**3GPP SA WG2 Meeting #166 S2-2412366**

**Orlando, US, 18-22 November 2024**

Title: Reply LS on FS\_IMS\_RES outcome and future work plan

Response to: LS on FS\_IMS\_RES outcome and future work plan (S2-2411293/C4-244485)

Release: Release 19

Work Item: FS\_IMS\_RES

Source: SA2

To: CT4

Cc: CT1, CT3

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Attachments: None

**1. Overall Description:**

SA2 would like to thank CT4 for the LS on FS\_IMS\_RES outcome and future work plan in [S2-2411293/C4-244485]. SA2 has discussed the LS and solutions which are indicated to have SA2 impact. Following observations were made during the discussion:

1. IMS is standardized back in Rel-5; commercial deployments exist since decades. Overload control, restoration features and failover procedures are available in implementations and deployments for many years (if not decades) especially for critical network functions like the HSS.
2. Changes to basic IMS call flows in TS 23.228 (e.g. proposed by solution#1 and solution #2 in TR 29.866) must be carefully treated and studied first by SA2 before any normative changes can be done.

Based on above observations, SA2 provides following answers to CT4 questions.

**Q1:** Do SA2, CT1 and CT3 have any comments on the solutions and conclusions of 3GPP TR 29.866? If so, please provide them.

**Answer from SA2:**

1. **Solution#1** modifies P-/S-CSCF behavior and changes basic IMS call flows (sending re-register directly to S-CSCF). In addition, I-CSCF has been added to the re-registration procedure to allow for load re-balancing or selecting another S-CSCF after a failure.
2. **Solution#2:** The proposed changes are not conditional to HSS being in overload situation, instead change the normal behavior of S-CSCF, MMTel AS and IP-SM-GW. S-CSCF ignoring error response and send 200 OK create a problem as terminating calls will not be delivered.
3. **Solution#3:** Proposes to store S-CSCF address in a new AS during the registration process. I-CSCF sends REGISTER and INVITE request to the AS in case of HSS failure. It is unclear how this solution solves the HSS failure scenario as it creates just a new single point of failure (the AS) storing sensitive data. In addition, this solution requires not only a new AS but also changes to I-CSCF and iFC which are deployed and would need to be changed just for this failure handling. Moreover, only few corner scenarios of the initial registration procedure are addressed, but during the initial registration where S-CSCF is yet to be assigned, the authentication vector and subscription information must be retrieved from HSS.
4. **Solution#4:** I-CSCF behaves as a stateful proxy, however, sending SIP OPTIONS based on some events (REGISTER has been received, HSS does not react) is not proxy behaviour. Moreover, the assumption that S-CSCF delays the removal of subscription information for some configured time and during that time HSS fails or is getting overloaded is not realistic.

In general, SA2 observed that in all the above Solution#1, #2, #3 and #4, the assumption is that S-CSCF is in working condition. If the same S-CSCF fails, the proposed solution won’t work as the existing S-CSCF restoration procedure depends on HSS.

**Q2:** Does SA2 have any concern on the proposed working procedure for future normative work?

**Answer from SA2:**

Without proper studying the solutions in detail SA2 cannot agree to make any normative changes to TS 23.228 for Release 19. Besides solutions #1, #2, #3 and #4, SA2 cannot comment on other solutions of TR 29.866 at this point in time. SA2 in the meantime requests CT WGs to hold off progressing any normative work on solutions #1, #2, #3 and #4.

**2. Actions:**

**To CT WG4:**

**ACTION:** SA2 kindly asks CT4 to take the answers into account.

**3. Date of Next TSG SA WG2 Meetings:**

TSG-SA2 Meeting #166AH-e 20-24 January 2025 Electronic meeting

TSG-SA2 Meeting #167 17-21 February 2025 Athens, Greece