3GPP TSG SA WG5 Meeting #158 S5-246935

Orlando, Florida, USA 18 - 22 November 2024

**Source: Huawei, Ericsson, CSCN**

**Title: Clarification on the business roles**

**Document for: Approval**

**Agenda Item: 7.5.1**

# 1 Discussion

***This is a pCR to provide the clarification on the business roles in TR 28.846.***

# 2 References

[1] 3GPP TR 28.846: "Study on charging aspects of satellite access Phase 3".

[2] 3GPP TR 28.844: "Study on charging aspects of satellite in the 5G System (5GS)".

# 3 Rationale

According to the TR 28.844[1] Clause 4.4 Business roles, the Satellite Mobile Network Operator (SMNO, e.g. 5G MNO), Satellite Service Provider (SSP, e.g. Satellite companies) and Satellite Service Customer (SSC, e.g. UE) are described.

In the TR 28.846[2] Clause 5.1 business roles, the Satellite Mobile Network Operator (SMNO), Satellite Service Provider (SSP), Satellite Communication Customer (SCC), Mobile Virtual Network Operator (MVNO) are described.

In other 3GPP WGs, MNO is used as a generic role, to covering the operator that can also provide satellite communication service.

There are two options to clarify the business roles in this TR, either clearly define the relation between SMNO and MNO (e.g. SMNO is part of MNO), or use MNO as the generic business role to represent operator, regardless of whether the operator can provide satellite communication service or not.

The pCR propose to update the business roles in this TR following the second option, to align with other WGs.

# 4 Detailed proposal

Propose to incorporate the following change into the TR 28.846 [1].

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| **First change** |

## 5.1 Business roles

The business roles for satellite charging in 5G can be split accordingly:

- Mobile Network Operator (MNO): an operator that have its own radio access and provide terrestrial communication services, and may also provide satellite communication services for SCC and satellite network services to MVNOs.

- Satellite Service Provider (SSP): a provider of satellite network services for MNO, e.g. satellite companies.

- Satellite Communication Customer (SCC): a consumer who uses satellite communication services from an MNO, e.g. UE.

- Mobile Virtual Network Operator (MVNO): an operator that does not have its own radio access or satellite network, but resells communication services, typically under their own brand name, using the network of a host MNO .

Depending on the scenarios an enterprise can play one or several roles simultaneously, e.g. MNO and SSP can be provided by the same enterprise, and apply business rules based on corresponding business agreements and relationships, e.g.:

- MNO has agreements with SCC for using satellite communication services.

- SSP has agreements with MNO for using satellite network services.

- MNO has agreements with other MNOs for inbound and outbound roamers.

- MVNO has agreements with MNO for use of terrestrial network service or satellite network services.

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| **Next change** |

### 5.2.3 Roaming between MNOs with and without satellite networks

Business scenario#2a: Roaming between MNOs with and without satellite networks.

Subscriber of an MNO without satellite network roams into an MNO network with satellite network. The MNO without satellite network has a wholesale agreement with the MNO with satellite network where the MNO without satellite network would be the charged party and the MNO with satellite network would be the charging party for this scenario. The SCC can have subscription with the MNO that allows roaming into the MNO with satellite network. The SCC subscriber would be charged by the MNO, while the MNO with satellite network would do interconnect charging towards the MNO without satellite network. Likewise, an SCC can have a subscription with the MNO with satellite network allowing it to roam into the MNO without satellite network, where the MNO without satellite network would do interconnect charging towards the MNO with satellite network and the MNO with satellite network would charge the SCC.

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### 5.2.6 MVNO which provide satellite communication services

Business scenario#4a: MVNO providing satellite communication services

MVNO rents satellite network resource from MNOs and then provide satellite communication services to its subscribers, i.e. it allows the subscribers usage of 5G data connectivity while in the host MNO.

The host MNO will collect charging information related to 5G data connectivity usage for charging the MVNO, and may collect charging information related to the 5G data connectivity usage for MVNO subscribes (per UE) and convey this to the MVNO. MVNO could be charged by host MNO based on the total data volume or other types of resource usage.

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| **Next change** |

#### 6.1.1.1 Use Case #1.1: MNO charges SCC

This use case focuses on SCC and MNO business scenario.

An SCC has a subscription with an MNO which rents the satellite from an SSP, to allow MNO to provide S&F operation to its subscribers.

The charging party and charged party can be:

- Charged party: the SCC identified by the UE.

- Charging party: MNO.

The MNO charges the subscribers based on the usage of satellites to provide the S&F operation service.

Potential charging requirements: REQ-CH\_ SAT\_PH3-01.

#### 6.1.1.2 Use Case #1.2: MNO charged by SSP

This use case focuses on MNO and SSP business scenario.

An MNO has a wholesale agreement to use the satellite from an SSP for the deployment of eNB and NFs.

The charging party and charged party can be:

- Charged party: MNO.

- Charging party: SSP

The SSP charges MNO based on the usage of satellites to deploy the eNB and NFs.

Potential charging requirements: REQ-CH\_ SAT\_PH3-01.

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| **Next change** |

#### 6.2.1.1 Use Case #2.1: MNO’s subscriber roams to MNO with satellite network

This use case focuses on roaming between MNOs with and without satellite networks business scenario.

An SSC subscriber (identified by the UE) has a subscription with an MNO (i.e. HPLMN), the MNO has a roaming agreement with the MNO without satellite network.

When the UE has roamed to the coverage of the satellite network belonging to the other MNO, it will as an inbound roamer, access the satellite network provided by the MNO. The MNO provides the service access and connectivity for the UE.

When the UE moves back to the coverage of the terrestrial network, the MNO provides the terrestrial communication service access and connectivity for the UE based on the network selection policy, which is described in the TR 22.822[6].

For the retail part the charging party and charged party can be:

- Charged party: SSC

- Charging party: MNO

For the wholesale part the charging party and charged party can be:

- Charged party: MNO

- Charging party: MNO with satellite network

The potential charging requirements for this Use Case is: REQ-CH\_ SAT\_RO-01.

#### 6.2.1.2 Use Case #2.2: MNO’s SSC subscriber roams to MNO

This use case focuses on roaming between MNOs with and without satellite networks business scenario.

An SCC has a subscription with the MNO with satellite network, the MNO (with the SSC subscription) has a roaming agreement with the MNO.

When the SCC (identified by the UE) has moved to where it has coverage of both MNOs, it may based be on the network selection policy access the MNO, as the inbound roamer. The MNO provides service access and connectivity for the SCC.

For the retail part the charging party and charged party can be:

- Charged party: SCC

- Charging party: MNO

For the wholesale part the charging party and charged party can be:

- Charged party: MNO (with the SSC subscription)

- Charging party: MNO

The potential charging requirements for this Use Case is: REQ-CH\_ SAT\_ RO-01.

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| **End of change** |