**3GPP TSG-SA3 Meeting #108e *draft\_S3-221928-r1***

**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

- 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."*

- NF Service Producer to verify that the producer NSSAIs in the access token contains the allowed NSSAI of a UE if the request is for UE related information. Specification text is proposed as follows:

*"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."*

NOTE: Normative text is used in quotes to capture the text proposal for the specification update.

### 6.X.3 Evaluation

The solution addresses an issue provided to 3GPP per CVD discussion. The update provides a minimal change to the existing specification TS 33.501 and allows the NRF to verify that the NF Service Consumer can serve a slice which is included in the allowed slices for the NF Service Producer.

*\*\*\*\* 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 #11 provides a mechanism that allows the NF Service Producer not to provide service to NF consumers, which are not authorized to access a slice. For this it adds a check of whether the NFc is allowed to access a slice that the UE is currently registered to by adding a verification step that the UE’s allowed NSSAI(s) intersect with the NF Service Producer's NSSAIs in the access token.

Solution#X provides a minimal updates 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. Further, if the request is for UE related information, the NF Service Producer can verify that the producer NSSAIs in the access token contains the allowed NSSAI of a UE.

### 7.9.2 Conclusion

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

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*