**3GPP TSG-SA3 Meeting #108e *draft\_S3-221928-r3***

**e-meeting, 22 - 26 August 2022**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Conclusion on KI9 authorization for inter-slicing access**

**Document for: Approval**

**Agenda Item: 5.24**

# 1 Decision/action requested

***Transform a CR in S3-221786 and add as potential solution in the TR. Add conclusion on KI9 authorization for inter-slicing access.***

# 2 References

[1] 3GPP TR 33.875

# 3 Rationale

Normative work is proposed to add the requirement:

The 5GS should provide a mechanism that allows the NF Service Producer not to provide service to NF consumers, which are not authorized to access a slice.

Further, normative text in clause 13.4.1.1.2. of TS 33.501 will be added to update the solution in line with above analysis of the proposed solutions.

# 4 Detailed proposal

*\*\*\*\* START OF CHANGE*

## 6.X Solution #X:

### 6.X.1 Introduction

This solution is addressing KI#9.

### 6.X.2 Solution details

In the current specification, NSSAIs for NF Service Consumer may can be included the access token request but they are not explicitly verified against authoritative information (e.g., NF Service Consumer certificate) by the NRF.

Further, the NSSAIs for the NF Service Producer can be included in the access token but are not explicitly verified by the NF Service Producer against the allowed NSSAIs of a UE when the service request is for UE related information.

To avoid network slice isolation violation as described in detail by KI#9, clarification of the specification clause 13.4.1.1.2 is required to mitigate potential slice related attacks, as described in S3-213209 (reply-LS to GSMA on 5G CN slicing attack).

The solution proposes

- in step 1a of clause 13.4.1.1.2 of TS 33.501 [X], NRF to verify that the S-NSSAI of the NF Service Consumer in the access token request is consistent with NF Service Consumer certificate or profile. Specification text is proposed as follows:

*"The NRF may additionally verify the S-NSSAIs of the NF Service Consumer."* The NRF checks whether the NF Service Consumer is authorized to access the requested service(s). *"For example, the NRF may verify that the NF Service Consumer can serve a slice which is included in the allowed slices for the NF Service Producer."*

- in step 2 of clause 13.4.1.1.2 of TS 33.501 [X], NF Service Producer checking the audience claim to verify that the producer NSSAIs in the access token (received in the service access request) contains the allowed NSSAI of a UE if the request is for UE related information. Specification text is proposed as follows:

It checks that the audience claim in the access token matches its own identity or the type of NF Service Producer. If a list of NSSAIs or list of NSI IDs is present, the NF Service Producer shall check that it serves the corresponding slice(s). *"If applicable (e.g., when the request is for information related to a specific UE), the NF Service Producer may check that the NF Service Consumer is allowed to access (as indicated by the NF Service Producer’s NSSAIs in the access token presented by the NF Service Consumer) at least one of the slice(s) that the UE is currently registered to, e.g., by verifying that the UE’s allowed NSSAI(s) intersect with the NF Service Producer's NSSAIs in the access token. As the NSSAI supplied by NF Service Consumer is forged, NF Service Producer(e.g. AMF) should obtain the NSSAI of the UE from the UDM for verification."*

*\*\*\*\* NEXT CHANGE*

## 7.9 KI #9: Authorization for Inter-Slice Access

### 7.9.1 Analysis

Solution #11 and solution #X address this key issue.

Solution#X provides a minimal update as normative text proposal by demanding the NRF to check on the NF Service Consumer being authorized to access a slice of the NF Service Producer.

### 7.9.2 Conclusion

It is proposed to add the following requirement in normative specification:

The 5GS should provide a mechanism that allows the NF Service Producer not to provide service to NF consumers, which are not authorized to access a slice.

Further, normative text in clause 13.4.1.1.2. of TS 33.501 will be added to update in line with solution #X.

*\*\*\*\* END OF CHANGE*