Agenda Item:

Source: **Nokia**

Title: **Proposed new presentation for Iu RANAP procedure "Serving RNS relocation"**

Document for:

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Proposed new presentation for Iu RANAP procedure "Serving RNS relocation"

1 Introduction

It was agreed in ARC EG meeting #9 in Sophia Antipolis that in UMTS ZZ.11 UMTS ZZ.11; Description of Iu interface/1/, Section 9.2.2.1 'Serving RNS relocation' should be restructured to show the elementary procedures and should also be harmonized with UMTS ZZ.02 UMTS ZZ.02;/2/. This contribution proposes a new structure for the referred section.

2 Proposed new presentation for Section 9.2.2.1 in UMTS ZZ.11 UMTS ZZ.11; Description of Iu interface/1/

The proposed modified text for Section 9.2.2.1 Serving RNS relocation is as follows:

9.2.2.1   Serving RNS relocation

[Editor's note: The RANAP procedures for Serving RNS Relocation have been included from Tdoc SMG2 UMTS-ARC 091/98 with the modifications as approved in ARC EG meeting #4.]

[Editor's note: The contents of this chapter must be restructured to show the elementary procedures over the Iu interface. Also, it need to be aligned with the corresponding procedures in ZZ.02.]

Serving RNS relocation is a procedure in which the serving RNS functionality of a specific RRC connection is relocated from one RNS to another without changing the radio resources or even without interrupting the user data flow.

Serving RNS Relocation is initiated by the Serving RNS (initiation by other network entities is FFS) and a precondition for the initiation is that the current active set is composed of only such a cells that belong to that RNS into which the serving RNS functionality is to be relocated (this is the simplest case that has been approved as the starting point, other cases are FFS).

9.2.2.1.1   Serving RNS relocation required indication

When the serving RNS makes an algorithmic decision to relocate the serving RNS functionality to an other RNS a RANAP message to indicate that a Relocation is required is sent to the Core Network which is having an active RANAP connection related to the UE in question. This RELOCATION REQUIRED message includes essentially the target RNS identifier and an UTRAN information field (transparent to the core network).

The signalling flow for serving RNS relocation required indication is shown in Fig. 2.
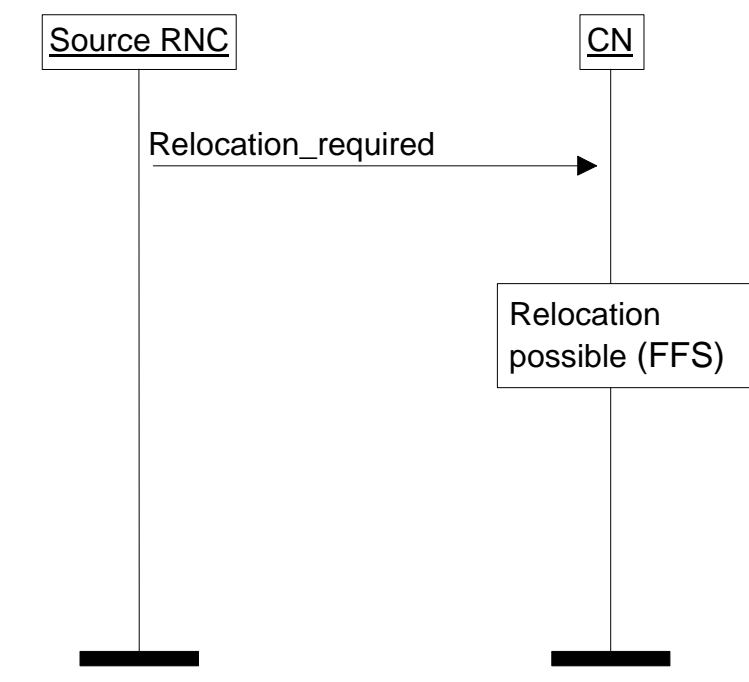
9.2.2.1.2   Serving RNS relocation resource allocation

Upon reception of the RELOCATION REQUIRED message the core network element should check whether the relocation is possible to be performed (This check is FFS). In successful case it sends a RELOCATION REQUEST message to the target RNS. The RELOCATION REQUEST contains essentially the received UTRAN information field and bearer identifier together with binding identifiers of each bearer to be established to the new Iu interface.

When the target RNS has received RELOCATION REQUEST message and all active bearers are identified, RNC should initiate the setup of necessary new Iu links. Indicated binding ID's are included in those Transport Network Control plane setup messages. RNCit should send a RELOCATION PROCEEDING1, message to the CN. This message contains essentially the Binding ID for each Iu leg that were already setup before the RELOCATION REQUEST was received (in the case when RNC has selected to use such Iu connection).to be established between UTRAN and CN.

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 a RELOCATION PROCCEDING2 message to the target RNS.

Fig. 3 shows the signalling flow for SRNS relocation resource allocation.

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        ┌────────────┐                      ┌────┐
        │ Target RNC │                      │ CN │
        └─────┬──────┘                      └──┬─┘
              │                                │
              │◄────────Relocation_request─────│
              │                                │
              │                                │
              │───Relocation_proceeding_1─────►│
              │                                │
       ┌──────┴────────────────────────────────┴──────┐
       │ Transport Network Control Plane: User plane setup │
       └──────┬────────────────────────────────┬──────┘
              │                                │
              ▬                                ▬
```
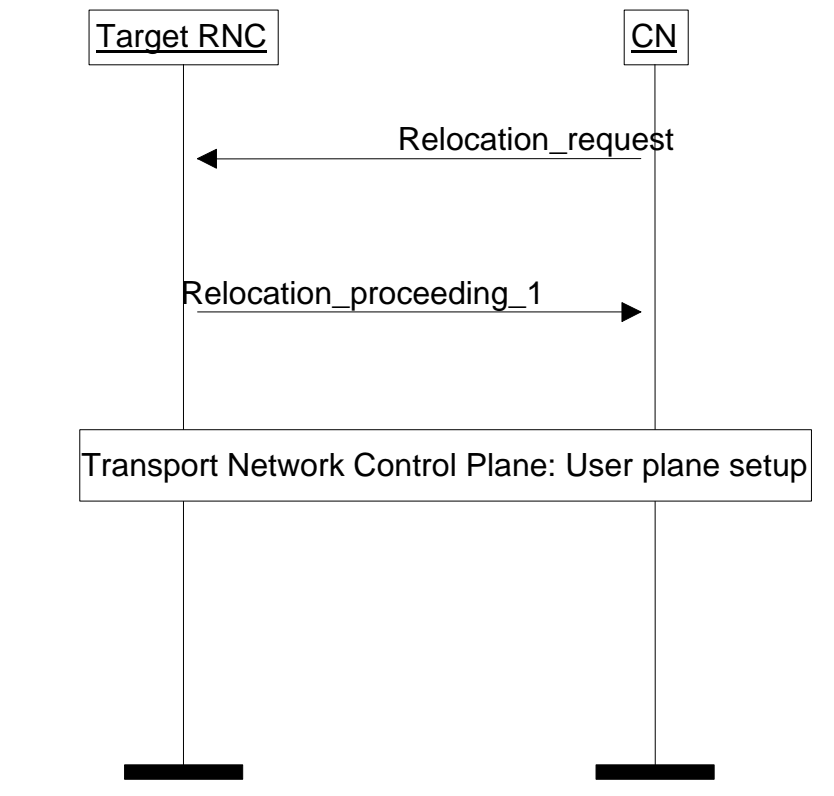
Figure 3. Resource allocation for SRNS relocation.

9.2.2.1.3   Serving RNS relocation execution

At source RNS: Upon reception of RELOCATION PROCEEDING 1 the CN shall send a RELOCATION PROCEEDING 2 message to the source RNS. The source RNS will send a RNSAP RELOCATION COMMIT message to the target RNS via the Iur interface as described in [4].

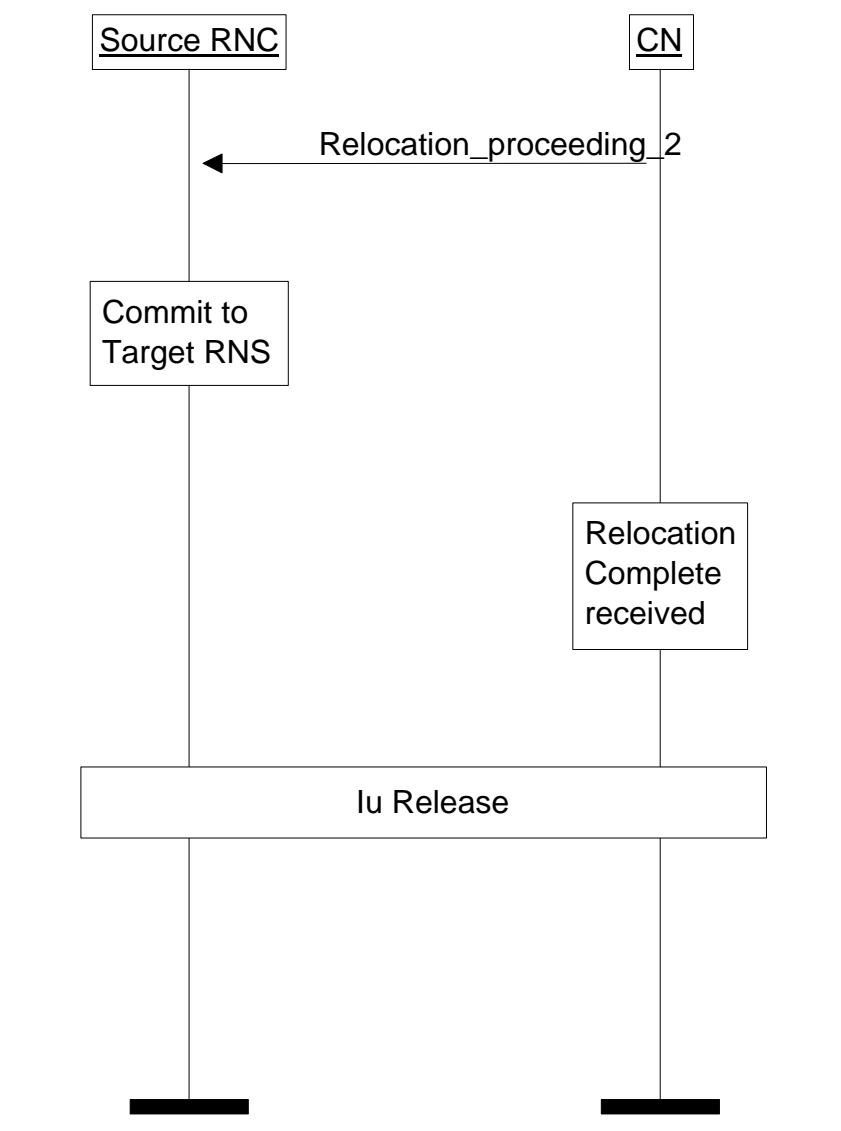The signalling flow between the source RNS and the CN is shown in Fig. 4.

Figure 4. SRNS relocation execution between source RNS and CN.

At target RNS: Target RNS can, after having received SRNC RELOCATION COMMIT ~~PROCEEDING2~~ message from the source RNS~~CN element~~, start to act as the serving RNS for the RRC connection in question. After completing this, the target RNS (i.e. the new Serving RNS) sends RELOCATION COMPLETE to CN elements.

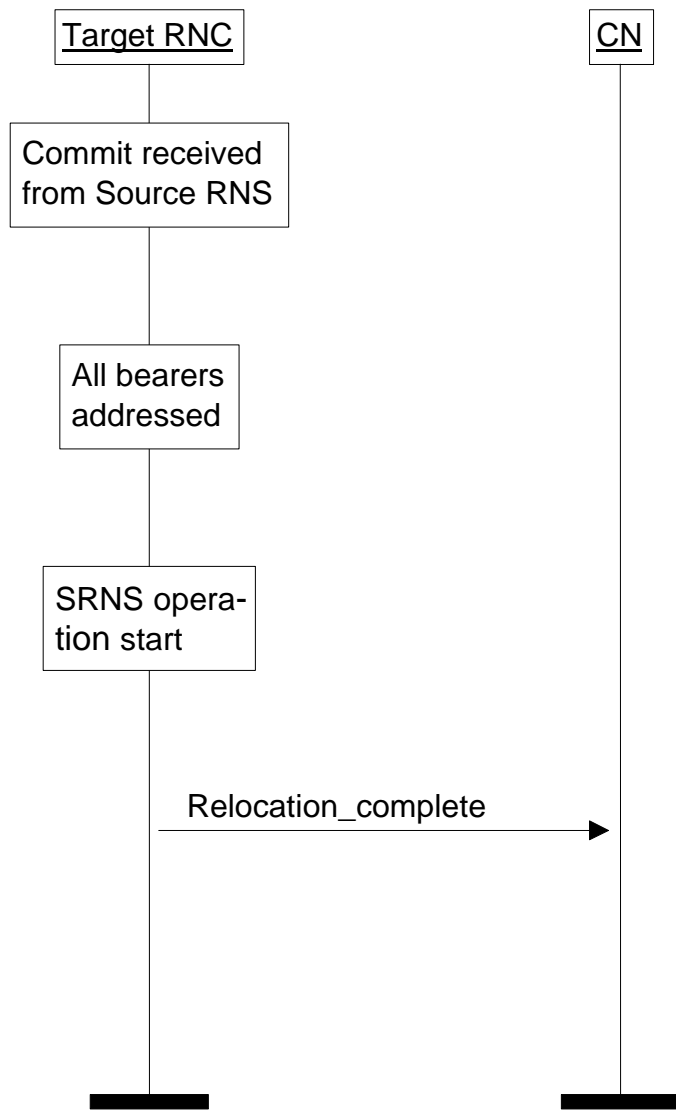The signalling flow between the target RNS and the CN is illustrated in Fig. 5.

Figure 5. SRNS relocation execution between target RNS and CN.

 CN elements will then release all bearers (Fig. 4) as described in 9.2.2.4 towards the old source RNS.

An example of a corresponding message flow at Iu interface in a successful situation is presented in Figure 2.
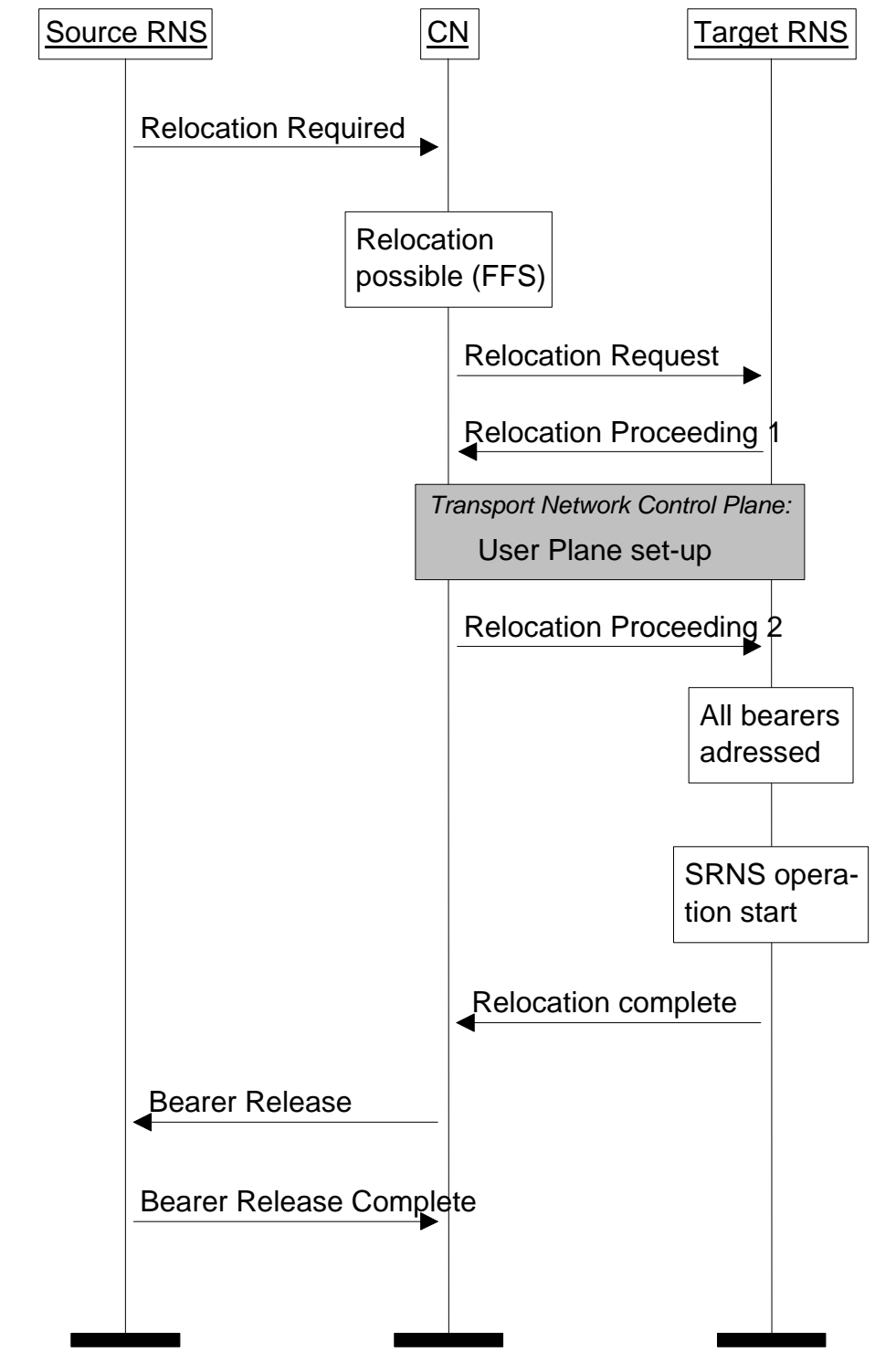
Figure 2. An example RANAP protocol message flow at Iu interface related to relocation of the Serving RNS functionality. A succesful case.

3 Proposal

It is proposed to replace the existing text in Ref UMTS ZZ.11; Description of Iu interface/1/, Section 9.2.2.1 with the text shown in section 2 of this contribution.

4 References

/1/ UMTS ZZ.11; Description of Iu interface

/2/ UMTS ZZ.02; UTRAN Functions, Examples on Signalling Procedures