



RP-221594

3GPP TSG RAN #96

Budapest, Hungary, June 6-9, 2022

RAN work related to the new SA3 WI of the RRCResumeRequest Protection

Apple Inc.

- The new SA3 R18 WID on *Security Enhancement on RRCResumeRequest Message Protection* was approved in last SA3 meeting (S3-221185), and will be finally approved in June SA Plenary.
- The WI is to introduce the security enhancement for the RRCResumeRequest message protection and the RAN work (include RAN2 and RAN3) is required.
- **Observation:**
 - **RAN work (incl. RAN2 and RAN3) is required for the new SA3 R18 WI.**

3 Justification

<SA3 WID: S3-221185>

Based on the agreed conclusion in TR 33.809, this WID is going to specify the normative details for enhancing RRCResumeRequest security.

4 Objective

The objective of this work item is to specify the security enhancements for protecting RRCResumeRequest messages, following the conclusion in TR 33.809. The objective includes the following:

- Security enhancement for protecting RRCResumeRequest messages, following the conclusion on the solution#17 in TR 33.809
 - Specify the enhancement on the source and target gNB/ng-eNB
 - Specify the enhancement on the UE to support the new RRCResumeRequest MAC-I
 - Specify the enhancement on the Xn interfaces between gNBs/ng-eNBs.

The expected output will be captured in TS 33.501

Any potential modification on RAN specs will be handled by RAN groups.

Background | RAN related discussion

- RAN2 discussed the solution in RAN2#115 meeting
 - It was triggered by the SA3 LS (S3-212349)
- In RAN2 LS reply (R2-2109121), RAN2 provides the feedback including the following info:
 - For the RAN impact, the analysis on detail is provided;
 - For the potential solution standardization, the solution is feasible and RAN plenary discussion is proposed since the solution spans multiple WGs.
- **Observation**
 - **According to previous RAN2 discussion, the solution in RAN side is feasible.**
 - **According to previous RAN2 discussion, RAN plenary should discuss how to start the RAN work for the new SA3 WI.**

1. Overall Description

<RAN2 LS Rely: R2-2109121>

RAN2 would like to thank SA3 for the LS on security protection on RRCResumeRequest message.

Regarding SA3's questions, following are the RAN2's feedback.

Q1: For the capability negotiation method between UE and gNB/ng-eNB, as mentioned above, if there are other preferable alternatives from RAN2 perspective?

Q2: Is there any mechanism for the source gNB/ng-eNB to know the target gNB/ng-eNB capabilities?

[RAN2 response]

RAN2 discussed the capability negotiation methods and made the initial conclusion as follows:

- The feature requires the support of the UE, the source gNB and the target gNB;
- From UE perspective
 - The UE indicates its capability in the AS capability and reports to network via RRC signaling;
 - The UE enables the feature only when it knows both source node and target node support it;
- From the source node perspective
 - The source node indicates its capability via the RRC dedicated configuration (i.e. RRCRelease with SuspendConfig) or the SIB (depending on the method);
 - The source node only performs the new ResumeMAC-I verification when the UE is configured with the new feature and the target node supports the new ResumeMAC-I;
- From the target node perspective
 - The node as the target node role indicates its capability via SIB or binds its capability together with the source node's capability (depending on method);
 - How to indicate the target node's capability to the source node should be discussed in RAN3.

Q3: The possibility of specifying the solution in RAN2 specification in Rel-17 timeframe, if the solution is concluded by SA3.

[RAN2 response]

The solution is technically feasible from RAN2 perspective. However, RAN2 observed that the solution spans multiple WGs (i.e. RAN2 and RAN3), and thus it should be first discussed in RAN plenary if SA3 decides to specify it in R17.]

2. Actions:

RAN2 respectfully asks SA3 to take the above information into account for future work.



Proposals

- RAN should reserve the R18 TU in RAN2 and RAN3 for the new R18 SA3 WID on *Security Enhancement on RRCResumeRequest Message Protection*.
- RAN is proposed to approve the new RAN WI to study and specify the solutions in RAN side.
 - The WI is RAN2-led and RAN3 is involved.



