**3GPP TSG-SA5 Meeting #148e *S5-233311***

Electronic meeting, Online, 17 -25 April 2023

**Source: Ericsson LM, Huawei**

**Title: Rel-18 pCR 28.827 Updating evaluation and conclusion in clause 7.2**

**Document for: Approval**

**Agenda Item: 7.5.2**

# 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

Updating evaluation and conclusion for convey charging information from visited MNO to home MNO.

# 4 Detailed proposal

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| **First change** |

### 7.2.5 Evaluation

Solutions #2.1 and #2.2 both solves key issues #2a and #2b

- Solution #2.1 uses a new CHF-to-CHF communication, requires CHF enhancements, and solves more key issues. Allowing the CHF to also be a consumer of the Nchf\_ConvergedCharging service would allow for more integration possibilities.

- Solution #2.2 uses V-SMF to both V-CHF and H-CHF communication and is supported in the scope of 5G connectivity charging.

Solutions #2.8 and 2.9 both solves key issues #2c.

- Solution #2.8 uses NRF to find the H-CHF.

- Solution #2.9 uses SUPI to find the H-CHF and can supported the case when there is limited H-NRF access.

Both can be supported at the same time depending on the visitor MNO and agreement with home MNO.

Solutions #2.6 and #2.7 both solves key issues #2d.

- Solution #2.6 reuses the Nchf\_ConvergedCharging between CHFs and may add additional charging information to better support CHF-to-CHF communication.

- Solution #2.7 uses a new Nchf service and would have different messages as well as triggers.

The H-CHF will still do converged charging for the UE in the current scenario, meaning that a new service isn’t required.

Solutions #2.10, #2.11, #2.12, #2.17, and #2.x all solves key issues #2e.

- Solution #2.10 the trigger for the CHF-to-CHF communication is based on the UE identity, this will mean that from the both the V-CHF and H-CHF the CHF-to-CHF session will have a different lifetime and trigger handling than the V-SMF to V-CHF and the AMF to V-CHF.

- Solution #2.11 the trigger for the CHF-to-CHF communication is based on the reception of a charging data request, this will mean that from the H-CHF point of view the triggers will happen like it would be directly from the V-SMF or from AMF. The V-CHF would forward some sessions to the H-CHF.

- Solution #2.12 handles how the roaming charging profile could be updated in the case where the V-SMF communicated with both V-CHF and H-CHF.

- Solution #2.17 allows a time-based change of the Roaming charging profile, by adding more information in the roaming charging profile. There are currently no use case, requirement or key issues defined for this.

- Solution #2.x handles how the roaming charging profile updated in the case where the CHF-to-CHF scenario.

Solutions #2.1, #2.4, #2.16 all solves key issues #2f and #2g.

- Solution #2.1 uses a new CHF-to-CHF communication, requires CHF enhancements, and solves more key issues. Allowing the CHF to also be a consumer of the Nchf\_ConvergedCharging service would allow for more integration possibilities.

- Solution #2.4 uses a new SMSF to both V-CHF and H-CHF communication.

- Solution #2.16 uses Diameter communication between SMS-SC and charging system and is supported in the scope of SMS charging.

Solutions #2.1 and #2.5 both solves key issues #2h and #2i.

- Solution #2.1 uses a new CHF-to-CHF communication, requires CHF enhancements, and solves more key issues. Allowing the CHF to also be a consumer of the Nchf\_ConvergedCharging service would allow for more integration possibilities.

- Solution #2.5 uses AMF to both V-CHF and H-CHF communication and is supported in the scope of 5G connection and mobility charging as is.

Solutions #2.13, #2.14 and #2.15 all solves key issues #2a and #2b and handles selection of charging information.

- Solution #2.13 the V-CHF selects the information to be reported to V-CHF. Put new requirements on the V-CHF to select information to be sent to the H-CHF.

- Solution #2.14 the V-SMF marks the information elements to be sent to the H-CHF. This will require more data sent between the V-SMF and V-CHF, and it will be the V-CHF that is responsible for using this information to select information to be sent to the H-CHF.

- Solution #2.15 the V-SMF sends separate information elements for the information to be sent to the H-CHF. This will duplicate a lot of data sent between the V-SMF and V-CHF, and it will be the V-CHF that is responsible for using this information to select information to be sent to the H-CHF.

Editor’s note: Further evaluations are FFS.

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| **Second change** |

### 7.2.6 Conclusion

For key issues #2a and 2b, 5G connectivity charging, solution using CHF-to-CHF communication can be an additional solution in normative work i.e., allowing both solutions #2.1 and #2.2.

For key issues #2h and 2i, 5G connection and mobility charging, solution using CHF-to-CHF communication can be an additional solution in normative work i.e., allowing both solutions #2.1 and #2.5.

For key issues #2f and 2g, SMS charging, solution using Diameter connection from SMS-SC can be a solution in normative work i.e., solution #2.16.

For key issue #2e allowing the Roaming charging profile to be updated at any time should be taken into normative work i.e., solutions #2.12 and 2.1x.

For solution 2.1,

- there is single session between NF (e.g. AMF, SMF or SMSF) and V-CHF;

- based on solution #2.6, Nchf\_ConvergedCharging service API reused to the interaction between V-CHF and H-CHF should be taken into normative work;

- on how to find H-CHF, combination of solution #2.8 and #2.9 should be take into normative work;

- the trigger for the CHF-to-CHF communication based on the reception of a charging data request, solution #2.11, should be taken into normative work;

- based on solution #2.13, V-CHF selected charging information for reporting to H-CHF should be taken into normative work.

Editor’s note: Further conclusions are FFS.

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| **End of changes** |