**3GPP TSG-SA WG6 Meeting #42-BIS-e S6-210749**

**e-meeting, 12th – 20th April 2021 (revision of S6-21xxxx)**

**Source: Tencent**

**Title: Procedure for UAV and UAV-C Pairing and C2 QoS Provisioning using Group~~ing~~ ID**

**Spec: 3GPP TS 23.255 v0.3.0**

**Agenda item: 7.10**

**Document for: Approval**

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**1. Introduction**

This contribution adds a new feature in UASAPP TS 23.255 for UAV and UAV-C grouping.

**2. Reason for Change**

In TR 23.755, solution#5 provides a grouping approach for C2 QoS provisioning. Based on the study evaluations, the proposed group method enables UAE-S for QoS management using a group-based approach.

**3. Proposal**

It is proposed for adoption to 3GPP TS 23.255 v0.3.0.

\* \* \* Change \* \* \* \*

## 6.x UAV and UAV-C Pairing and C2 QoS Provisioning using Group~~ing~~ ID

### 6.x.1 General

This clause describes the procedure for UAV and UAV-C grouping C2 QoS provisioning using subsequent group id.

6.x.2 Procedures

6.x.2.1 Procedure for group creation for one pair of UAV and UAV-C

Pre-conditions:

- Both UAV-C and UAV have successfully connected to the UAE server.

- A CAA-level UAV ID may be assigned during the 3GPP network registration process.

Editor’s Note: In this procedure UAV-C is considered as an 3GPP UE.

Figure 6.x.2.1-1 illustrates a high-level procedure for group creation.

Diagram

Description automatically generated

Figure 6.x.2.1-1: Procedure for group creation for one pair of UAV and UAV-C

1. The UAE server recognizes a unique pair of UAV and UAV-C either by 3GPP UE ID or CAA-level UAV ID.

Editor’s Note: how UAE-S recongizes a pair of UAV-C and UAV is FFS

1. ~~When the UAE server recognizes there is a QoS degradation for either UAV or UAV-C,~~ The UAE server ~~may~~ sends a group creation request to the SEAL GM server, if there is no pre-assigned group ID, by using the GM-S reference link as specified in 3GPP TS 23.434 [11] using the procedure defined in clause 10.3. The SEAL GM server ~~may~~ creates one group ID for one pair of UAV and UAV-C as specified in 3GPP TS 23.434 [11].

3. The UAE server ~~may~~ uses the returned group ID for UAS for QoS management. ~~In the absence of a group, the SEAL NRM server may use UE IDs of the UAV and UAV-C to manage QoS for UAV and UAV-C separately.~~

~~5. Once group ID has been created, the UAE server may use such group ID for QoS provisioning by communicating with NRM.~~

6.x.2.2 Procedure for group-based approach for C2 QoS provisioning

Figure 6.x.2.2-1 illustrates a high-level workflow of group-based C2 QoS provisioning.

Editor's note: QoS provisioning when C2 is in dynamically changing mode is FFS.

Pre-conditions:

- Both UAV and UAV-C have registered to 3GPP 5G network respectively. C2 communication is established.

- The SEAL group manager has been configured and a group ID ~~or a separate ID~~ for a pair of UAV and UAV-C has been assigned using procedure specified in 6.x.2.1. ~~for each of the UAV and UAV-C.~~

Graphical user interface, application, table

Description automatically generated

Figure 6.x.2.2-1: Procedure of group-based approach for C2 QoS provisioning.

1. The UAE server monitors the QoS for a UAV and UAV-C.

Editor’s Note: The details of UAE-S QoS minitoring is FFS

2. In cases where the network condition for C2 communication does not satisfy the pre-defined QoS requirement, the UAE server may choose to send QoS adaptation request to the SEAL NRM server using the NRM-S reference point as specified in 3GPP TS 23.434 [11]. The QoS adaptation request needs to be sent per group ID for a pair of UAV and UAV-C created in precedure specified in 6.x.2.1. ~~or a unique ID for each UAV and UAV-C which depends on how the UAE server handles group creation specified in Figure 6.x.2.1-1~~. The SEAL NRM server performs network resource adaptation as specified in the 3GPP TS 23.434 [11] clause 14.3.2.1. The NRM server notifies the QoS update to the UAE server using the procedure defined in 3GPP TS 23.434 [11] clause 14.3.2.2.

~~3. The SEAL NRM server performs network resource adaptation as specified in the 3GPP TS 23.434 [11] clause 14.3.2.1.~~

~~4. The NRM server notifies the QoS update to the UAE server using the procedure defined in 3GPP TS 23.434 [11] clause 14.3.2.2.~~

3. The UAE-C and UAE-S establised communication based on new QoS requirement as specified in clause 14.3.3.2.1.2-1 of 3GPP TS 23.434 [11].

4. UAS application layer adapts the updated QoS assignment.

Editor’s Note: How the UAS application layer is adpating newly assigned QoS out of 3GPP’s scope.

### 6.x.3 Information flows

Editor's Note: This clause will describe the information flow tables