**SA WG2 Meeting #149eS2-220**

**February 14th – 25th, 2022; Elbonia (revision of S2-220)**

**Source: Samsung (rapporteur)**

**Title: Samsung TR KI related with WT2.1**

**Document for: Approval**

**Agenda Item:**

**Work Item / Release:** **FS\_GMEC / Rel-18**

*Abstract of the contribution:*

# 1 Discussion

The FS\_GMEC SID justification read

3GPP has specified many enablers for vertical use, for example the features defined by IIOT, NPN and URLLC. Among them, R16 5G LAN-type service offers private communication using IP and/or non-IP type communications for UE and devices behind UE, using an optimized communication path controlled by a single SMF. However, the cardinality of SMF per 5G VN is limited to one in Rel-16, even if the 5G VN is very large. Multiple SMFs should be supported, for instance for administrative domains or a large multi-site company or a large scale industrial setting that spans multiple countries. And at the same time, the SMFs need to support single/common 5G VN wide area.

In Rel-18 SA1 study on 5G Smart Energy and Infrastructure “5SEI” has concluded new requirement (clause 6.13.2, 6.28 of TS 22.261 and clause 5.2, 5.6 and 9 of TS 22.104) including that the 5G system shall allow a UE to request a communication service to send data to different groups of UEs at the same time and the 5G system shall allow different QoS policy for each group the UE communicates with.

Recently, the 5G Alliance for Connected Industries and Automation (5G-ACIA) has provided to 3GPP a whitepaper (S2-2102128) including a set of functional requirements that the 5GS has to satisfy in terms of supporting certain information exchange between 5GC and industrial application domain, and exposure of 5G capabilities. The main goal is to enable the management, operation, monitoring and use of such networks and network services from an enterprise perspective easily without having to rely on sophisticated, heavy-weight tools and in-depth knowledge on the underlying 5G technology. Some requirements regarding device management, e.g. connectivity management, connectivity monitoring, group management etc. have not yet been fulfilled and need further studies.

The FS\_GMEC SID objectives read

**Work Task 1:** Study 5G capabilities exposure for industrial and automation applications:

- **Work Task 1.1:** Enhance group attribute management and group status event reporting:

- set/modify the group attributes: provisioning of service area or QoS applicable to each UE of a given group

- subscribe to group status event reporting for the event "newly registered or (de)-registered group member"

NOTE: The above sub-WT#1.1 assumes that existing QoS mechanism and service area mechanism are re-used for enforcement of service area or QoS applicable to each UE of a given group, thus neither new QoS nor service area enforcement mechanism will be specified.

- **Work Task 1.2:** Study whether and how to enhance NEF exposure framework to enable capability exposure for provisioning of traffic characteristics and monitoring of performance characteristics applicable to each UE of a given group

NOTE: It is assumed that the above sub-WT#1.2 focuses on the exposure enhancements and no new enforcement mechanisms will be specified for this sub-WT. The traffic characteristics include e.g., transfer interval, data volume per cycle time, average and peak date rates, silence time interval, and PDU Session Type. The performance characteristics include communication service availability, communication service reliability, end-to-end latency, service bit rate and packet error rate. Which traffic characteristics are relevant for 5GS and which performance characteristics need to be monitored will also be studied as part of this WT.

**Work Task 2:** enhancements of 5G VN group communication:

- **Work Task 2.1:** Support group communication for a 5G VN which supports multiple SMFs, including support of SMF redundancy for reliability of the 5G VN group communication

 - **Work Task 2.2:** Void

- **Work Task 2.3:** Void

- **Work Task 2.4:** Void

**Work Task 3:** Whether additional mechanism or enhancement is needed and how to support group communication allowing UE to simultaneously send data to different groups, where each group has a different QoS policy (requirement regarding 5SEI as indicated in clause 6.13.2 of TS 22.261)

**Work Task 4:** Void

**Work Task 5:** Void

**Work Task 6:** Void

**Work Task 7:** Void

**Work Task 8:** Void

# 2 Proposal

**It is proposed to update TR 23.XXX on FS\_GMEC as follows**

# 5 Key Issues

## 5.X Key Issue #X: How to support group communication for a 5G VN which supports multiple SMFs

### 5.X.1 Description

This key issue is targeting group communication for a 5G VN which supports multiple SMFs, including support of SMF redundancy for reliability of the 5G VN group communication.