**3GPP TSG-SA3 Meeting #115 e-adhoc *draft\_S3-241475-r2***

Online, 15th April – 19th April 2024

**Source: Xiaomi**

**Title: KI#2 New solution for topology hiding**

**Document for: Approval**

**Agenda Item: 5.3**

# 1 Decision/action requested

***It is proposed to approve the pCR to TR 33.757 V0.1.0.***

# 2 References

[1] 3GPP TR 33.757 Study on security for PLMN hosting a NPN

# 3 Rationale

This contribution proposes a new solution for TR 33.757 [1].

# 4 Detailed proposal

\*\*\* Start of the Change \*\*\*

## 7.Y Solution #Y: SCP based topology hiding

### 7.Y.1 Introduction

This solution addresses the topology hiding issue of KI#2.

In this solution, SCP deployed in PLMN domain and SCP deployed in NPN domain will do the topology hiding.

### 7.Y.2 Solution details



Figure 7.Y.2-1 SCP based topology hiding

If domain A represents PLMN hosting NPN domain, domain B indicates PLMN domain.

If domain A is PLMN domain, domain B is PLMN hosting NPN domain.

1. To discover the NF services provided in domain B, the NF service consumer in the domain A sends Nnrf\_NFDiscovery\_Request to SCP-A (i.e. the SCP deployed in domain A).

2.SCP-A forwards the NF discovery request to the SCP-B (the SCP deployed in domain B).

3. SCP-B forwards the NF discovery request to the NRF that is deployed in domain B.

4. The NRF checks if the Nnrf\_NFDiscovery\_Request is allowed.

 If allowed, the NRF sends the required parameters (e.g., FQDN, IP address of the NF service provider) to the SCP-B via Nnrf\_NFDiscovery\_Response message.

5. The SCP-B does the topology hiding for the address information of NF service producer (e.g., FQDN, IP address of the NF service provider). The SCP-B forwards the modified NF service producer address information to the SCP-A.

6. SCP-A sends the modified NF service producer address information to the NF service consumer.

7. To request/subscribe information from the NF service producer, the NF service consumer sends request to the SCP-A. The request includes the modified NF service producer address information. To do the subscription, the request includes its own address information (e.g., FQDN, IP address).

8. If SCP-A forwards the request to SCP-B.

If the request includes the NF service consumer address information, SCP-A does the topology hiding to the NF service consumer address information. The SCP-A forwards the modified NF service consumer address information to the SCP-B.

9. SCP-B forwards the request to the NF service producer. The subscription related request includes the modified NF service consumer address information. SCP-B identifies the true NF service producer address information via the modified NF service producer address information.

10. The response message sent by the NF service producer is sent to the SCP-B. The NF service producer may also send the notification message to the SCP-B along with the modified NF service consumer address information.

11. The SCP-B forwards the message to the SCP-A.

12. The SCP-A forwards the message to the NF service consumer. The SCP-A identifies the true NF service consumer address information via the modified NF service consumer address information.

In summary, this solution proposes to use an SCP at the customer premises and an SCP at the operator premises as security gateway functions.

### 7.Y.3 Evaluation

TBD

\*\*\* End of the Change\*\*\*