**3GPP TSG SA WG5 Meeting #158 S5-246771**

**Orlando, USA, 18– 22 November, 2024**

**Source: CATT**

**Title: Update evaluation for store and forward satellite operation charging**

**Document for: Approval**

**Agenda Item: 7.5.1**

# 1 Decision

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

# 2 References

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

# 3 Rationale

This pCR proposes to update evaluation for S&F operation charging.

# 4 Detailed proposal

The following changes are proposed to be incorporated into the new TR.

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| **1st Modified Section** |

### 6.1.5 Evaluation

#### 6.1.5.1 Solutions evaluation for Key issue #1.1

Solutions #1.1 addresses Key issue #1.1, for the SMS service using the satellite access running in the S&F mode, with the enhancement of the new trigger events and charging information. The new trigger events are Short Message sent by a UE via the MME on-board (MO direction) to the SMSC and Short Message received by a UE via the MME on-board (MT direction) from the SMSC. The enhancement of the charging information including RAT type, Satellite Access Indicator, Store and Forward indicator, S&F Monitoring list, Store duration and Store data volume.

Solutions #1.2 addresses Key issue #1.1, for the Control Plane CIoT using the satellite access running in the S&F mode, with the new trigger events and charging information. The new trigger events are Attach Complete via the MME onboard for the CIoT CP Optimizations and Service Request via the MME onboard for the CIoT CP Optimizations. The charging information including RAT type, Satellite Access Indicator, Store and Forward indicator, S&F Monitoring list, Store duration and Store data volume.

Solutions #1.x addresses Key issue #1.1, for the User Plane CIoT using the satellite access running in the S&F mode, with the new trigger events and charging information. The new trigger events are Attach Complete via the MME onboard for the CIoT UP Optimizations and Service Request via the MME onboard for the CIoT UP Optimizations. The charging information including RAT type, Satellite Access Indicator, Store and Forward indicator and S&F Monitoring lists.

Solutions #1.y addresses Key issue #1.1, for the SMS service using the satellite access running in the S&F mode, with the enhancement of the new trigger events and charging information. The CDF/CGF may be deployed on the satellite. The new trigger events are Short Message sent by a UE via the MME on-board (MO direction) to the SMSC and Short Message received by a UE via the MME on-board (MT direction) from the SMSC. The enhancement of the charging information including RAT type, Satellite Access Indicator, Store and Forward indicator, S&F Monitoring List, S&F Duration and S&F Data volume.

Solutions #1.z addresses Key issue #1.1, for the Control Plane CIoT using the satellite access running in the S&F mode, with the new trigger events and charging information. The CDF/CGF may be deployed on the satellite. The new trigger events are PDN connection creation/release. via the MME onboard for the Control Plane (CP) data transfer. The extension to CPDT-SNN-CDR for S&F charging include RAT type, Satellite Access Indicator, Store and Forward indicator, S&F Monitoring list, Store duration and Store data volume.

Solutions #1.u addresses Key issue #1.1, for the Control Plane CIoT using the satellite access running in the S&F mode, with the new trigger events and charging information. The CDF/CGF may be deployed on the satellite. The new trigger events are PDN connection creation/release via the SCEF for the Control Plane (CP) data transfer. There is no enhancement required for the SCEF CDRs needed.

#### 6.1.5.2 Solutions evaluation for Key issue #1.2

All solutions address Key issue #1.2. Solution #1.1 enhances the MME over SMS charging that MME provides the charging information. Solution #1.2 , Solution#1.x, Solution#1.y and Solution#1.z directly uses the MME provides the charging information and provides the message flow. Solution #1.u uses SCEF to report charging information to CGF or Billing Domain about satellite access running in S&F mode.

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| **End of Modified Sections** |