3GPP TSG SA WG 3 Meeting SA3#102Bis-e TDoc draft\_S3-210822-r6

Electronic meeting, Online, 1 - 5 March 2021

**Title: [DRAFT] Reply-LS on Identification of source PLMN-ID in SBA**

**Response to: LS C4-210249/S3-210812 on Identification of source PLMN-ID in SBA from CT4**

**Release: Rel-17**

**Work Item: Service Based Interface Protocol Improvements Release 17 (SBIProtoc17)**

**Source: Ericsson, to be SA3**

**To: CT4**

**Cc: GSMA 5GJA**

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**Attachments:** none

# 1 Overall description

SA3 thanks CT4 for their LS C4-210249/S3-210812 on Identification of source PLMN-ID in SBA.

To start with, SA3 would like to comment on the following question: "CT4 discussed whether the pSEPP (i.e. the SEPP serving the PLMN of the NFp) can determine uniquely which is the PLMN-ID of the remote PLMN". It is an essential part of N32 security as specified in TS 33.501 that the pSEPP stores the remote PLMN ID of the cSEPP in its N32-f context, and could use the above remote PLMN ID to verify the PLMN-ID of a message received from the cSEPP. Although not explicitly described in TS 33.501, it can also be the case that a cSEPP represents several PLMN-IDs, as long as the pSEPP can verify the PLMN-ID of a message received from the cSEPP. The general principle from a security point of view is that the signalling flows from different PLMNs need to be separated. It follows that N32-c connections need to be separate per PLMN-ID. As N32-f (message forwarding) connections are set up based on N32-c (control plane / management) connections, it follows that N32-f connections also are separate per PLMN-ID.

Further, the question specifically to SA3 is:

"CT4 kindly requests SA3 to provide feedback on the validity of the above scenarios, and whether SA3 believes that the current frozen releases (Rel-15 and Rel-16) can support them. Also, in case any of those scenarios is considered as currently not supported, CT4 would appreciate any indication on whether SA3 has plans to cover any of them in a further release."

For the three scenarios mentioned, SA3 has the following feedback:

Scenario 1) One cSEPP serves a given PLMN, and such PLMN has multiple PLMN-IDs. It is not clear whether the same N32-c connection is used for all possible PLMN-IDs, or whether a separate N32-c connection is used for each PLMN-ID.

SA3 feedback: Such a scenario is not explicitly described in TS 33.501 but can be supported by the current frozen releases. Separate N32-c and N32-f connections need to be used for different PLMN-IDs.

Scenario 2) One cSEPP serves multiple PLMNs, each one with its own PLMN-ID(s). This scenario was called "SEPP Hub" by some companies. It was questioned how the trust model applies to this case, and whether a cSEPP outsourced to, say, an IPX provider can still be considered trusted or not, and the implications of that.

SA3 feedback: Such a scenario is not described in TS 33.501. If separate N32-c and N32-f connections are used for each PLMN-ID, the scenario can be supported. SA3 assumes that SEPP sits at the edge of the PLMN core network. Outsourcing the cSEPP to an external entity like e.g. an IPX provider requires the external entity to be trusted by the outsourcing MNO as the external entity speaks for the MNO.

Scenario 3) A scenario in which there may be further SEPPs, not only the cSEPP and pSEPP, but also potentially "intermediate SEPPs". This was called as "chained SEPPs". This applies to use case when the NFc and the NFp are located in PLMNs that are not immediately adjacent, i.e. if the message from NFc has to traverse more than one PLMNs to reach NFp.

SA3 feedback: Such a scenario is not supported by the current frozen releases of TS 33.501. This deployment breaks the assumed trust model in SA3. PRINS was designed specifically to allow application layer security across multiple TLS hops, but requiring transport layer connectivity for N32-c in order to set up the security context. Unless there is clear guidance or requirement to support a model in which there is no transport layer connectivity possible for N32c, SA3 currently has no plans to work on a solution for this.

# 2 Actions

**To CT4**

**ACTION:** SA3 asks CT4 to take the above feedback into account.

# 3 Dates of next TSG SA WG 3 meetings

SA3#103e 17 - 28 May 2021 Electronic meeting