

Agenda Item:

Source: Alcatel

Title: Suspend / Resume during SRNS relocation

Document for:

1. Introduction

In order to cope with the possible loss of signalling messages (UE to RNC or vice versa) during SRNS relocation, it is proposed to perform a L2 suspend-resume procedure during SRNS relocation (in the control plane only).

This contribution is based on Tdoc 343, which was submitted (but not presented) for the SMG2 ARCH #9 meeting in Sophia Antipolis.

2. Discussion

During SRNS relocation, the anchor point in the user plane is located in the CN. An ARQ mechanism or a splitting/combining device can be implemented in the CN, which will cope with the possible loss of data.

For the control plane (i.e. UE - SRNC signalling) however, there is no anchor point during SRNS relocation: the target RNC takes over the role of SRNC and thus also the L2 signalling link between UE and SRNC.

In order to cope with the possible loss of signalling messages (UE to RNC or vice versa) during SRNS relocation, it is proposed to perform a L2 suspend-resume procedure during SRNS relocation (in the control plane).

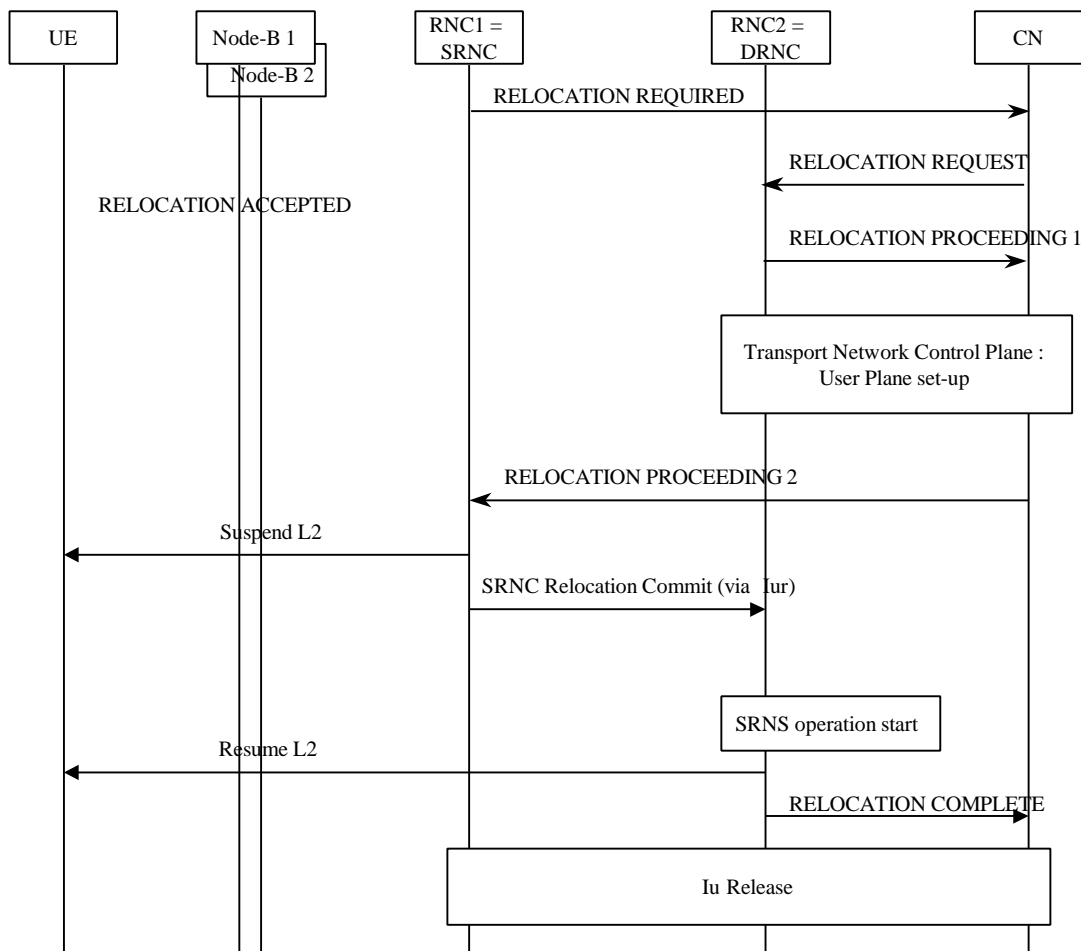


fig : introduction of a suspend/resume procedure in the SRNS relocation scenario

When the current SRNC has initiated the streamlining procedure (i.e. after sending the RELOCATION REQUIRED message to the CN), no RRC procedures (like updating the active set, hard handover, ...) should be started within the SRNC. In case the CN triggers a different RRC procedure (e.g. DCH modification), it should be rejected by the SRNC and an explicit answer to the RELOCATION REQUIRED message should be awaited. However, Call Control Procedures should not be affected: DTAP messages should still be forwarded by the SRNC (RNC1) to the UE (or vice versa) until the point in time where the DRNC (RNC2) takes the role of SRNC. Therefore,

suspending the L2 signalling link should not occur when sending the RELOCATION REQUIRED message, but only upon reception of the RELOCATION PROCEEDING 2 message. At that point in time, RNC1 sends a L3 message "Suspend L2", instructing the UE to suspend the L2. Upon completion of the SRNS relocation procedure, RNC2 resumes (re-establishes) the L2 link and then informs the UE with the L3 message "Resume L2".

3. Proposal

The proposal is to update section 10.2.2.1 "Serving RNS relocation" in ref. [1] with the following points:

- Introduction of the Suspend L2 operation and Resume L2 operation messages in figure 0-1
- Following changes are proposed for the text belonging to figure 0-1 :

"... Upon reception of RELOCATION PROCEEDING1 the CN should setup Iu legs (and indicate corresponding binding ID to UTRAN). After completion of this, the CN should send the RELOCATION PROCEEDING 2 message to the source RNS. The source RNS will suspend the L2 signaling link between UE and UTRAN and will send a RNSAP commit message to the target RNS via Iur interface as described in [4].

Target RNS can, after having received SRNC RELOCATION COMMIT from the source RNS, resume the L2 signaling link between UE and UTRAN and start to act as the serving RNS for the RRC connection in question. ..."

4. References

[1] UMTS ZZ.11 Description of Iu interface, SMG2/UMTS-ARC