**3GPP TSG-SA3 Meeting #103-e *draft\_S3-211802-r1***

**e-meeting, 17 - 28 May 2021** Revision of S3-21xxxx

**Source: Qualcomm Incorporated**

**Title: EN resolution of Solution #19**

**Document for: Approval**

**Agenda Item: 5.9**

# 1 Decision/action requested

***This contribution proposes to resolve an Editor’s Note in Solution #19.***

# 2 References

[1] TR 33.847 v0.5.0

# 3 Rationale

This contribution proposes to resolve an Editor’s Note in Solution #19.

# 4 Detailed proposal

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

**\*\*\*\*\* START OF FIRST CHANGES \*\*\*\*\***

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 23.752: "Study on system enhancement for Proximity based Services (ProSe) in the 5G System (5GS)".

[3] 3GPP TS 22.278: "Service requirements for the Evolved Packet System (EPS)".

[4] 3GPP TS 22.261: "Service requirements for the 5G system; Stage 1".

[5] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".

[6] 3GPP TS 33.303: "Proximity-based Services (ProSe); Security aspects".

[7] 3GPP TS 33.535: "Authentication and Key Management for Applications (AKMA) based on 3GPP credentials in the 5G System (5GS)".

[8] 3GPP TS 33.536: "Security aspects of 3GPP support for advanced Vehicle-to-Everything (V2X) services".

[9] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[10] 3GPP TS 23.502: "Procedures for the 5G System (5GS); Stage 2".

[11] IETF RFC 8446: "The Transport Layer Security (TLS) Protocol Version 1.3".

[12] 3GPP TS 33.220: "Generic Authentication Architecture (GAA), Generic Bootstrapping Architecture (GBA)".

[13] 3GPP TS 33.222: "Generic Authentication Architecture (GAA); Access to network application functions using Hypertext Transfer Protocol over Transport Layer Security (HTTPS)".

[14] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[15] 3GPP TS 23.501: "System Architecture for the 5G System".

[xx] 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS) ".

**\*\*\*\*\* START OF FIRST CHANGES \*\*\*\*\***

**\*\*\*\*\* START OF SECOND CHANGES \*\*\*\*\***

### 6.19.2 Solution details

#### 6.19.2.1 Procedure



Figure 6.19.2.1-1: Secure PC5 link establishment procedure for UE-to-network relay

1. The Remote UE establishes a secure PC5 link with the UE-to-network (U2N) relay.

2. The remote UE performs a registration procedure to 5GC via N3IWF as specified in clause 7.2.1 of TS 33.501 [14]. The only difference from the untrusted non-3GPP access procedure is that the UE-to-network relay and the serving network of the UE-to-network relay take the role of untrusted access network. As a result of successful registration via the N3IWF, IPsec tunnel is established between the remote UE and N3IWF and all traffic between the remote UE and N3IWF is end-to-end protected.

3. The remote UE may establish a PDU session via N3IWF for the traffic that requires end-to-end security between the remote UE and 5GC.

The Relay Service Code (RSC) used for discovery and PC5 link setup is associated with the PDU session for the Remote UE to access the N3IWF. The Remote UE determines the N3IWF address and accesses the N3IWF over the PDU session established by the U2N relay UE based on the procedure in TS 23.304 [xx].

NOTE: This solution assumes that the Remote UE is authorized to access the PDU Session associated with RSC according to KI#4 solutions.

#### 6.19.2.2 Protocol Stack

The protocol stacks for remote UE’s control-plane and user-plane via N3IWF are shown in Figure 6.19.2.2-1 and 6.19.2.2-2 respectively.



Figure 6.19.2.2-1 Control-plane protocol stack



Figure 6.19.2.2-2 User-plane protocol stack

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