**3GPP TSG-SA5 Meeting #155 *S5-242643***

Jeju, South Korea, 27 - 31 May 2024

**Source: CSCN**

**Title:** **DP on business scenarios and charging requirements for satellite resource rental between satellite network operator and terrestrial network operator**

**Document for: Endorsement**

**Agenda Item: 7.5.1**

# 1 Decision/action requested

Discuss and endorse the business scenarios and charging requirements for satellite resource rental between satellite network operator and terrestrial network operator

# 2 References

[1] 3GPP TS 23.501 V18.4.0 System architecture for the 5G System (5GS)

[2] 3GPP TR 28.844 V2.0.0 Study on charging aspects of satellite in the 5G System (5GS)

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

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

# 3 Rationale

3.1Business scenario for satellite resource rental.

Satellite network operator can lease satellite resources to a terrestrial network operator, Satellite network operator and terrestrial operator should be able to generate billing information based on different rental arrangements.

3.1.1Satellite Backhaul

In clause 5.43.1 of the TS 23.501, Satellite may be used as part of the backhaul between (R)AN and 5GC.

3.1.2Edge computing via UPF deployed on the satellite

In clause 5.43.2 of the TS 23.501,5GS may support Edge Computing via UPF deployed on satellite, applies to the case where Edge Computing is deployed with UPF and Edge Computing services on-board the satellite. The UPF deployed on satellite can act as UL CL/BP/local PSA UPF or act as PSA UPF.

3.1.3Local switch via UPF deployed on the satellite

In clause 5.43.3 of the TS 32.501,5GS may support Local switch for UE-to-UE communications via UPF deployed on GEO satellite, The UE to UE traffic may be locally routed by UPF(s) deployed on satellite (i.e. through local switch) to the target UE without traversing back to the satellite gateway on the ground. Local switching via UPF(s) deployed on satellite only applies on GEO satellite backhaul case and considers only DNNs and slices for 5G VN.

# 4 Detailed proposal

Business scenario and potential charging requirements for satellite resource rental should be written into R19 TR.

## 5.X Business scenario for Satellite Resource Rental

Business scenario#1a: satellite network operator can lease satellite to a terrestrial network operator for backhaul.Terrestrial network operator could be charged by satellite network operator based on the total data volume transferred via the satellite.

Business scenario#1b: satellite network operator can lease satellite to a terrestrial network operator for edge computing via UPF deployed on the satellite.Terrestrial network operator could be charged by Satellite network operator based on usage of satellite backhaul per EAS related to EAS deployment(EAS deployment, EAS modification, EAS termination) and infrastructure resource(virtual CPU usage, virtual memory usage, virtual disk usage, data volumes).

use case#1c: satellite network operator can lease satellite to a terrestrial network operator for local switch via UPF deployed on the satellite. Terrestrial network operator could be charged by satellite network operator based on usage of satellite for 5G VN group related to the data volume.