**3GPP TSG-SA WG2 Meeting #170 S2-2507664**

**Goteborg, Sweden, Aug 25 – 29, 2025**  **(was S2-2506171)**

**Source: Nokia**

**Title: KI#2 new solution – Dynamic service adjustments based on review of EC Events and categorization received from EIF**

**Document for: Approval**

**Agenda Item: 20.4.1**

**Work Item / Release: FS\_EnergySys\_Ph2 / Rel-20**

*Abstract of the contribution: The contribution proposes a new solution for KI#2 considering the energy consumption inputs from EIF.*

**1. Discussion**

The proposed solution aims to implement dynamic service adjustments based on review of the EC Events from EIF.

**2. Proposal**

It is proposed to agree to have the following text in 3GPP TR 23.700-67.

\* \* \* \* First change \* \* \* \*

6 Solutions

6.0 Mapping of Solutions to Key Issues

Editor's note: The number of columns of Key Issues will be updated according to clause 5.

**Table 6.0-1: Mapping of Solutions to Key Issues**

|  |
| --- |
|  |
| **Solution#** | **1** | **2** | **3** |
| **X** |  | x |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

\* \* \* \* Second change (All new) \* \* \* \*

6.X Solution #X: Dynamic service adjustments based on review of EC Events from EIF

6.X.0 High-level solution principles

This solution proposes below high-level principles which also re-uses most of the existing PCF capabilities.

PCF considers the following factors to determine the UEs and PDU Sessions for carrying out service adjustments.

* PCF subscribes to notifications from EIF as described in clause 5.51 of TS 23.501.
* PCF considers Events (Energy consumption percentile/ Energy consumption per bit) from EIF as described in clause 6.1.2 (solution 1) of TR 23.700-67. The EIF may also include additional categorization information (e.g., UE Energy behaviour category identified by the NW as High, Low, etc) in its notification to the PCF.
* PCF analyses if the categorization - EC percentile / per bit is persistently about configured limits and accordingly chooses the UEs and/or PDU Session for carrying out service adjustments.
* PCF lets the AMF and SMF be aware of the categorization information for them to include this information in their communication with the CHF.

6.X.1 Description

Based on the operator policies and/or local configuration, the PCF determines to subscribe to notifications from the EIF for Energy Consumption information with the granularities as described in clause 5.51 of TS 23.501 and 6.1.2 of TR 23.700-67 for all the UE or only for the UEs that have a subscription data (for e.g., subscriber category or indication for Energy Savings) indicating that the network could carry out service adjustments to support network energy savings.

These events are used to identify the UEs that are in a higher percentile band or higher energy consumption per bit, persistently higher for N samples of energy related information received from the EIF, where N is the number of samples defined based on operator policies.

In having the information that the UE(s) are persistently in a specific percentile band (or in specific category as defined in 6.2.1 of TR 23.700-67) the PCF considers such UE(s) to carry out policy decisions. The decision is implemented considering that the corresponding UE(s) have caused higher energy consumption which would then be used for service adjustments based on the policies configured by the Operator (for example change the QoS, limit the access to specific applications, etc).

NOTE 1: It is assumed that EIF carries out categorization based on reasonable amount of traffic/consumption/load information being available. For example, based on operator policies, the EIF may not carry out categorization when the consumption information is only around 10 percent.

The service adjustment decisions by the PCF could result in providing updated AM, UE or SM policies for the selected UEs and/or PDU Sessions.

The PCF also includes the latest categorization information (for example corresponding percentile band) received from the EIF when communicating to the AMF and SMF, during the corresponding Policy Association procedures.

AMF and SMF includes the received categorization information in subsequent requests to the CHF.

6.X.2 Procedures

#### 6.X.2.0 General

Existing procedures are re-used to implement the service adjustments. However, below is the representation of the solution



Figure 6.X.2-1: UE categorization and service adjustments

1-2. The PCF invokes the subscription to EIF by Neif\_EventExposure\_Subscribe including UE ID to subscribe to the energy categorization information of target UE. The events include Energy consumption percentile, Energy consumption per bit or any UE categorization information defined by the operator.

3. The EIF performs the energy consumption information calculation as described in clause 5.51of TS 23.501 [2] and 6.1.2 (solution 1) of TR 23.700-67 and then reports the energy related information of the required granularity including the corresponding Event (e.g., UE categorization) to the PCF via Neif\_EventExposure\_Notify.

4. PCF analyses if the categorization - EC percentile / per bit is persistently about configured limits and accordingly chooses the UEs and/or PDU Session for carrying out service adjustments / policy updates.

5a. PCF implements the policy decision and notifies the SMF using the Npcf SM policy control update notify procedure, by also including the corresponding UE categorization information.

5b. PCF implements the policy decision and notifies the AMF using the Npcf AM policy control update notify or Npcf UE policy control update procedure, by also including the corresponding UE categorization information.

6a/6b. In the subsequent communication with the CHF, the AMF/SMF includes the received UE categorization information from the PCF, in the Nchf Converged Charging services.

6.X.3 Impacts on services, entities and interfaces

PCF:

- Maintains the information of UEs which are persistently in a higher percentile EC band or higher in energy consumption per bit based on Event notifications from the EIF.

- Based on operator policies, performs policy decisions relating to service adjustments for the UEs and/or PDU Sessions by considering the information maintained.

SMF:

- Additionally receives the categorization information from the PCF and includes this information in all subsequent requests to the CHF.

AMF:

- Additionally receives the categorization information from the PCF and includes this information in all subsequent requests to the CHF.

CHF:

- Receive the categorization information from SMF and AMF.

- Include categorization information for differentiated charging rating rules and reporting.

\* \* \* End of changes \* \* \* \*