**3GPP TSG-CT WG3 Meeting #130 *C3-234293***

**Xiamen, China 9th– 13th October, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.513** | **CR** | **0499** | **rev** | **-** | **Current version:** | **18.3.0** |  |
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| *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 | **X** |

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| ***Title:*** | Correction in warning notification procedures and related data types. | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIMLsys | | | | |  | ***Date:*** | | | 2023-09-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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)* | |
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| ***Reason for change:*** | | SA2 updated procedure for the PDTQ warning notification and specified that when the AF receives a warning notification with one or more candidate PDTQ policies, the AF shall confirm the selected policy, even if only one policy was provided.  The invalidation and validation procedure for the PDTQ policies in the UDR is not part of the final procedure.  The procedure for updating the warning notification is wrongly described in 5.5.14. It should not be part of 5.5.14 since it refers to the notification, not to the udpate of PDTQ related information. | | | | | | | | |
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| ***Summary of change:*** | | Clause 5.5.14 is updated to remove the invalidation of PDTQ policies in the UDR and to require that the AF always confirms about the selected PDTQ policy.  This clause also removes the update of the warning notification.  Clause 5.5.13 is completed with the warning notification information storage in UDR.  A new clause, 5.5.13a is added to describe the modification of PDTQ warning notification. | | | | | | | | |
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| ***Consequences if not approved:*** | | Wrong specification. Misalignment with stage 2. | | | | | | | | |
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| ***Clauses affected:*** | | 5.5.13; 5.5.13a (new); 5.5.14. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

### 5.5.13 Negotiation for planned data transfer with QoS requirements



Figure 5.5.13-1: Negotiation for PDTQ procedure

1. The AF invokes the Nnef\_PDTQPolicyNegotiation\_Create service operation by sending an HTTP POST request to the resource "PDTQ Policy Subscriptions" to negotiate the PDTQ policies. The detailed information contained in AF request is described in clause 4.4.34 of 3GPP TS 29.522 [24]. When the AF provides a geographical area, then the NEF maps it based on local configuration into a short list of TAs and/or NG-RAN nodes and/or cells identifiers, which are provided to the (H-) PCF.

NOTE 1: The AF can determine the minimum QoS requirements based on the UEs who are expected to participate in the PDTQ transfer window, the network input data and the group application data transfer trigger conditions.

The NEF may map the ASP ID into DNN and S-NSSAI to be used in step 2.

NOTE 2: The Application ID provided by the AF and the Application ID that is provided to NWDAF can be different, and the mapping will be performed in the PCF.

2. Upon receipt of a PDTQ policies request from the AF, the NEF invokes the Npcf\_PDTQPolicyControl\_Create service operation to the (H-) PCF by sending an HTTP POST request to the resource "PDTQ policies". The detailed information contained in NEF request is described in clause 5.2.2.2.2 of 3GPP TS 29.543 [68].

3-4. The (H-) PCF may invoke the Nudr\_DataRepository\_Query service operation by sending an HTTP GET request to the resource "PdtqData" as defined in clause 5.2.17.3.1 of 3GPP TS 29.519 [12] to request from the UDR all existing PDTQ policies. The UDR sends an HTTP "200 OK" response with all the stored PDTQ policies and corresponding related information to the (H-) PCF.

NOTE 3: In case only one PCF is deployed in the network, PDTQ policies can be locally stored in the PCF and the interaction with the UDR is not required.

5. The PCF requests and/or subscribes to the "Network Performance Analytics" from NWDAF as defined in clause 5.7.5 of 3GPP TS 29.552 [48] and/or the "DN Performance Analytics" as defined in clause 5.7.16 of 3GPP TS 29.552 [48].

6. The (H-) PCF determines one or more PDTQ policies based on the information received from the NEF and other available information (e.g. network policy, existing PDTQ policies, network area information and performance analytics from the NWDAF). Each PDTQ policy includes a recommended time window for the traffic transfer for each of the AF session for each of the UEs involved.

7. The (H-) PCF sends a "201 Created" response to the Npcf\_PDTQPolicyControl\_Create service operation with the acceptable one or more PDTQ policies and a PDTQ Reference ID.

8. The NEF sends a "201 Created" response to forward the received PDTQ policies to the AF. If the NEF received only one PDTQ policy from the (H-) PCF, steps 9-12 are not executed and the flow proceeds to step 13. Otherwise, the flow proceeds to step 9.

9. If more than one PDTQ policies were provided to the AF, the AF invokes the Nnef\_PDTQPolicyNegotiation\_Update service operation by sending an HTTP PATCH request to the resource "Individual PDTQ Policy Subscription" as described in clause 4.4.34 of 3GPP TS 29.522 [24] to provide the NEF with the selected PDTQ policy. The AF may also send an HTTP PATCH to request to disable/enable the PDTQ warning notification.

10. The NEF invokes the Npcf\_PDTQPolicyControl\_Update service operation by sending an HTTP PATCH request to the resource "Individual PDTQ Policy" as described in clause 5.2.2.3 of 3GPP TS 29.543 [68] to provide the (H-) PCF with the selected PDTQ policy and/or PDTQ warning notification information.

11. The (H-) PCF sends an HTTP PATCH response message to the NEF.

12. The NEF sends an HTTP PATCH response message to the AF.

13-14. If the (H-) PCF does not locally store the PDTQ policy and if applicable, PDTQ warning notification information, it invokes the Nudr\_DataRepository\_Update service operation by sending an HTTP PUT request to the resource "IndividualPdtqData", to store for the provided ASP identifier the new PDTQ policy andif applicable, warning notification information together with the information defined in clause 5.4.2.33 of 3GPP TS 29.519 [12]. The UDR sends an HTTP "201 Created" response to the (H-) PCF.

\*\*\* Second Change \*\*\*

### 5.5.13a Modification of PDTQ warning notification request indication procedure



Figure 5.5.13a-1: Modification of PDTQ warning notification request indication procedure

1. The AF sends an HTTP PATCH request to the resource "Individual PDTQ Policy Subscription" as described in clause 4.4.34 of 3GPP TS 29.522 [24] to disable/enable the PDTQ warning notification.

2. The NEF invokes the Npcf\_PDTQPolicyControl\_Update service operation by sending an HTTP PATCH request to the resource "Individual PDTQ Policy" as described in clause 5.2.2.3 of 3GPP TS 29.543 [68] to provide the (H-) PCF with the PDTQ warning notification information.

3. The (H-) PCF sends an HTTP PATCH response message to the NEF.

4. The NEF sends an HTTP PATCH response message to the AF.

5-6. If the (H-) PCF does not locally store the PDTQ warning notification information, it invokes the Nudr\_DataRepository\_Update service operation by sending an HTTP PUT request to the resource "IndividualPdtqData", to store the warning notification information together with the information defined in clause 5.4.2.33 of 3GPP TS 29.519 [12]. The UDR responds to the (H-) PCF.

\*\*\* Third Change \*\*\*

### 5.5.14 PDTQ warning notification procedure



Figure 5.5.14-1: PDTQ warning notification procedure

0. The negotiation for PDTQ policy as described in clause 5.5.13 is completed. In addition, the PCF has subscribed to "Network Performance Analytics" and/or "DN Performance Analytics" from NWDAF for the area of interest and time window of a PDTQ policy following the procedure and services described in 3GPP TS 29.552 [48]. The AF subscribes to PDTQ warning notification from the (H-)PCF via NEF during Negotiation for PDTQ procedure (see clause 5.5.13).

1. The (H-)PCF is notified when the subscribed "Network Performance Analytics" and/or "DN Performance Analytics" from the NWDAF in the area of interest reaches the Reporting Threshold as described in clause 5.7.5 and clause 5.7.16 of 3GPP TS 29.552 [48] respectively.

2-3. The (H-)PCF may invoke the Nudr\_DataRepository\_Query service operation by sending an HTTP GET request to the "PdtqData" resource, to request from the UDR all stored PDTQ policies. The UDR sends an HTTP "200 OK" response with all the stored PDTQ policies and corresponding related information to the (H-)PCF.

NOTE 1: If only one PCF is deployed in the network, PDTQ policies might be locally stored in the PCF and the interaction with the UDR is not required.

4. The (H-)PCF identifies the PDTQ policies that are affected by degradation of the performance. For each affected PDTQ policy the (H-)PCF determines the ASP of which the PDTQ traffic will be influenced by the degradation of performance analytics and which requested the (H-)PCF to send the notification.

5. Based on the operator policies, the (H-)PCF decides for each of the affected PDTQ policies whether a new list of candidate PDTQ policies has to be calculated.

NOTE 2: If the (H-)PCF does not find any new candidate PDTQ policies, the previously negotiated PDTQ policy is kept and no interaction with the AF occurs, i.e. steps 6 to 13 are not performed.

6. The (H-)PCF invokes the Npcf\_PDTQPolicyControl\_Notify service operation by sending the HTTP POST request with the PDTQ warning notification to the Notification URI which was received in Npcf\_PDTQPolicyControl\_Create request.

The PDTQ warning notification includes PDTQ Reference ID and a list of candidate PDTQ policies as described in clause 5.2.2.4.2 of 3GPP TS 29.543 [68].

7. Upon the reception of the PDTQ warning notification from the (H-)PCF, the NEF invokes the Nnef\_PDTQPolicyNegotiation\_Notify service operation by sending the HTTP POST request with the PDTQ warning notification to the Notification URI , which was received in Nnef\_PDTQPolicyNegotiation\_Create request.

8. The AF sends an HTTP "204 No Content" response to the NEF.

9. The NEF sends an HTTP "204 No Content" response to the (H-)PCF.

10. When the AF receives the PDTQ warning notification, the AF checks new candidate PDTQ policies.

11. Steps 9-12 from clause 5.5.13 are executed to confirm the selected PDTQ policy. If the AF did not select any of the PDTQ policies, an indication that no PDTQ policy is selected is included in the HTTP PATCH request.

12a-13a. If the AF selected one of the PDTQ policies from the candidate list and if the (H‑)PCF stored the affected PDTQ policy in the UDR, the (H‑)PCF shall invoke the Nudr\_DataRepository\_Update service operation by sending an HTTP PATCH request to the resource "IndividualPdtqData", to update the UDR with the selected candidate PDTQ policy. The UDR sends an HTTP "200 OK" or "204 No Content" response to the (H-)PCF.

12b-13b. If the AF did not select one of the PDTQ policies from the candidate list and if the (H‑)PCF stored the affected PDTQ policy in the UDR, the (H‑)PCF shall invoke the Nudr\_DataRepository\_Delete service operation to remove the affected PDTQ policy from the UDR by sending the HTTP DELETE request to the "IndividualPdtqData" resource. The UDR sends an HTTP "204 No Content" response to the (H-)PCF.

NOTE 3: Steps 5 to 12a/12b can occur multiple times, i.e. for each affected PDTQ policy.

Editor’s Note: Whether the (H-)PCF removes or not the affected PDTQ policy in the UDR when the AF did not select one of the candidate PDTQ policies is subject to the final alignment between TS 23.502 and TS 23.503.

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