**3GPP TSG-CT WG1 Meeting #128-eC1-210695**

**Electronic meeting; 25 February – 5 March 2021**

**Source: China Mobile**

**Title: Solution to KI#1-About verifying the validity of a slice by IMS network in scenario 1 and 3**

**Spec:** **3GPP TR 23.700-10 v0.3.0**

**Agenda item: 17.3.3**

**Document for: Agreement**

**1. Introduction**

As discussed in C1-210693, in scenario 1 and 3, the IMS registration could be failed if the selected slice is inappropriate. So whether verifying the validity of a slice and whether the reason of failure due to inappropriate slice needs to be indicated to the UE are to be considered.And the following aspects are suggested to be studied in that pCR:

- Whether and how the 5GC network or the IMS network verifies the validity of a slice.

- Whether and how the reason about an inappropriate slice is indicated to the UE.

In this contribution, a solution to the above questions in scenario 1 and 3 is proposed.

**2. Reason for Change**

This solution attemps to address the issue on verifying the validity of a slice in scenario 1 and 3.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TR 23.700-10 v0.3.0.

\* \* \* First Change \* \* \* \*

# 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 TS 23.502: "Procedures for the 5G System".

[x] 3GPP TS 29.229: "Cx and Dx interfaces based on the Diameter protocol; Protocol details".

\* \* \* Next Change \* \* \* \*

## 6.X Solution X: Verifying the validity of a slice when IMS registration is failed

### 6.X.1 Description

This solution addresses scenario 1 and 3 of Key Issue #1 to suggest verifying the validity of a slice by the IMS network when IMS registration is failed and indicating to the UE in the case the rejection is due to an inappropriate slice.

In scenario 1, each 5GC network slice is associated with a separate and distinct IMS network. And in scenario 3, different UEs connect to separate IMS network through one common 5GC network slice. So in both scenarioes, a P-CSCF serving a specific IMS network is only relevant to one sclice. Since different IMS networks use different IMS subscriptions, when UE selects an inappropriate slice, the IMS registration could be failed. But the UE does not know the failure is due to the slice is inappropriate.

Therefore, it is suggested the P-CSCF verify the validity of a slice ID when receiving 404 response during IMS registration in the case HSS sends a negative response to the user registration status query request (e.g. "DIAMETER\_ERROR\_USER\_UNKNOWN" or "DIAMETER\_ERROR\_IDENTITIES\_DONT\_MATCH" specified in 3GPP TS 29.229.) If the selected slice ID doesn’t match the slice ID for the IMS network, the P-CSCF indicates to the UE the failure is due to an inappropriate slice via the Reason header field, to let the UE know the failure of an IMS registration for troubleshooting and further URSP re-evaluation.

NOTE: To verify the validity of a slice ID,

Editor's note: The extention of the reason header field is FFS.

### 6.X.2 Impacts on existing nodes and functions

P-CSCF:

- Support verifying the slice ID for the IMS network when receiving 404.

NOTE: BSF service has already be defined by CT3. How the P-CSCF utilizes the BSF service is out of scope for CT1.- Support being locally configured a slice ID.

- Support indicating to the UE a failed IMS registration is due to an inappropriate slice via the Reason header field when the the selected slice ID doesn’t match the configured slice ID.

UE:

- The upper layer of the UE performs URSP re-evaluation when receiving 404 containing the Reason header field indicates the rejection is due to an inappropriate slice.

### 6.X.3 Solution Evaluation

Editor's note: This clause provides an evaluation of the solution.