**3GPP TSG-SA5 Meeting #145-e *S5-225293***

**e-meeting, 15 - 24 August 2022**

**Source: Ericsson**

**Title: Adding solution for non-blocking mode change using PCF**

**Document for: Approval**

**Agenda Item: 7.5.2**

# 1 Decision/action requested

**Include the proposed changes in TR 28.826.**

# 2 References

[1] 3GPP TR 28.826: " Study on Nchf charging services phase 2 improvements and optimizations"

# 3 Rationale

Adding solution using PCF and spending limit report to control the non-blocking mode.

# 4 Detailed proposal

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| **First change** |

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.255: "5G data connectivity domain charging; stage 2".

[3] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[6] 3GPP TS 32.291: "Telecommunication management; Charging management; 5G system; Charging service, stage 3".

[7] 3GPP TS 32.298: "Telecommunication management; Charging management; Charging Data Record (CDR) parameter description".

[8] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[9] 3GPP TS 29.513: "5G System; Policy and Charging Control signalling flows and QoS parameter mapping; Stage 3".

[10] 3GPP TS 29.594: "5G System; Spending Limit Control Service; Stage 3".

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| **Second change** |

#### 5.5.5.x Solution #5.x: Non-blocking mode change from CHF to PCF

A possible solution to support the potential requirements **REQ-3GPPCH-NB-01, REQ-3GPPCH-NB-02** and **Key Issue #5a** reuses the policy and charging control framework defined in TS 23.503 [3], TS 29.513 [9], TS 29.594 [10].

The PCF is configured with PCC Rules that include information for service data flow detection and charging information. The charging information includes Charging Key, Charging method, and Service Data flow handling while requesting credit (see TS 23.503 [3] table 6.3.1.

The CHF is configured with Rating Groups (corresponding to Charging Key) and policy counter information which includes Policy counter identifiers and statuses.

The PCF will use the Nchf\_SpendingLimitControl\_Subscribe for a specific SUPI to retrieve the initial status of the policy counters. Based on these statues, and their configured relationship with the charging keys if any, it may select PCC Rules or even update PCC Rules. It would then provide these to the SMF if requested.

The CHF will, based on Nchf\_ ConvergedCharging requests and account balance changes, check if the status of the policy counters should be updated, if the statuses is changed it will use the Nchf\_SpendingLimitControl\_Notify to send the new status to the PCF, if the PCF have a subscription for the counters.

One policy counter identifier may be connected to one or more Rating Groups in the CHF, this connection is preferably mirrored in the PCF i.e., the policy counter identifier is relevant for one or more Charging Keys. The Charging Keys/Rating Groups, Policy Counter Identifiers, and Policy Counter Statuses must be synchronized between the PCF and CHF. Since if any of these have different meanings in the PCF and CHF it will lead to issues e.g., if a Charging Key is defined in PCF but there is no rating for the Rating Group this will lead to faulty charging the same is applicable to the Policy counter identifiers and statuses which may lead to faulty PCC Rules being applied.

This means that the PCF can based on the policy counter status set the Service Data flow handling while requesting credit to either blocking or non-blocking in the PCC Rule applicable to a specific Charging Key. The CHF can have policy counter applicable to one or more Rating Groups, and the status can be based on the account balance status e.g., the account balance is near to the limit for a Rating Group

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| **End of changes** |