**3GPP TSG-SA5 Meeting #143-e *S5-223119***

e-meeting, 9 - 17 May 2022

**Source: Ericsson**

**Title: Use case for 5G connection and mobility in clause 7.3**

**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

Addition of use cases for MNO does wholesale charging for 5G connection and mobility towards additional actors and MNO does wholesale charging for 5G SMS towards additional actors together with potential requirements and issues.

# 4 Detailed proposal

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| **First change** |

#### 7.3.1 Use cases

##### 7.3.1.1 Use case #3a: MNO does wholesale charging for 5G data connectivity towards additional actors

This use case focuses on MNO and MVNO business roles.

A subscriber has a UE and a subscription with the MVNO which allows usage of 5G data connectivity while in the home MNO.

The MNO to MVNO charging could be based on data volume that the MVNO UE has used in the MNO’s network considering of the following aspects:

- RAT type;

- S-NSSAI;

- DNN;

- QoS information.

##### 7.3.1.2 Use case #3b: MNO does wholesale charging for 5G connection and mobility towards additional actors

This use case focuses on MNO and MVNO (additional actor) business roles.

A CSC (UE) has a subscription with the additional actor which allows usage of 5G data connectivity connection and mobility.

The home MNO to additional actor charging is based number of home MNO’s UEs (i.e. unique SUPI) connected to the visited MNO’s network over a specific period of time.

##### 7.3.1.3 Use case #3c: MNO does wholesale charging for 5G SMS towards additional actors

This use case focuses on MNO and MVNO (additional actor) business roles.

A CCS (UE) has a subscription with the MVNO which allows usage of SMS over NAS in 5GS.

The home MNO to additional actor charging could be based on number of SMS sent or received by the additional actor’s UEs served by the home MNO’s network considering of the following aspects:

- RAT type;

- Location

### 7.3.2 Potential charging requirements

**REQ-CH\_MNOMVNO-01:** The charging mechanism in MNO should support collecting charging information related to 5G data connectivity usage for each MVNO.

**REQ-CH\_MNOMVNO-02:** The charging mechanism in MNO should support collecting charging information related to 5G connection and mobility usage for each MVNO.

**REQ-CH\_MNOMVNO-03:** The charging mechanism in MNO should support collecting charging information related to SMS usage for each MVNO.

### 7.3.3 Key issues

The following key issues are identified:

- **Key Issue #3a**: Collection of charging mechanism in home MNO about the 5G data connectivity usage per MVNO.

- **Key Issue #3b**: Collection of charging mechanism in home MNO about the 5G connection and mobility usage per MVNO.

- **Key Issue #3c**: Collection of charging mechanism in home MNO about the SMS usage per MVNO.

#### 7.3.4.1 Solution #3.1: CDR in home MNO for wholesale of non-roaming 5G of additional actor

##### 7.3.4.1.1 General

A possible solution for key issue #3a, #3b, and #3c, charging for 5G data connectivity, connection and mobility, SMS, provided to the additional actor by the home MNO, covering non-roaming case.

##### 7.3.4.1.2 Reference architecture



Figure 7.3.4.2-1: Additional actor 5G scenario in service-based interface representation



Figure 7.3.4.1.2-2: Additional actor 5G scenario in reference point representation

The AMF, SMF, and SMSF with CTF interact with CHF using Nchf interface, without any requirement of quota management. The CCS produces CDRs which may be send for wholesale charging which then can be used to aggregate and calculate the amount of data per additional actor, it could be done based on SUPI, IMSI series, SNSSAI(s), DNN(s) etc., the wholesale part is only included for completeness and is currently outside the scope of 3GPP SA5.

##### 7.3.4.1.3 Message flows

The flows would be the same as the non-roaming cases in clause 5.2.2 of TS 32.255 [4], clause 5.2.2 of TS 32.256 [5] and clause 5.4.2 of TS 32.274 [8].

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| **End of changes** |