**3GPP TSG-CT3 Meeting #130 C3-234306**

**Xiamen, China, 9 - 13 October 2023**

**Source: Ericsson**

**Title: Pseudo-CR on PDTQ warning notification and PDTQ policy re-negotiation**

**Spec: 3GPP TS 29.543 V0.3.0**

**Agenda item: 18.31**

**Document for: Decision**

**1. Introduction**

**2. Reason for Change**

SA2 specified that PDTQ information stored in the UDR as Data Set "Policy Data" and Data Subset "Planned Data Transfer with QoS requirements data" shall contain an indication whether the PDTQ warning notification is required. Therefore, if the NF service consumer modifies a PDTQ warning notification request indication the PCF may invoke the Nudr\_DataRepository\_Update service operation to update the UDR with the modified PDTQ warning notification request indication.

SA2 clarified that the PCF notifies the NF service consumer also when the DN performance in the requested area of interest reaches the reporting threshold set by the PCF based on operator configuration.

SA2 also updated procedure for the PDTQ warning notification and specified that within the Npcf\_PDTQPolicyControl\_Notify service operation the PCF shall provide list of candidate PDTQ policies while the network area information is removed from the PDTQ warning notification request, and also removed the PDTQ invalidation process during the PDTQ re-negotiation, see clause 6.1.2.7 of TS 23.503.

Furthermore, SA2 updated requirements related to the PDTQ policy re-negotiation and specified that the related AF upon reception of the PDTQ warning notification with the list of candidate PDTQ policies shall always provide to the PCF a result of the the PDTQ policy re-selection:

- the identity of the selected PDTQ policy even if only one candidate PDTQ policy was offered by the PCF, or

- an indication that the AF has not selected any PDTQ policy,

If the AF has not selected any of the PDTQ policies included in the candidate list the previously negotiated PDTQ policy shall be kept.

**3. Conclusions**

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.543 V0.3.0.

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

##### 5.2.2.2.2 Retrieval of PDTQ policies

This procedure is used by the NF service consumer to request PDTQ policies from the PCF, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [14].

Figure 5.2.2.2.2-1 illustrates retrieval of PDTQ policies.



Figure 5.2.2.2.2-1: Retrieval of PDTQ policies

In order to get PDTQ policies, the NF service consumer shall invoke the Npcf\_PDTQPolicyControl\_Create service operation by sending an HTTP POST request to the URI representing a "PDTQ policies" collection resource of the PCF (as shown in figure 5.2.2.2.2-1, step 1). The NF service consumer shall include in a body of the HTTP POST request a PdtqPolicyData data type which shall contain:

a) an ASP identifier in the "aspId" attribute;

b) an expected number of UEs in the "numOfUes" attribute;

c) a list of desired time windows in the "desTimeInts" attribute;

d) requested QoS requirements provided as a QoS Reference in the "qosReference" attribute or as a QoS parameter set in the "qosParamSet" attribute that shall contain one or more of the following individual QoS parameters:

1) Priority Level in the "priorLevel" attribute;

2) Maximum Burst Size:

A) if the Maximum Burst Size value is greater than 4095 Bytes in the "extMaxBurstSize" attribute; or

B) if the Maximum Burst Size value is lower than or equal to 4095 Bytes in the "maxBurstSize" attribute;

3) 5GS Delay in the "pdb" attribute;

4) Maximum Bitrate in downlink and/or uplink directions in the "maxBitRateDl" and/or "maxBitRateUl" attributes;

5) Guaranteed Flow Bitrate in downlink and/or uplink directions in the "gfbrDl" and/or "gfbrUl" attributes; and

6) Packet Error Rate in the "per" attribute,

and may contain:

a) a network area information (e.g. list of TAIs and/or list of NG-RAN nodes and/or list of cells identifiers) in the "nwAreaInfo" attribute;

b) an application identifier in the "appId" attribute;

c) a DNN corresponding to the ASP identifier, in the "dnn" attribute;

d) an S-NSSAI corresponding to the ASP identifier, in the "snssai" attribute;

e) alternative service requirements provided as:

1) one or more alternative QoS References in a prioritized order in the "altQosRefs" attribute; or

2) one or more alternative QoS Parameter Sets in a prioritized order in the "altQosParamSets" attribute which shall contain one or more of the following individual QoS parameters:

A) 5GS Delay in the "pdb" attribute;

B) Guaranteed Flow Bitrate in downlink and/or uplink directions in the "gfbrDl" and/or "gfbrUl" attributes; and

C) Packet Error Rate in the "per" attribute; and

f) a notification URI in the "notifUri" attribute and a request to enable a PDTQ warning notification for the planned data transfer with QoS requirements in the "warnNotifReq" attribute.

NOTE 1: The PCF can be configured to map the ASP identifier to a target DNN and S-NSSAI if the NF service consumer did not provide the DNN, S-NSSAI to the PCF.

Upon the reception of the HTTP POST request from the NF service consumer indicating a PDTQ policies request, the PCF:

a) shall invoke the Nudr\_DataRepository\_Query service operation, as described in 3GPP TS 29.504 [16] and 3GPP TS 29.519 [17], to request from the UDR all existing PDTQ policies;

b) may invoke the Nnwdaf\_EventsSubscription\_Subscribe service operation and/or the Nnwdaf\_AnalyticsInfo\_Request service operation as described in 3GPP TS 29.520 [18], to get from the NWDAF the Network Performance analytics or the DN Performance analytics;

NOTE 2: Whether the PCF subscribes to Network Performance analytics or DN Performance analytics is based on PCF configuration.

c) shall determine one or more acceptable PDTQ policy based on:

1) information provided by the NF service consumer; and

2) other available information (e.g. the network analytics related to "Network Performance" or "DN Performance", the existing PDTQ policies, the network policy);

d) shall create a PDTQ Reference ID;

e) shall send to the NF service consumer a "201 Created" response to the HTTP POST request, as shown in figure 5.2.2.2.2-1, step 2. The PCF shall include in the "201 Created" response a Location header field containing the URI of the created "Individual PDTQ policy" resource, and the response body with a PdtqPolicyData data type which shall contain:

1) acceptable PDTQ policy/ies in the "pdtqPolicies" attribute. For each included PDTQ policy, the PCF shall provide:

A) an identity of a PDTQ policy represented as an integer value greater than zero in the "pdtqPolicyId" attribute; and

B) recommended time window in the "recTimeInt" attribute; and

2) the PDTQ Reference ID in the "pdtqRefId" attribute; or

f) if the PCF cannot successfully fulfil the received HTTP POST request due to the internal PCF error or due to the error in the HTTP POST request, shall send the HTTP error response as specified in clause 6.1.7.

If the PCF included in the PdtqPolicyData data type:

- more than one PDTQ policy, the PCF shall wait for an indication about selected PDTQ policy from the NF service consumer as described in clause 5.2.2.3.2; or

- only one PDTQ policy, the PCF shall invoke the Nudr\_DataRepository\_Update service operation, as described in 3GPP TS 29.504 [16] and 3GPP TS 29.519 [17], to update the UDR with the selected PDTQ policy, the corresponding PDTQ Reference ID, the expected number of UEs, the list of desired time windows, the QoS Reference or individual QoS parameters, whether the AF accepts PDTQ policy renegotiation and, if available, the network area information and the alternative service requirements listed in a prioritized order for the provided ASP identifier.

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

##### 5.2.2.3.2 Indication about selected PDTQ policy

This procedure is used by the NF service consumer to inform the PCF about selected PDTQ policy, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [14], if the AF has selected the PDTQ policy from the received list of PDTQ policies after:

- retrieval of PDTQ policies as described in clause 5.2.2.2.2; or

- reception of a PDTQ warning notification as described in clause 5.2.2.4.2.

Figure 5.2.2.3.2-1 illustrates an indication about selected PDTQ policy.



Figure 5.2.2.3.2-1: Indication about selected PDTQ policy

In order to inform the PCF about selected PDTQ policy, the NF service consumer shall invoke the Npcf\_PDTQPolicyControl\_Update service operation by sending an HTTP PATCH targeting the URI of the corresponding "Individual PDTQ policy" resource (as shown in figure 5.2.2.3.2-1, step 1). The NF service consumer shall include in a body of the HTTP PATCH request a PdtqPolicyPatchData data type which shall contain:

a) if the AF has selected the PDTQ policy, the identifier of the selected PDTQ policy in the "selPdtqPolicyId" attribute; or

b) in case of a PDTQ policy renegotiation and if the AF has not selected any PDTQ policy, the "selPdtqPolicyId" attribute set to value "0" to indicate no PDTQ policy is selected.

Upon the reception of the HTTP PATCH request from the NF service consumer, if the PCF determines the received HTTP PATCH request needs to be redirected, the PCF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4]. Otherwise, the PCF:

a) in case of the initial PDTQ policy negotiation, may invoke the Nudr\_DataRepository\_Update service operation, as described in 3GPP TS 29.504 [16] and 3GPP TS 29.519 [17], with the selected PDTQ policy, the corresponding PDTQ Reference ID, the expected number of UEs, the list of desired time windows, the QoS Reference or individual QoS parameters, whether the AF accepts PDTQ policy renegotiation and, if available, the network area information and the alternative service requirements listed in a prioritized order for the provided ASP identifier;

b) in case of the PDTQ policy renegotiation if the PDTQ policy is selected and the PCF invoked the Nudr\_DataRepository\_Update service operation during the initial PDTQ policy negotiation the PCF shall invoke the Nudr\_DataRepository\_Update service operation, as described in 3GPP TS 29.504 [16] and 3GPP TS 29.519 [17], to update the UDR with the selected PDTQ policy; and

NOTE: If the AF has not selected any of the PDTQ policies included in the candidate list, the previously negotiated PDTQ policy shall be kept.

c) shall acknowledge the received HTTP PATCH request by sending to the NF service consumer:

1) a "204 No Content" response (as shown in figure 5.2.2.3.2-1, step 2a);

2) a "200 OK" response (as shown in figure 5.2.2.3.2-1, step 2b) with a PdtqPolicyData data type in the response body; or

3) if the PCF cannot successfully fulfil the received HTTP PATCH request due to the internal PCF error or due to the error in the HTTP PATCH request, an HTTP error response as specified in clause 6.1.7.

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

##### 5.2.2.3.3 Modification of PDTQ warning notification request indication

This procedure is used by the NF service consumer to inform the PCF whether the AF has enabled or disabled the PDTQ warning notification.

In order to modify a PDTQ warning notification request indication, the NF service consumer shall invoke the Npcf\_PDTQPolicyControl\_Update service operation by sending an HTTP PATCH request to the PCF, as described in clause 5.2.2.3.2. The NF service consumer shall include in a PdtqPolicyPatchData data type a "warnNotifReq" attribute set to value:

- "false" if the PDTQ warning notification is no longer required; or

- "true" if the PDTQ warning notification is required.

If the PDTQ warning notification is required and a notification URI was not previously provided or has been changed, the NF service consumer shall include:

- the notification URI in the "notifUri" attribute.

Upon the reception of the HTTP PATCH request from the NF service consumer indicating a modification of the PDTQ warning notification request indication, the PCF shall:

- acknowledge that request by sending an HTTP response message as described in clause 5.2.2.3.2; and

- if the PCF invoked the Nudr\_DataRepository\_Update service operation during the initial PDTQ policy negotiation, invoke the Nudr\_DataRepository\_Update service operation, as described in 3GPP TS 29.504 [16] and 3GPP TS 29.519 [17], to update the UDR with the modified PDTQ warning notification request indication.

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

##### 5.2.2.4.2 Sending the PDTQ warning notification

This procedure is used by the PCF to provide a list of new candidate PDTQ policies to the NF service consumer due to a network performance or DN performance degradation, as defined in clause 4.16.15.2.2 of 3GPP TS 23.502 [3]and clause 6.1.2.7 of 3GPP TS 23.503 [14].

Figure 5.2.2.4.2-1 illustrates a PDTQ warning notification from the PCF.



Figure 5.2.2.4.2-1: PDTQ warning notification

When the PCF gets the notification from the NWDAF, that the network performance or DN performance in the requested area of interest reaches the reporting threshold as described in 3GPP TS 29.520 [18] and if the PDTQ warning notification is enabled, the PCF may try to renegotiate the affected PDTQ policies with the affected AFs. To do this, the PCF retrieves all the PDTQ policies together with their additionally stored AF provided information for PDTQ policy decision (e.g. their corresponding list of desired time windows, the number of UEs, etc.) from the UDR, identifies the PDTQ policy(ies) that are not desirable anymore due to the degradation of the network performance or DN performance and tries to calculate one or more new candidate PDTQ policies based on the AF provided information, the PDTQ policies retrieved from the UDR and the current network performance or DN performance. If the PCF does not find any new candidate PDTQ policy, the previously negotiated PDTQ policy shall be kept and no interaction with the NF service consumer shall occur.

If one or more new candidate PDTQ policies are calculated, the PCF shall invoke the Npcf\_PDTQPolicyControl\_Notify service operation by sending the HTTP POST request with a PDTQ warning notification to the NF service consumer.

The PCF shall include in a body of the HTTP POST request a "Notification" data type which shall contain:

- the PDTQ Reference ID of the impacted PDTQ policy within the "pdtqRefId" attribute; and

- the list of candidate PDTQ policies in the "candPolicies" attribute.

NOTE: The AF might, or might not select a new PDTQ policy from the offered candidate list when receives the PDTQ warning notification.

Upon the reception of the HTTP POST request from the PCF, the NF service consumer shall acknowledge that request by sending an HTTP response message with the corresponding status code:

- if the NF service consumer determines the received HTTP POST request needs to be redirected, the NF service consumer shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4];

- if the HTTP POST request from the PCF is accepted, the NF service consumer shall acknowledge the receipt of the notification with a "204 No Content" response to HTTP POST request, as shown in figure 5.2.2.4.2-1, step 2; or

- if the HTTP POST request from the PCF is not accepted, the NF service consumer shall send an HTTP error response as specified in clause 6.1.7.

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

##### 6.1.5.2.1 Description

The PDTQ warning notification is used by the PCF to notify the NF service consumer about changed conditions for a planned data transfer with QoS requirements e.g. that a network performance or DN performance in the area of interest goes below the criteria set by the operator.

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

##### 6.1.6.2.7 Type Notification

Table 6.1.6.2.7-1: Definition of type Notification

| Attribute name | Data type | P | Cardinality | Description | Applicability |
| --- | --- | --- | --- | --- | --- |
| pdtqRefId | PdtqReferenceId | M | 1 | This IE identifies the PDTQ policy to which the notification corresponds. |  |
| candPolicies | array(PdtqPolicy) | M | 1..N | This IE contains a list of the candidate PDTQ policies from which the AF may select a new PDTQ policy. |  |
|  |  |  |  |  |  |

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

# A.2 Npcf\_PDTQPolicyControl API

openapi: 3.0.0

info:

 title: Npcf\_PDTQPolicyControl API

 version: 1.0.0-alpha.2

 description: |

 PCF PDTQ Policy Control service.

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externalDocs:

 description: 3GPP TS 29.543 V0.3.0; 5G System; Data Transfer Policy Control Services; Stage 3.

 url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.543/'

servers:

 - url: '{apiRoot}/npcf-pdtq-policy-control/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

security:

 - {}

 - oAuth2ClientCredentials:

 - npcf-pdtq-policy-control

paths:

 /pdtq-policies:

 post:

 summary: Creates a new Individual PDTQ policy resource.

 operationId: CreatePDTQPolicy

 tags:

 - PDTQ policies (Collection)

 requestBody:

 description: >

 Contains information for the creation of a new Individual PDTQ policy resource.

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '201':

 description: >

 Created, an Individual PDTQ policy resource is created and a representation of that

 resource is returned.

 content:

 application/json:

 schema:

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

 headers:

 Location:

 description: >

 Contains the URI of the created Individual PDTQ policy resource,

 according to the structure

 {apiRoot}/npcf-pdtq-policy-control/v1/pdtq-policies/{pdtqPolicyId}

 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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 callbacks:

 PDTQNotification:

 '{$request.body#/notifUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

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

 responses:

 '204':

 description: >

 No Content, the reception of a PDTQ warning notification is acknowledged.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 /pdtq-policies/{pdtqPolicyId}:

 get:

 summary: Reads an Individual PDTQ policy resource.

 operationId: GetIndPDTQPolicy

 tags:

 - Individual PDTQ policy (Document)

 parameters:

 - name: pdtqPolicyId

 description: String identifying the individual PDTQ policy resource in the PCF.

 in: path

 required: true

 schema:

 type: string

 responses:

 '200':

 description: OK, a representation of an Individual PDTQ policy resource is returned.

 content:

 application/json:

 schema:

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

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '406':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/406'

 '429':

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

 '500':

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

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

 patch:

 summary: Modifies an existing Individual PDTQ policy resource.

 operationId: ModifyIndPDTQPolicy

 tags:

 - Individual PDTQ policy (Document)

 parameters:

 - name: pdtqPolicyId

 description: String identifying the individual PDTQ policy resource in the PCF.

 in: path

 required: true

 schema:

 type: string

 requestBody:

 description: >

 Contains modifications that shall be applied on the existing Individual PDTQ

 policy resource.

 required: true

 content:

 application/merge-patch+json:

 schema:

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

 responses:

 '200':

 description: >

 OK, the Individual PDTQ policy resource is modified and a representation of

 that resource is returned.

 content:

 application/json:

 schema:

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

 '204':

 description: No Content, the Individual PDTQ policy resource is modified.

 '307':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/308'

 '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'

 '502':

 $ref: 'TS29571\_CommonData.yaml#/components/responses/502'

 '503':

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

 default:

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

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{nrfApiRoot}/oauth2/token'

 scopes:

 npcf-pdtq-policy-control: Access to the Npcf\_PDTQPolicyControl API

 schemas:

# Structured data types

 PdtqPolicyData:

 description: Describes an Individual PDTQ policy resource.

 type: object

 required:

 - aspId

 - desTimeInts

 - numOfUes

 oneOf:

 - required: [qosReference]

 - required: [qosParamSet]

 properties:

 altQosParamSets:

 description: >

 Contains the alternative QoS requirements expressed as the list of individual

 QoS parameter sets in a prioritized order. The lower the index of the array for

 a given entry, the higher the priority.

 type: array

 items:

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

 minItems: 1

 altQosRefs:

 description: >

 Contains the alternative QoS requirements expressed as the list of QoS References

 in a prioritized order. The lower the index of the array for a given entry, the

 higher the priority.

 type: array

 items:

 type: string

 minItems: 1

 appId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ApplicationId'

 aspId:

 description: Contains an identity of an application service provider.

 type: string

 desTimeInts:

 description: Contains a list of desired time windows for PDTQ.

 type: array

 items:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'

 minItems: 1

 dnn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 notifUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 nwAreaInfo:

 $ref: 'TS29554\_Npcf\_BDTPolicyControl.yaml#/components/schemas/NetworkAreaInfo'

 numOfUes:

 description: Indicates a number of UEs.

 type: integer

 pdtqPolicies:

 description: Contains PDTQ policies.

 type: array

 items:

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

 minItems: 1

 pdtqRefId:

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

 qosParamSet:

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

 qosReference:

 description: >

 Contains the requested QoS requirements expressed as the QoS Reference which

 represents a pre-defined QoS information.

 type: string

 selPdtqPolicyId:

 description: Contains the identity of the selected PDTQ policy.

 type: integer

 snssai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 warnNotifReq:

 description: >

 Indicates whether the PDTQ warning notification is enabled (true) or

 disabled (false). Default value is false.

 type: boolean

 default: false

 QosParameterSet:

 description: >

 Contains the QoS requirements expressed as one or more individual QoS parameters.

 type: object

 properties:

 extMaxBurstSize:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/ExtMaxDataBurstVol'

 gfbrDl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 gfbrUl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 maxBitRateDl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 maxBitRateUl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 maxBurstSize:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/MaxDataBurstVol'

 pdb:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketDelBudget'

 per:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketErrRate'

 priorLevel:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/5QiPriorityLevel'

 AltQosParamSet:

 description: >

 Contains the alternative QoS requirements expressed as the list of individual QoS

 parameter sets.

 type: object

 properties:

 gfbrDl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 gfbrUl:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 pdb:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketDelBudget'

 per:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketErrRate'

 PdtqPolicy:

 description: Describes a PDTQ policy.

 type: object

 required:

 - pdtqPolicyId

 - recTimeInt

 properties:

 pdtqPolicyId:

 description: Contains an identity of a PDTQ policy.

 type: integer

 recTimeInt:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/TimeWindow'

 PdtqPolicyPatchData:

 description: Represents modifications of an Individual PDTQ policy resource.

 type: object

 properties:

 notifUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 selPdtqPolicyId:

 description: Contains the identity of the selected PDTQ policy.

 type: integer

 warnNotifReq:

 description: >

 Indicates whether the PDTQ warning notification is enabled (true) or

 disabled (false).

 type: boolean

 Notification:

 description: Contains the PDTQ notification information.

 type: object

 required:

 - pdtqRefId

 - candPolicies

 properties:

 pdtqRefId:

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

 candPolicies:

 description: >

 Contains a list of the candidate PDTQ policies from which the AF may select a new

 PDTQ policy.

 type: array

 items:

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

 minItems: 1

# Simple data types

 PdtqReferenceId:

 description: Represents a PTDQ Reference ID.

 type: string

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