**3GPP TSG-CT WG3 Meeting #122-eC3-223167**

**E-Meeting, 12th – 20th May 2022**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Pseudo-CR on the MBS Policy Decision update to Npcf\_MBSPolicyControl Create Service**

**Spec: 3GPP TS 29.537 V0.2.0**

**Agenda item: 17.31 (5MBS)**

**Document for: Approval**

**1. Introduction**

TS 29.537 has been allocated under the 5MBS work item to define the MBS Policy Control services.

**2. Reason for Change**

MbsPolicyDecision data structure update for Npcf\_MBSPolicyControl\_Create service operation.

Stage 2 requirements for policy data are defined in TS 23.247:

### 9.2.2 Npcf\_MBSPolicyControl service

#### 9.2.2.1 General

**Service description:** NF Service Consumer, e.g. MB-SMF can create and manage a MBS Policy Association in the PCF through which the NF Service Consumer receives policy information for a MBS Session.

As part of this service, the PCF may provide the NF Service Consumer, e.g. MB-SMF with policy information about the MBS Session that may contain:

- MBS Session related policy information.

- PCC rule information.

- Policy Control Request Trigger information. When a Policy Control Request Trigger condition is met the NF Service Consumer, e.g. MB\_SMF shall contact the PCF and provide information on the Policy Control Request Trigger condition that has been met.

**3. Conclusions**

N/A.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.537 V0.2.0.

\* \* \* First Change \* \* \* \*

##### 5.2.2.2.2 MBS Session Policy Association Establishment



Figure 5.2.2.2.2-1: MBS Session Policy Association establishment

1. In order to request the creation of an MBS Session Policy Association, the NF service consumer (e.g. MB-SMF) shall send an HTTP POST request to the PCF, as described in step 1of figure 5.2.2.2.2-1, with the request body containing the "MbsPolicyCtxtData" data structure that shall contain:

- the concerned MBS Session Id, within the "mbsSessionId" attribute;

- the DNN of the MBS session within the "dnn" attribute;

- the S-NSSAI of the MBS session, within the "snssai" attribute; and

- the URI towards which MBS policies update notifications should be sent by the PCF, within the "notificationUri" attribute.

Editor's Note: The complete list of attributes is FFS.

2. Upon reception of the HTTP POST request from the NF service consumer, the PCF shall perform MBS perform MBS policy authorization based on the information received from the NF service consumer and operator policies that are pre-configured at the PCF. If MBS policy authorization is successful, the PCF shall create a new "Individual MBS Policy" resource, addressed by a URI as defined in clause 6.1.3.2 and containing a PCF created resource identifier. The PCF shall then respond to the NF service consumer with an HTTP 201 Created response, including a Location header field containing the URI of the created resource and the MbsPolicyDecision data structure in the response body.

Editor's Note: The detailed content of the MbsPolicyData data structure is FFS.

The NF service consumer shall use the URI received in the Location header in subsequent requests to the PCF to refer to the created "Individual MBS Policy" resource.

If errors occur when processing the HTTP POST request, the PCF shall apply the error handling procedures specified in clause 6.1.7.

Editor's Note: Error / redirection cases and the related status codes are FFS.

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

#### 5.2.2.x Provisioning and Enforcement of Policy Decisions

##### 5.2.2.x.1 General

Policy Decisions are provided from the PCF to the NF service consumer (MB-SMF) as part of the following service operations:

- the Npcf\_MBSPolicyControl\_Create Service Operation described in subclause 5.2.2.2; and

- the MBS Policy Association Notification request as part of the Npcf\_MBSPolicyControl\_UpdateNotify Service Operation as described in subclause 5.2.2.3;

Policy decisions shall be encoded within the MbsPolicyDecision data structure defined in subclause 6.1.6.2.3

Policy decisions may include:

- Session Rule(s), as described in subclause 5.2.1.y, encoded within the "mbsSessRules" attribute;

- PCC Rule(s), as described in subclause 5.2.1.x, encoded within the "mbsPccRules" attribute;

- QoS policy decision(s), as described in subclause 5.2.1.m, which can be referenced from PCC rule(s), encoded within the "mbsQosInfos" attribute;

- QoS characteristics for non-standard 5QIs and non-preconfigured 5QIs provided within the "mbsQosChars" attribute;

Editor's Note: It is FFS if more than one session rule is needed for MBS session.

For the Npcf\_MbsPolicyControl\_Create Service Operation, the MbsPolicyDecision data structure shall contain a full description of all policy decision(s) provided by the PCF for the policy association.

For the Npcf\_MBSPolicyControl\_UpdateNotify service operation for the MBS Policy Association Notification request and for the Npcf\_MBSPolicyControl\_Update service operation, the MbsPolicyDecision data structure shall contain a description of the changes to the policy decision(s) with respect to the last provided policy decision(s) for the corresponding policy association.

Editor's Note: The applicable scenarios and service operations may need to be updated based on stage 2 progress.

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

##### 5.2.2.x.2 MBS PCC rule

The PCF may perform an operation on a single PCC rule or a group of PCC rules. The impacted PCC rule(s) shall be included in the "mbsPccRules" map attribute within the MbsPolicyDecision data structure with the associated "pccRuleId" as the key of the map. For activating a pre-defined PCC rule or installing or modifying a dynamic PCF-provisioned PCC rule, the corresponding MbsPccRule data structure shall be provided as the map entry value. For deactivating or removing a PCC rule, the map entry value shall be set to "NULL".

NOTE 1: When deactivating a predefined PCC rule that is activated in more than one QoS flow, this predefined PCC rule is deactivated simultaneously in all the QoS flows where it was previously activated.

In order to install a new dynamic PCF-provisioned PCC rule, the PCF shall further set other attributes within the PccRule data structure as follows:

- It may include the precedence of a PCC rule among the other PCC rules of the MBS session, within the "precedence" attribute. Within a MBS session, the PCF shall authorize different precedence values for the PCC rules whose packet filters contained within the "flowInfos" attribute.

- It shall include flow information within the "flowInfos" attribute.

- It shall include one reference to the MbsQosInfo data structure within the "refMbsQosInfo" attribute. In this case, a "mbsQosInfos" attribute containing the corresponding QoS data policy decision shall be included in the MbsPolicyDecision data structure, if it has not been previously provided.

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

##### 5.2.2.x.3 MBS Session rule

The PCF may perform operations on session rules. The impacted rules shall be included in the "mbsSessRules" map attribute within the MbsPolicyDecision data structure with the "sessRuleId" as a key. For installing or modifying a session rule, the corresponding MbsSessRule data instance shall be provided as the map entry value. For removing a session rule, the map entry value shall be set to NULL.

In order to install a new session rule, the PCF shall further set other attributes within the MbsSessRule data structure as follows:

- it shall include the authorized session AMBR within the "authSessAmbr" attribute;

Editor's Note: It is FFS if authorized default QoS is included as part of MBS session rule.

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

###### 6.1.3.2.3.1 POST

This method shall support the URI query parameters specified in table 6.1.3.2.3.1-1.

Table 6.1.3.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.1-2 and the response data structures and response codes specified in table 6.1.3.2.3.1-3.

Table 6.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MbsPolicyCtxtData | M | 1 | Contains the parameters to create an individual MBS Policy resource. |

Table 6.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MbsPolicyDecision | M | 1 | 201 Created | Successful case. An Individual MBS Policy resource is successfully created and a representation of the created resource is returned to the NF service consumer. |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of TS 29.500 [4] also apply. |

Editor's Note: Error / redirection cases and the related status codes are FFS.

Table 6.1.3.2.3.1-4: Headers supported by the POST method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | String | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/npcf-mbspolicycontrol/<apiVersion>/mbs-policies/{mbsPolicyId} |

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

##### 6.1.6.2.3 Type: MbsPolicyDecision

Table 6.1.6.2.3-1: Definition of type MbsPolicyDecision

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsSessRules | map(MbsSessRule) | O | 1..N | A map of MbsSessRules with the content being the MbsSessRule as described in subclause 6.1.6.2.z The key used in this map for each entry is the sessRuleId attribute of the corresponding MbsSessRule. (NOTE) |  |
| mbsPccRules | map(MbsPccRule) | O | 1..N | A map of PCC rules with the content being the MbsPccRule as described in subclause 6.1.6.2.x. The key used in this map for each entry is the pccRuleId attribute of the corresponding MbsPccRule. |  |
| mbsQosInfos | map(MbsQosInfo) | O | 1..N | Map of QoS info policy decisions. The key used in this map for each entry is the qosId attribute of the corresponding MbsQosInfo. (NOTE) |  |
| mbsQosChars | map(MbsQosChar) | O | 1..N | Map of QoS characteristics for non-standard 5QIs and non-preconfigured 5QIs. This map uses the 5QI values as keys. (NOTE) |  |
| NOTE: This attribute shall not be removed if it was provisioned. |

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

# A.2 Npcf\_MBSPolicyControl API

openapi: 3.0.0

info:

 title: Npcf\_MBSPolicyControl API

 version: 1.0.0-alpha.2

 description: |

 MBS Session Policy Control Service

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externalDocs:

 description: >

 TS 29.537 V0.2.0; 5G System; Multicast/Broadcast Policy Control Services.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.537/'

[…]

paths:

 /mbs-policies:

 post:

 summary: Request the creation of a new Individual MBS Policy resource.

 operationId: CreateMBSPolicy

 tags:

 - MBS Policies (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPolicyCtxtData'

 responses:

 '201':

 description: >

 Created. An Individual MBS Policy resource is successfully created and

 a representation of the created resource is returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MbsPolicyDecision'

 headers:

 Location:

 description: >

 Contains the URI of the newly created Individual MBS Policy resource.

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29571\_CommonData.yaml#/components/responses/default'

[…]

 MbsPolicyDecision:

 description: >

 Identifies the service requirements of an Individual Application MBS Session Context.

 type: object

 properties:

 mbsSessRules:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/MbsSessRule'

 minProperties: 1

 description: >

 A map of MbsSessRules with the content being the MbsSessRule as described in subclause

 6.1.6.2.z. The key used in this map for each entry is the sessRuleId attribute of the

 corresponding MbsSessRule.

 mbsPccRules:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/MbsPccRule'

 minProperties: 1

 description: >

 A map of PCC rules with the content being the MbsPccRule

 The key used in this map for each entry is the pccRuleId attribute of the corresponding

 MbsPccRule.

 mbsQosInfos:

 $ref: '#/components/schemas/MbsQosInfo'

 minProperties: 1

 description: >

 Map of QoS info policy decisions. The key used in this map for each entry is the qosId

 attribute of the corresponding MbsQosInfo.

 MbsQosChars:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/MbsQosChar'

 minProperties: 1

 description: >

 Map of QoS characteristics for non standard 5QIs. This map uses the 5QI values as keys.

\* \* \* End of Changes \* \* \* \*