**3GPP TSG-SA5 Meeting #156 *S5-244132rev1***

Maastricht, Netherlands, 19 - 23 August 2024

**Source: CSCN**

**Title: pCR TR28.846 Charging between satellite operator and satellite MVNO**

**Document for: Approval, Information, Discussion**

**Agenda Item: 7.5.1**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

[1] 3GPP TS 22.101 V19.0.0 Service aspects; Service principles

[2] 3GPP TS 22.261 V19.7.0 Service requirements for the 5G system; Stage 1

[3] 3GPP TS 23.501 V19.0.0 System architecture for the 5G System (5GS)

[4] 3GPP TR 28.827 V18.0.0 Study on 5G charging for additional roaming scenarios and actors

[5] 3GPP TS 32.255 V18.4.0 5G data connectivity domain charging; stage 2

[6] 3GPP TS 32.256 V18.3.0 5G connection and mobility domain charging; stage 2

[7] 3GPP TS 32.254 V18.3.0 Application Program Interfaces (APIs) charging

# 3 Rationale

3.1Business scenario for VNO which provide satellite communication servicesVNO (Virtual Network Operator) do not own their own wireless network infrastructure but instead lease network resource from traditional mobile network operators (MNOs) and then provide services to end users under their own brand.

Satellite communication networks, as an advanced communication technology, offer advantages such as wide coverage. However, they also face significant challenges in infrastructure investment. For most ordinary operators, the cost of independently building and maintaining satellite communication infrastructure networks is prohibitively high. In this situation, the Virtual Network Operator (VNO) model has become an important avenue for ordinary operators to enter the satellite communication service sector.

Through the VNO model, ordinary operators can rent existing satellite communication infrastructure without bearing enormous initial investments, enabling them to provide satellite communication services to users. This model not only lowers the entry barrier for operators but also promotes the effective utilization of satellite communication resources. Additionally, the VNO model can help operators rapidly expand their business scope and improve market competitiveness.

3.2Potential charging requirements

- charging in the satellite MNO’s network for the purpose of wholesale charging towards VNO.

# 4 Detailed proposal

This document proposes the following changes in TR 28.846.

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| **1st Change** |

## **5. X Business scenario for VNO which provide satellite communication services**

Business scenario#1a: resource

A virtual network operator (VNO) is a service provider that does not have its own radio access network, but resells wireless services, typically under their own brand name, using the network of a host PLMN operator. VNO can rent network resource from satellite mobile network operators (Satellite MNOs) and then provide satellite communication services to end users who belonging to VNO.



For scenarios in which subscribers have a subscription with a VNO which allows usage of 5G data connectivity while in the host SMNO, the host SMNO shall be able to collect charging information related to 5G data connectivity usage for each VNO for wholesale, and collect charging information related to the 5G data connectivity usage for each UE and conveys this charging information to the VNO for each UE. VNO could be charged by host SMNO based on the total data volume, or based on resource usage.

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| **End of change** |