithQos and Nnef\_ChargableThirdParty APIs do not support the provision of an (extrenal) Application identifier for Release 16. The APIs also do not allow selection of a specific DNN or S-NSSAI. |
|  |  |
| ***Summary of change:*** | The text is corrected to clarify that only an 5GMSd AF in the Trusted DN can provision an Application Identifier to reference a PFD and / or select the DNN / S-NSSAI of the PDU Session. The usage of the sdfMethod property and the FlowDescription object is clarified. |
|  |  |
| ***Consequences if not approved:*** | Unclear specifications lead to interoperability issues. |
|  |  |
| ***Clauses affected:*** |  |
|  |  |
|  | **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:*** |  |

\*\*\*\* 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].

5GMS 5G Media Streaming

5GMSd 5GMS downlink

5GMSu 5GMS uplink

5GMSA 5GMS Architecture

ABR Adaptive Bit Rate

AF Application Function

ANBR Access Network Bit rate Recommendation

AS Application Server

CDN Content Delivery Network / Content Distribution Network

CGI Cell Global Identifier

CRUD Create, Read, Update, Delete

CNAME Canonical Name

CORS Cross-Origin Resource Sharing

CRL Certificate Revocation List

DASH Dynamic Adaptive Streaming over HTTP

DER Distinguished Encoding Rule

DNN Domain Name News

DNS Domain Name Server

ECGI E-UTRAN Cell Global Identifier

ECMA European Computer Manufacturers Association

FQDN Fully Qualified Domain Name

HLS HTTP Live Streaming

JSON JavaScript Object Notation

LCID Logical Channel IDentifier

MFBR Maximum Flow Bit Rate

MIME Multipurpose Internet Mail Extensions

MNO Mobile Network Operator

MPD Media Presentation Description

NCGI NR Cell Global Identifier

NEF Network Exposure Function

OAM Operations, Administration and Maintenance

PCC Policy Control and Charging

PCF Policy Control Function

PEM Privacy-Enhanced Mail

PFD Packet Flow Description

PFDF Packet Flow Description Function

QoE Quality of Experience

QoS Quality of Service

SDF Service Data Flow

SHA Secure Hash Algorithm

TLS Transport Layer Security

URI Uniform Resource Identifier

URL Uniform Resource Locator

UTC Coordinated Universal Time

\*\*\*\* Next Change \*\*\*\*

### 4.7.3 Procedures for dynamic policy invocation

This procedure is used by a Media Session Handler to manage Dynamic Policy Instance resources via the M5 interface. A dynamic policy invocation consists of a Policy Template Id, flow description(s), a 5GMS Application Service Configuration Id and potentially other parameters, according to TS 26.501 clause 5.7.

A Policy Template Id identifies the desired Policy Template to be applied to an application flow. A Policy Template includes properties such as specific QoS (e.g. background data) or different charging treatments. The 5GMS AF combines the information from the Policy Template with dynamic information from the Media Session Handler to gather a complete set of parameters to invoke the N33 or N5 API call. The Policy Template may contain for example the AF identifier.

The flow description allows the identification and classification of the media traffic, such as the packet filter sets given in clause 5.7.6 of [2].

In order to instantiate a new dynamic policy, the Media Session Handler shall first create a resource for the Dynamic Policy Instance on the 5GMS AF. When the Media Session Handler needs several dynamic policies, it repeats the step as often as needed.

The Media Session Handler creates a new Dynamic Policy Instance by sending an HTTP POST message to the 5GMS AF. The body of the HTTP POST message shall include a Provisioning Session Id, the Policy Template Id and the Service Data Flow description. The Service Data Flow description identifies the actual application flow(s) to be policed according to the Policy Template. If the operation is successful, the 5GMS AF creates a new resource URL representing the Dynamic Policy Instance. In this case, the 5GMS AF shall respond to the Media Session Handler with a 201 Created HTTP response message, including the URL for the newly created Dynamic Policy Instance resource as the value of the Location header field.

When the Dynamic Policy Instance is successfully instantiated, the 5GMS AF triggers the creation of a corresponding policy in the 5G System. Depending on the selected sdfMethod, the 5GMS AF fills in a flowDescription object and / or provides an application identifier referring to a PFD (Packet Flow Description) object containing the domain name.

NOTE 1: It is not defined in Release 16 how a 5GMS AF in an external Data Network provides an application identifier.

NOTE 2: It is not defined in Release 16 how a 5GMS AF in an external Data Network selects a specific DNN or S‑NSSAI.

The Media Session Handler can modify the parameters of an existing Dynamic Policy Instance resource using either the HTTP PUT or PATCH methods, as appropriate to the desired update. The 5GMS AF shall trigger the appropriate actions towards other Network Functions like PCF or NEF when all information is set.

The Media Session Handler can destroy a Dynamic Policy Instance resource using the HTTP DELETE method. As a result, the 5GMS AF shall trigger the appropriate actions towards other Network Functions like PCF or NEF to remove the associated PCC rule.

\*\*\*\* Next Change \*\*\*\*

### 7.9.1 Overview

The Policy Templates Provisioning API allow a 5GMS Application Provider to configure a set of Policy Templates within the scope of a Provisioning Session that can subsequently be applied to downlink or uplink media streaming sessions belonging to that Application Provider using the Dynamic Policies API specified in clause 11.5. A Policy Template is used to specify the traffic shaping and charging policies to be applied to these media streaming sessions.

A Policy Template, identified by its policyTemplateId, represents a set of PCF/NEF API parameters which defines the service quality and associated charging for the corresponding downlink or uplink media streaming session(s). The Policy Template is configured as part of the provisioning procedures with the 5GMS AF and is then used by the 5GMS AF to request specific QoS and charging policies for that session from the PCF or NEF.

The state of a Policy Template can be:

- pending: The Policy Template is awaiting validation, potentially because not all required parameters have yet been provided. This is the default state after Policy Template creation.

- invalid: One or more of the Policy Template's properties failed validation by the 5GMS AF.

- ready: After successful validation by the 5GMS AF the Policy Template moves into this state.

- suspended: The 5GMS AF may move a Policy Template into this state under certain conditions defined within the Service Level Agreement.

When the Policy Template is used for QoS Flows, the qoSSpecification object (of type M1QoSSpecification) shall be present:

- The qosReference value is obtained with the Service Level Agreement. See TS 23.502 for detailed usage.

- The maxBtrUl and maxBtrDl properties define the maximal bit rate which can be used for QoS Flows. This value is defined by the 5G System.

- The maxAuthBtrUl and MaxAuthBtrDl properties define the maximal authorized bit rate values which can be requested by a Media Session Handler. Higher bit rate values are not authorized for use by the 5GMS Application Provider.

- The minPacketLossRateDl and minPacketLossRateUl properties define the minimal authorized packet loss rate, which can be requested by a Media Session Handler.

When the Policy Template is used for differential changing the chargingSpecification property shall be present.

The ApplicationSessionContext Object is a mandatory object, which contains at least the aspId property.

- The aspId identifies the API invoker.

- The dnn property contains the Data Network Name of the data network, in which the 5GMS AF is hosted.

- When Network Slicing is used, the sliceInfo property contains information about the network slice, which is serving the UE.

- When present, the afAppId property contains an application identifier referencing one or more PFD objects. The value of the afAppId property is provided to the PCF with each new Npcf\_PolicyAuthorization Service instance.

\*\*\*\* Next Change \*\*\*\*

#### 7.9.3.1 PolicyTemplate resource

The data model for the PolicyTemplate resource is specified in Table 7.9.3‑1 below:

Table 7.9.3-1: Definition of PolicyTemplate resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Property | Type | Cardinality | Usage | Visibility | Description |
| policyTemplateId | String | 1..1 | C: ROR: ROU: RO |  | Unique identifier of this Policy Template within the scope of the Provisioning Session. |
| state | Enumeration of Strings | 1..1 | C: ROR: ROU: RO |  | A Policy Template may be in the pending, ready, or suspended state.Only a Policy Template in the ready state may be instantiated as a Dynamic Policy Instance and applied to media streaming sessions. |
| apiEndPoint | String | 1..1 | C: RWR: ROU: RW | MNO Admin | The API endpoint that should be invoked when activating a Dynamic Policy Instance based on this Policy Template. |
| apiType | Enumeration of Strings | 1..1 | C: RWR: ROU: RW | MNO Admin | N5: Npcf\_PolicyAuthorization Service.N33: AsSessionWithQoS or CHargableParty. |
| externalReference | String | 1..1 | C: RWR: ROU: RW |  | Additional identifier for this Policy Template, unique within the scope of its Provisioning Session, that can be cross-referenced with external metadata about the media streaming session. |
| qoSSpecification | M1QoSSpecification | 0..1 | C: RWR: ROU: RW |  | Specifies the network quality of service to be applied to media streaming sessions at this Policy Template. |
| ApplicationSession‌Context | Object | 1..1 |  |  | Specifies information about the application session context to which this Policy Template can be applied. |
|  afAppId | AfAppId | 0..1 | C: RWR: RWU: RW  |  | As defined in clause 5.6.2.3 of TS 29.514 [34]. |
|  sliceInfo | Snssai | 0..1 | C: RWR: RWU: RW |  |
|  dnn | Dnn | 0..1 | C: RWR: RWU: RW |  |
|  aspId | AspId | 1..1 | C: RWR: RWU: RW |  |
| chargingSpecification | ChargingSpecification | 0..1 | C: RWR: RWU: RW |  | Provides information about the charging policy to be used for this Policy Template. |

\*\*\*\* Next Change \*\*\*\*

### 11.5.1 Overview

The Dynamic Policies API allows the Media Session Handler to request a specific policy and charging treatment to be applied to a particular application data flow by invoking RESTful operations on the 5GMSd AF at interface M5d. The API defines a set of data models, resources and the related procedures for the creation and management of the dynamic policy request.

Application Identifiers, referring to one or more Packet Flow Description (PFD), may be used as alternative traffic filtering parameters for dynamic policy invocation. The 5GMSd AF shall first provision a PFD in the PFDF for one or more (external) Application IDs by sending an HTTP POST message to the NEF as specified in clause 4.4.10 of TS 29.122 [12]. The mapping between the (external) Application Identifiers and PFDs stored in the PFDF will then be pushed to or pulled from the SMF and installed in the UPF for future traffic identifications.

NOTE: The PFDF is a functionality within the NEF.

\*\*\*\* Next Change, editorial \*\*\*\*

#### 6.4.3.3 M5QoSSpecification type

Table 6.4.3.2-1: Definition of type M5QoSSpecification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| marBwDlBitRate | BitRate | 1..1 |  | Maximum requested bit rate for the Downlink. |
| marBwUlBitRate | BitRate | 1..1 |  | Maximum requested bit rate for the Uplink. |
| minDesBwDlBitRate | BitRate | 0..1 |  | Minimum desired bit rate for the Downlink. |
| minDesBwUlBitRate | BitRate | 0..1 |  | Minimum desired bit rate for the Uplink. |
| mirBwDlBitRate | BitRate | 1..1 |  | Minimum requested bit rate for the Downlink. |
| mirBwUlBitRate | BitRate | 1..1 |  | Minimum requested bandwidth for the Uplink. |
| desLatency | Integer | 0..1 |  | Desire Latency. |
| desLoss | Integer | 0..1 |  | Desired Loss Rate. |

#### 6.4.3.4 M1QoSSpecification type

Table 6.4.3.2-1: Definition of type M1QoSSpecification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| qosReference | String | 0..1 |  | As defined in clause 5.6.2.7 of TS 29.514 [34]. |
| maxBtrUl | BitRate | 0..1 | RO | Maximum Bitrate Uplink. |
| maxBtrDl | BitRate | 0..1 | RO | Maximum Bitrate Downlink. |
| maxAuthBtrUl | BitRate | 0..1 | RW | Maximum Authorized Bitrate Uplink by 5GMS Application Provider. |
| maxAuthBtrDl | BitRate | 0..1 | RW | Maximum Authorized Bitrate Downlink by 5GMS Application Provider. |
| defPacketLossRateDl | Integer | 0..1 |  | Default packet loss rate for Downlink. |
| defPacketLossRateUl | Integer | 0..1 |  | Default packet loss rate for Uplink. |

\*\*\*\* Last Change \*\*\*\*