**3GPP SA3LI#92 *s3i240084***

**30 Jan - 02 February 2024, Sevilla (ES) revision of *s3i240042***

Title: LS on AKMA service restrictions in roaming

Response to: -

Release: Rel-18

Work Item: LI18

Source: SA3-LI

To: SA3, CT3

Cc:

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Attachments: -

**1. Overall Description:**

SA3-LI has observed that, as of Rel-18, the AKMA service (TS 33.535) is extended to support roaming. This introduces issues for the VPLMN to comply with its LI requirements, e.g. as stated in TS 33.126, R6.4 – 175. Specifically, encryption enabled by the HPLMN and provided across the VPLMN must not hinder the VPLMN to meet its LI-obligations. SA3-LI has discussed this with SA3 in a number of LSs (e.g. s3i200477, s3i230421), but SA3 has now completed the Rel-18 work without being able to find a feasible solution in support of LI. As it stands, the only remaining option in the opinion of SA3-LI is therefore to ensure that AKMA can be selectively enabled/disabled during roaming.

SA3-LI has also observed the CT3 LS C3-232563, asking SA3 about the need for AKMA service restrictions in roaming for Rel-17. SA3 has not yet responded to this, but from SA3-LI point of view, such service restriction is in any case needed at least from Rel-18 onwards. In fact, SA3 also has a requirement for this (TS 33.535, §4.6.1), but no stage 2 or stage 3 details are defined.

SA3-LI understands that the network function in charge of providing the AKMA service is the AAnF (TS 29.535). Thus, this also seems to be a natural placement for an AKMA service restriction decision, based on roaming. However, according to SA3-LI understanding, the AAnF does not have complete information to always be able to determine whether the UE is roaming or not.

Currently, a decision whether to enable the AKMA service is taken by the UDM, which instructs the AUSF whether to generate AKMA keys and transfer them to AAnF (this is done through the so called AKMA indicator, TS 29.503, Table 6.3.6.2.3-1). However, this decision appears to be based on whether AKMA is part of the subscription or not, and does not take roaming into account. A mechanism to selectively enable/disable AKMA based on roaming seems necessary to be initiated by either the UDM or the AUSF. To this end, SA3-LI has made a preliminary analysis and foresees that a simple solution could be for the AUSF to send a roaming indication to the AAnF, leaving to the AAnF to decide if the AKMA service is to be enabled or not in roaming.

Corresponding stage 2 modifications seem to apply to TS 33.535 §6.1 6, and §6.3. Regarding stage 3 details, changes would apply to AUSF (TS 29.509) and AAnF (TS 29.535). Since requests for AKMA keys in roaming are transferred via the HPLMN NEF, changes could affect also the NEF behavior for AKMA (TS 29.522, §4.4.23), e.g. if the NEF is to receive a new type of error message from the AAnF, related to roaming. (As a note, it is assumed that a policy on whether AKMA roaming is allowed or not has been provisioned to the AAnF.)

Other solutions are likely possible and SA3-LI has no strong opinion on which solution is chosen.

SA3-LI seeks support from SA3 and CT3 and, if an acceptable/preferred solution can be identified, that SA3 and CT3 adds normative details to the relevant TSs from Rel-18 onwards. As requested, SA3-LI is happy to engage in further discussion to progress the work.

**2. Actions:**

**To SA3 group**

**ACTION:** SA3-LI kindly asks SA3 to assist SA3-LI by working on normative stage 2 details in TS 33.535 in support of a Rel-18 service restriction mechanism for AKMA in roaming.

**To CT3 group**

**ACTION:** SA3-LI kindly asks CT3 to, based also on SA3 stage 2 work, add stage 3 details in the relevant 29-series TSs, in support of a Rel-18 service restriction mechanism for AKMA in roaming.

**3. Date of Next SA WG3-LI Meetings:**

SA WG3-LI Meeting #93 16th – 19th Apr. 2024 Washington DC, US

SA WG3-LI Meeting #94 9th – 12th Jul. 2024 Amsterdam, NL