**3GPP TSG-SA3 Meeting #108Adhoc-e draft\_S3-222833-r2**

**e-meeting, 10th – 14th October, 2022**

**Source: Nokia, Nokia Shanghai Bell, Huawei, HiSilicon**

**Title: add new key issue for path switching between two indirect network communication paths**

**Document for: Approval**

**Agenda Item: 5.3**

# 1 Decision/action requested

***Approve the KI added to TR33.740***

# 2 References

[1] 3GPP TR 23.700-33 "Study on system enhancement for Proximity based Services (ProSe) in the 5G System (5GS); Phase 2"

[2] 3GPP TR 33.740 "Study on security aspects of Proximity Based Services (ProSe) in 5G System (5GS) phase 2"

# 3 Rationale

The contribution proposes a new KI on security aspects for path switching between two indirect network communication paths on UE-to-Network Relaying (KI#2 of TR 23.700-33).

Merger of S3-222480.

# 4 Detailed proposal

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of 1st change \*\*\*\*\*\*\*\*\*\*\*\*

## 5.X Key Issue #X: security consideration for path switching between two indirect network communication paths for UE-to-Network Relaying

### 5.X.1 Key issue details

There are three path switching scenarios are studied in TR 23.700-33, which including:

* Key Issue #2: Support of path switching between two indirect network communication paths for UE-to-Network Relaying with service continuity consideration.
* Key Issue #3: Support direct communication path switching between PC5 and Uu (i.e., non-relay case).
* Key Issue #4: Support of path switching between direct network communication path and indirect network communication path for Layer-2 UE-to-Network Relay with session continuity consideration.

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For KI#2, there're different options:

- Layer-3 UE-to-Network Relay with N3IWF switching from/to Layer-3 UE-to-Network Relay with N3IWF.

- Layer-3 UE-to-Network Relay without N3IWF switching from/to Layer-3 UE-to-Network Relay without N3IWF.

- Layer-3 UE-to-Network Relay without N3IWF switching from/to Layer-3 UE-to-Network Relay with N3IWF.

- Layer-2 UE-to-Network Relay switching from/to Layer-2 UE-to-Network Relay.

- Layer-2 UE-to-Network Relay switching from/to Layer-3 UE-to-Network Relay without N3IWF.

- Layer-2 UE-to-Network Relay switching from/to Layer-3 UE-to-Network Relay with N3IWF.

SA2 is studying how to select a UE-to-Network Relay for path switching and identify the path switch procedure with service continuity consideration. Similarly, security capabilities and configurations of target UE-to-Network Relay should be considered when identify and select a UE-to-Network Relay for path switching. In addition, the potential security procedure after switching should be considered to avoid impacting service continuity.

### 5.X.2 Security threats

Security of the relayed traffics may be compromised after a ProSe remote UE switched to another UE-to-Network Relay.

Service continuity of a ProSe relay session may be impacted because of security procedure triggered after a ProSe remote UE switched to another UE-to-Network Relay.

If security and/or privacy measures are not considered and applied during and/or after the path switching procedures, an attacker can track the remote UE by linking the two indirect communications.

### 5.X.3 Potential security requirements

The 5G System shall provide a means to maintain the same level of security after a ProSe remote UE switched to another UE-to-Network Relay.

The 5G System shall provide a means to avoid service impact caused by security procedure after a ProSe remote UE switched to another UE-to-Network Relay.

The 5G system shall protect the privacy of the Remote UE during and/or after the path switching between two indirect network communication paths for UE-to-Network Relaying.

\*\*\*\*\*\*\*\*\*\*\*\*\* End of the changes \*\*\*\*\*\*\*\*\*