**3GPP TSG-SA3 Meeting #102bis-e S3-21xxxx**

**e-meeting, 1 - 5 March 2021 Revision of S3-211064+1105+1107**

**Source: Qualcomm Incorporated, Huawei, Hisilicon, Ericsson, Xiaomi**

**Title: New Key Issue on security policy handling for 5G Prose services**

**Document for: Approval**

**Agenda Item: 2.9**

# 1 Decision/action requested

***Approve this contribution to add a new Key issue in TR 33.847***

# 2 References

[1] TR 33.847

# 3 Rationale

The contribution proposes a new Key issue on supporting security policy handling for 5G Prose services.

# 4 Detailed proposal

It is proposed that SA3 approve the below pCR for inclusion in the TR [1].

\*\*\* BEGINNING OF CHANGES \*\*\*

## 5.X Key Issue #X: Supporting security policy handling for 5G ProSe services

### 5.X.1 Key issue details

User-plane security policy provisioning and enforcement for PDU sessions is a new feature in 5GS. This security policy handling feature is extended to 5G V2X in one-to-one communication (i.e. unicast).

To align with the security policy handling in 5GS, 5G V2X one-to-one communication adopted the handling of security policy provisioned by the PCF per V2X service as specified in TS 33.536 [8]. Due to the similarity of service features between ProSe services and V2X services, it is deemed necessary for 5GS to be able to provision and enforce security policies of PC5 in 5G ProSe scenarios. Security material provisioning for discovery aspects such as open vs. restricted discovery specified in TS 33.303 [6] also needs to be covered.

In case of PC5 indirect communication via a UE-to-UE relay, as L2 UE-to-UE relay functions below PDCP layer and full security of PC5 one-to-one communication can be supported between the source UE and the target UE, the enforcement of the provisioned security policies at the peer UEs can be ensured.

However, as full security of PC5 one-to-one communication between the peer UEs cannot be established with a L3 UE-to-UE relay in between, how the security policies at the peer UEs can be consistently enforced becomes an issue. The indirect communication between the peer UEs via a L3 UE-to-UE relay goes through two concatenating PC5 links (between the source UE and the L3 relay and between the L3 relay and the target UE). Therefore, the consistent security policy enforecement between the peer UEs relies on the security policy consistency across the concatenating PC5 links.

This key issue is to study how to support security policy handling in 5G ProSe, including security policy provisioning and enforcement.

### 5.X.2 Security threats

Without secure provisioning for 5G ProSe discovery security material, the ProSe UEs may not able to discover intended 5G ProSe services.

Without secure provisioning of PC5 connection security policies for 5G ProSe services, PC5 connections can be downgraded or cannot be set up.

If security policies for 5G ProSe services are statically configured on the UEs, the flexibility of security protection per specific ProSe service is then lost. Consequently, the traffic over PC5 link may either be overly protected or insufficiently protected against the specific ProSe services, leading to performance/resource issue on the UEs or potential security vulnerabilities in 5G ProSe communication.

Without support of security policy consistency for PC5, PC5 connections may fail to meet the security requirements of various 5G ProSe services.

In case of PC5 indirect communication with a UE-to-UE relay, if the security policies at the peer UEs for a 5G Prose service require strong protection (e.g. integrity/confidentiality protection for both signalling and user plane), but the L3 UE-to-UE relay fails to support the policy enforcement due to different (weaker) security policies at the relay, PC5 connections may fail to meet the security requirements of the 5G ProSe service.

### 5.X.3 Potential security requirements

5G ProSe system shall support a means to configure at the network side the discovery security material and PC5 connection security policies for 5G Prose services.

5G ProSe system shall support a means to securely provision the discovery security material and configured PC5 connection security policies to the UE for 5G Prose services.

5G ProSe system shall support to achieve consistent security enforcement based on the provisioned PC5 connection security policies across the PC5 link (including the presence of a UE-to-UE relay) to meet seucurity requirements of 5G Prose Services.

\*\*\* END OF CHANGES \*\*\*