**3GPP TSG-SA5 Meeting #144-e *S5-224207***

**e-meeting, 27 June - 1 July 2022**

**Source: Ericsson**

**Title: Adding solutions in clause 7.2 for trigger handling between vCHF and hCHF**

**Document for: Approval**

**Agenda Item: 7.5.3**

# 1 Decision/action requested

**Include the proposed changes in TR 28.827.**

# 2 References

[1] 3GPP TR 28.827: "Study on 5G charging for additional roaming scenarios and actors"

# 3 Rationale

Adding solutions in clause 7.2 for trigger handling between vCHF and hCHF based on roaming charging profile and the trigger ordinary settings in the response, both set by the hCHF through the vCHF.

# 4 Detailed proposal

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| **First change** |

#### 7.2.4.x Solution #2.x: Roaming charging profile exchanged between VPLMN and HPLMN

##### 7.2.4.x.1 General

A possible solution for key issue #2e covering requirements REQ-CH\_CVTOH-01, and REQ-CH\_CVTOH-02, trigger handling between visited CHF and home CHF, is to use the roaming charging profile.

Editor’s Note: The solution #2,1 where V-CHF communicate with H-CHF is FFS.

##### 7.2.4.x.2 Reference architecture

The reference architecture would be the same as in solution #2.1 clause 7.2.4.1.

##### 7.2.4.x.3 Message flows

The “Roaming charging profile” may only be set or changed at PDU session establishment or PDU session transfer from a different VPLMN. It may at this point be set, changed, applied, and transferred in the following order:

1. Default set by vSMF and transferred to vCHF

2. Changed by vCHF and transferred to hCHF

5. Changed by hCHF and transferred to vCHF

3. Transferred from vCHF to vSMF

6. Applied in vSMF

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| **Second change** |

#### 7.2.4.y Solution #2.y: Triggers sent from H-CHF through V-CHF

##### 7.2.4.y.1 General

A possible solution for key issue #2e covering requirements REQ-CH\_CVTOH-01, and REQ-CH\_CVTOH-02, trigger handling between visited CHF and home CHF, is to require that all triggers are sent through the V-CHF from the H-CHF which would allow both the H-CHF and V-CHF to influence the trigger setting towards the SMF or other NFs.Editor’s Note: The solution #2,1 where V-CHF communicate with H-CHF is FFS.

##### 7.2.4.y.2 Reference architecture

The reference architecture would be the same as in solution #2.1 clause 7.2.4.1.

##### 7.2.4.y.3 Message flows

Figure 7.2.4.y.3-1 shows a scenario for a Charging data request [Initial] using Session Based Charging (SBC) with CHF to CHF communication. Applicable for SMF, without update also applicable for SMSF and AMF.



Figure 7.2.4.y.3-1: SBC - Session based charging with CHF to CHF communication

**1) Request for service delivery:** A request for session establishment is received in the NF (CTF). The service is configured to be authorized by the vCHF before start.

**2) Charging data request [Initial]:** The NF (CTF) sends the request to the vCHF for the service to be granted authorization to start, this may include a quota request.

**3) Determine hCHF:** the vCHF determines that it need to interact with hCHF and which hCHF it should contact.

**4) Charging home request [Initial]:** The vCHF sends the request to the hCHF for the service to be granted authorization to start, this may include a quota request.

**5) Account, Rating, Reservation control:** the hCHF determines which triggers it would need to have enabled or disabled. The hCHF may also rate the request and check if corresponding funds can be reserved on the user's account balance.

**6) Open CDR:** based on policies, the hCHF opens a CDR related to the service.

**7) Charging home response [Initial, Triggers]:** The hCHF grants authorization to vCHF with the trigger setting required.

**8) Open CDR:** based on policies, the vCHF opens a CDR related to the service, may check and record the trigger setting requested by the hCHF.

**9) Charging data response [Initial, Triggers]:** The vCHF grants authorization to NF (CTF) for the service to start, with the trigger setting required by the hCHF.

**10) Start of service delivery:** the NF (CTF) starts to deliver the service with the requested triggers being monitored.

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| **End of changes** |