**3GPP TSG-SA5 Meeting #144-e *S5-224206***

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

**Source: Ericsson**

**Title: Adding solution in clause 7.1 for roaming charging profile**

**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 solution in clause 7.1 for roaming charging profile where the roaming charging profile configured in the VPLMN based on roaming agreements between home and visited MNOs. This require a name change on solution #1.4 to differentiate it from the new solution.

# 4 Detailed proposal

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| **First change** |

#### 7.1.4.4 Solution #1.4: Roaming Charging Profile exchanged between HPLMN and VPLMN for 5G data connectivity charging

##### 7.1.4.4.1 General

A possible solution for **REQ-CH\_VMNO-05**, Roaming Charging Profile negotiation for 5G data connectivity charging provided to the home MNO by the visited MNO.

##### 7.1.4.4.2 Reference architecture

The reference architecture would be the same as in clause 4.2.2 of TS 32.255 [4].

##### 7.1.4.4.3 Message flows

The message flows about roaming charging profile negotiation for 5G data connectivity charging are present in the figure 5.2.2.12.2.1, PDU session establishment, of TS 32.255 [4].

In the step 13,

*13ch-a. Based on "received PDU session conditions" trigger, a Charging Data Request [Update] is sent to CHF with charging information received from H-SMF, which includes the HPLMN selected "Roaming Charging Profile" and counts per QFI are started.*

*13ch-b. The CHF updates the CDR.*

*13ch-c. The CHF acknowledges by sending Charging Data Response [Update] to the V-SMF.*

During PDU session establishment, for Home Routed Roaming using QBC, the roaming charging profile is sent from the V-CHF to the V-SMF which is then forwarded to the H-CHF (using the H-SMF). The H-CHF may respond with a new roaming charging profile. The H-CHF provided roaming charging profile is then used by the V-SMF (as well as the H-SMF) for the QBC, the new charging roaming profile is also sent to the V-CHF from V-SMF. The corresponding trigger "received PDU session conditions" in the step 13ch-a should be clarified.

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| **Second change** |

#### 7.1.4.x Solution #1.x: Roaming Charging Profile configured in VPLMN for 5G data connectivity charging

##### 7.1.4.x.1 General

A possible solution for key issues #1b covering requirement REQ-CH\_VMNO-05, Roaming Charging Profile negotiation for 5G data connectivity charging provided to the visited MNO by the home MNO. The solution using configuration of the triggers in the NF even if there is no roaming charging profile defined, could be used to cover trigger handling for 5G connection and mobility as well as SMS.

##### 7.1.4.x.2 Reference architecture

The reference architecture would be the same as in solution #1.1 clause 7.1.4.1.

##### 7.1.4.x.3 Message flows

The negotiation of how the roaming charging profile should be configured is done as part of the roaming agreement between the VPLMN and HPLMN outside the scope of 3GPP SA5.The negotiated roaming charging profile is then configured in the VPLMN CHF or SMF, this configured roaming charging profile could be specific to the HPLMN of the UE. In this case the roaming charging profile is only exchanged within the VPLMN SMF and CHF.

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| **End of changes** |