**3GPP TSG-SA5 Meeting #156 *S5-244124rev2***

Maastricht, Netherlands, 19 - 23 August 2024

**Source: CSCN, CATT**

**Title: pCR TR28.846 Add business roles for satellite charging**

**Document for: Approval**

**Agenda Item: 7.5.1**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TS 32.255 5G data connectivity domain charging

[2] S5-241672 Discussion on charging between satellite network operator and terrestrial network operator

[3] S5-241830 New Study on charging aspects of satellite access Phase 3

# 3 Rationale

## 3.1  Background and Motivation

TS32.255(V18.3.0) Annex E.2 defines the commercial roles involved in satellite charging：

# E.2 Business roles

In order to support the integration of satellite into 5GS, there are following business roles:

- Satellite Mobile network Operator (SMNO): an operator who can provide satellite communication services for satellite communication customer or an operator who rent the satellite,e.g. 5G MNO.

- Satellite Service Provider (SSP): a Provider who can provide satellite services for SMNO,e.g. satellite companies.

- Satellite Communication Customer (SCC): a Communication Service Customer (CSC) who is able to consume satellite communication network,e.g. UE,IoT devices,broadband vehicular or fixed terminals.

Based on the discussion at the 154th meeting of SA5, contribution S5-241672, the following potential scenarios for integration between satellite network operator and terrestrial network operator are identified:

1). Roaming, Users of terrestrial network operator can roam into satellite operator network.

2). Data plan stacking, Terrestrial network operator adds a satellite data plan to their users’ plans.

3). Satellite Resource Rental, Satellite network operator can lease satellite resources to a terrestrial network operator used for Backhaul, Edge computing or local switch via UPF deployed on the satellite.

4). gNB on-board sharing, A satellite access network is shared between multiple operators.

## 3.2 Observations

Through the above discussion, we have learned that SMNO can play the roles of both MNO and SSP.In addition, in the current definition of SMNO, SMNO includes two parts, one is an operator who can provide satellite communication services for satellite communication customers, another one is an operator who rents the satellite.However,these two parts overlap, an operator who rents the satellite can also provide satellite communication services.

Therefore, it is recommended to use the following role definitions in R19:

- Satellite Mobile network Operator (SMNO): an operator who can provide satellite communication services for satellite communication customer by own satellite or renting the satellite from SSP,e.g. 5G MNO.

- Satellite Service Provider (SSP): a Provider who can provide satellite services for SMNO,e.g. satellite companies or SMNO who leases satellite to other operator.



Figure 3.2.1 role transformation

# 4 Detailed proposal

It is recommended to use the following role definitions in TR28.846:

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| **1st Change** |

## X Business roles

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Depending on the scenarios an organisation can play one or several roles simultaneously, and apply business roles based on corresponding business relationships, e.g.:

- Business roles for SMNO to charge SCC for using satellite communication services.

- Business roles for SSP to charge SMNO for using their satellites.

- Business roles for SMNO to charge MNO for inbound roamers.

In deployments, there could be business scenarios where one or more components are supported by a single enterprise, e.g. SMNO and SSP can be provided by the same enterprise.

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| **End of change** |