TSG-RAN Meeting #10 *RP-000564*
Bangkok, Thailand, 6 - 8 December 2000

Title: **Agreed CRs to TS 25.303**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-002119	agreed	25.303	038	1	Corrections to SRNS Relocation	F	3.5.0	3.6.0
R2-002432	agreed	25.303	040		Correction to Relocation text	F	3.5.0	3.6.0

3GPP TSG RAN WG2 Meeting #16
Beijing, China, 9-13 October, 2000

Document R2-002119
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.303	CR	038r1	Current Version:	3.5.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #10	For approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 9.10.2000

Subject: Corrections to SRNS relocation

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: In the hard handover failure case, the UE shall send the XXX FAILURE message to the source RNC, not to the target RNC.

It has been clarified that in the UE, the RLC data buffers are flushed after the SRNS relocation.

Clauses affected: 6.4.8.1, 6.4.8.2

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

6.4.8 SRNS Relocation

The SRNS relocation procedure can be divided into two phases. The first phase is relocation preparation; where the resources are reserved, new RABs are established while the second phase is the transfer of the Serving RNS from source to target RNC.

There are three cases in which an SRNS relocation can be performed:

- Serving SRNS relocation: This is used to move the UTRAN to CN connection point at the UTRAN side from the source SRNC to the target RNC.
- Combinded Hard Handover and SRNS relocation: This is used to move the UTRAN to CN connection point at the UTRAN side from the source SRNC to the target RNC, while performing a hard handover decided by the UTRAN.
- Combined Cell/URA update and SRNS relocation: This is used to move the UTRAN to CN connection point at the UTRAN side from the source SRNC to the target RNC, while performing a cell re-selection in the UTRAN.

and these are described in subclause 6.4.8.1 and 6.4.8.2, and in more detail in TS 23.060 [6].

6.4.8.1 Serving and Combined Cell/URA Update SRNS relocation

The procedure is initiated by the source RNC deciding to perform a Serving SRNS relocation. Case I represents the situation when the UE is not involved and this is shown in Figure 35. Case II represents the situation when the UE is involved and a Combined Cell/URA update and SRNS relocation is performed, also shown in Figure 35.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released and the RABs that are subject to data forwarding. Lossless SRNS relocation is always, and only, configured for RABs that are subject to data forwarding. The PDCP layer shall support PDCP sequence numbering when lossless SRNS relocation is supported [7].

For the affected radio bearers, the RLC entity is suspended and the PDCP sequence numbers are retrieved by RRC. The PDCP send and receive sequence numbers are then transferred in the RNSAP Relocation Commit message from source to target RNC for RABs that support lossless SRNS relocation. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

The target RNC then sends a UTRAN MOBILITY INFORMATION (Case I) or a CELL/URA UPDATE CONFIRM (Case II); which configures the UE with the new U-RNTI and indicates the uplink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation. The UE compares the uplink receive PDCP sequence number with the UE uplink send PDCP sequence number. If this confirms PDCP SDUs successfully transferred before the start of relocation ie already received by the source RNC then these are discarded by the UE.

If the UE has successfully configured itself, it shall send; a UTRAN MOBILITY INFORMATION CONFIRM (Case I and Case II). These messages contain the downlink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation. UTRAN compares the downlink receive PDCP sequence number with the downlink send PDCP sequence number. For the affected radio bearers, ~~The~~the RLC entity is re-established [2] with the current configuration. and in the UE RLC all the data buffers are flushed.

In case of failure; the UE shall send a UTRAN MOBILITY INFORMATION FAILURE (Case I) or CELL/URA UPDATE FAILURE (Case II) message.

Upon reception of the UTRAN MOBILITY INFORMATION CONFIRM/FAILURE (Case I and Case II) or CELL/URA UPDATE COMPLETE/FAILURE (Case II) message, UTRAN shall start the PDCP entity and the relocation procedure ends.

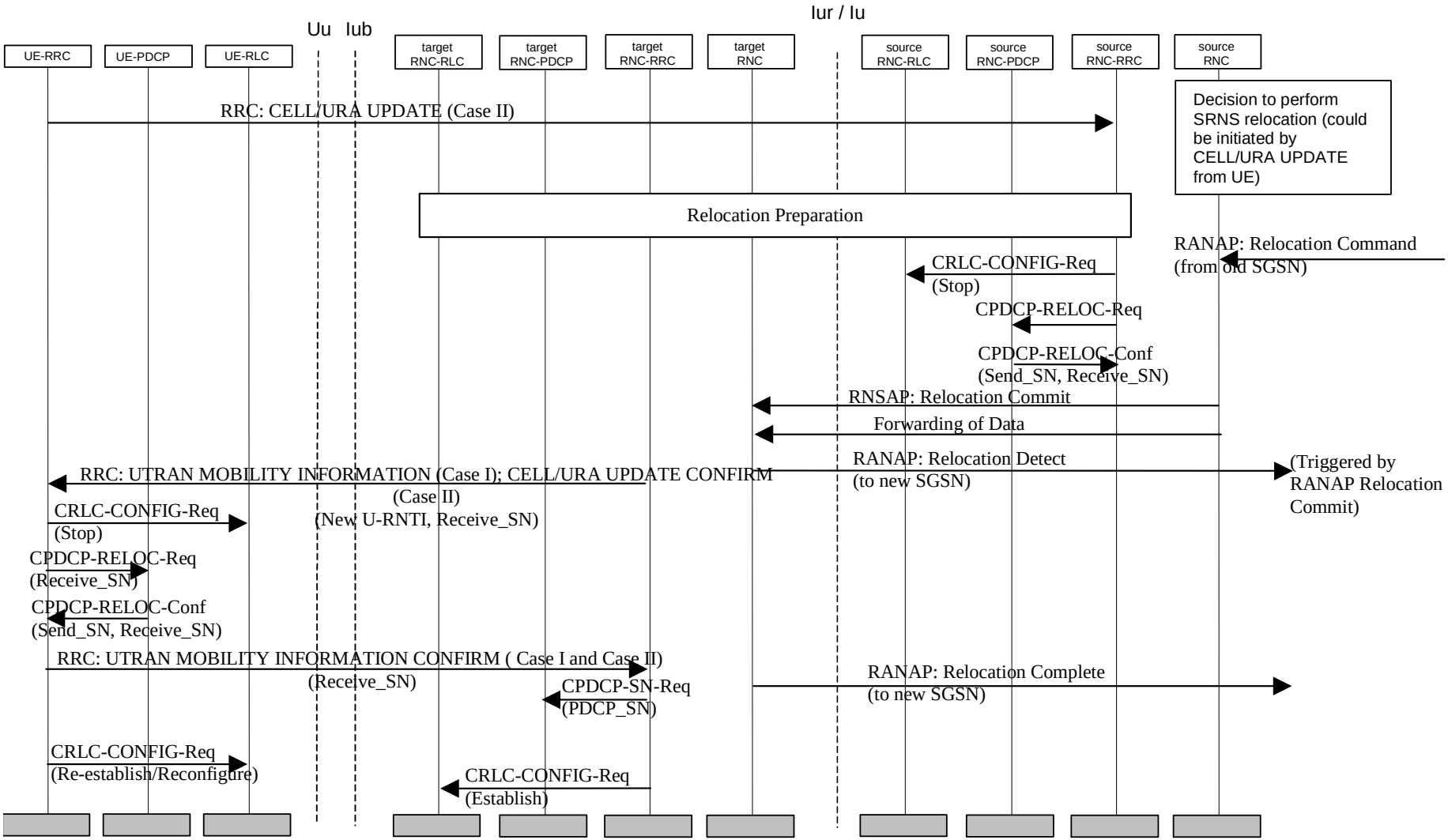

Figure 35: Serving and Combined Cell/URA Update SRNS relocation

6.4.8.2 Combined Hard Handover and SRNS relocation

Based on measurement results and knowledge of the UTRAN topology, the source SRNC decides to initiate a combined hard handover and SRNS relocation. The UE is still under control of the SRNC but is moving to a location controlled by the target RNC.

A RANAP Relocation Command is received by the source RNC from the CN, indicating the RABs to be released, the Target RNC to Source RNC Transparent Container and the RABs that are subject to data forwarding. Lossless SRNS relocation is always, and only, configured for RABs that are subject to data forwarding. The PDCP layer shall support PDCP sequence numbering when lossless SRNS relocation is supported [7].

The Target SNC to Source RNC Transparent Container includes the RRC message (XXX) for hard handover. Upon reception of the RANAP Relocation Command, the source RNC triggers the execution of the relocation of SRNS by sending message XXX to the UE. This message includes the new U-RNTI and the uplink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation. The UE compares the uplink receive PDCP sequence number with the uplink send PDCP sequence number. If this confirms PDCP SDUs successfully transferred before the start of relocation ie already received by the source RNC then these are discarded by the UE.

For the affected radio bearers, the RLC entity is suspended and the PDCP sequence numbers are retrieved by RRC. The PDCP send and receive sequence numbers are then transferred during the forwarding of SRNS contexts via the CN phase from source to target RNC for RABs that support lossless SRNS relocation. The target RNC becomes the serving RNC when the RANAP Relocation Detect message is sent.

If the UE has successfully configured itself, it shall send a XXX COMPLETE message to the target RNC. This message contains the downlink receive PDCP sequence number for each radio bearer configured to support lossless SRNS relocation. UTRAN compares the downlink receive PDCP sequence number with the downlink send PDCP sequence number. For the affected radio bearers, the RLC entity is re-established [2] with the current configuration~~.~~ and in the UE RLC all the data buffers are flushed.~~-~~

In case of failure, the UE shall send a XXX FAILURE message to the source~~target~~ RNC.

Upon reception of the XXX COMPLETE/FAILURE, UTRAN shall start the PDCP entity and the relocation procedure ends.

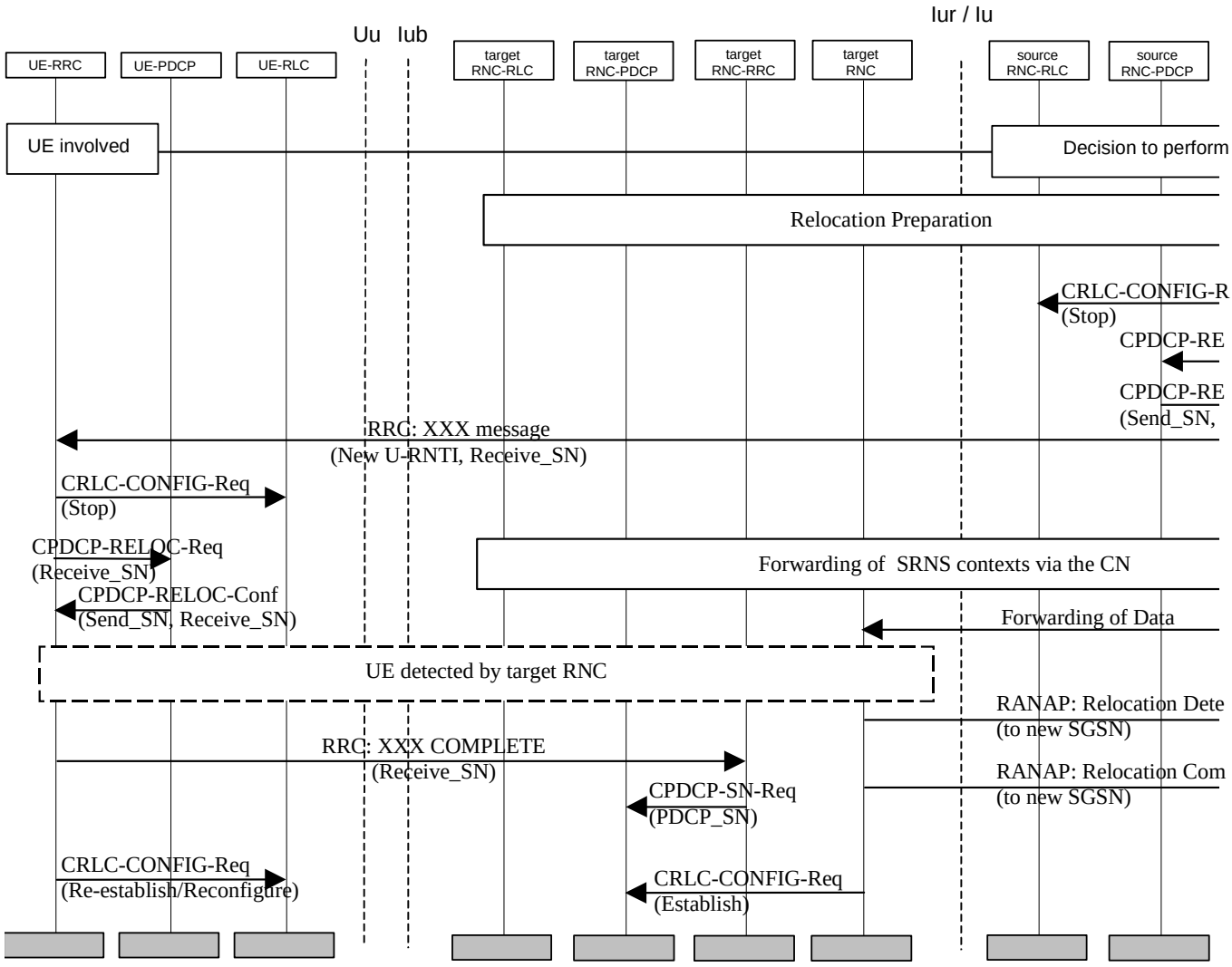

Figure 36: Combined Hard Handover and SRNS relocation

3GPP TSG-RAN WG2 Meeting #17 ***Tdoc R2-002432***
Sophia Antipolis, France, 13th-17th, November

CR-Form-v3

CHANGE REQUEST

⌘ **25.303 CR 040** ⌘ rev **-** ⌘ Current version: **3.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	Correction to relocation text
Source:	⌘	TSG-RAN WG2
Work item code:	⌘	***Date:*** ⌘ 14.11.00
Category:	⌘	**F** ***Release:*** ⌘ R99

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	In relocation description the figures are up-to-date as they indicate that RLC has to be stopped during relocation. However, the related text indicates that RLC has to be suspended. The suspension is another type function and having this conflict the specification is not clear. The send SN has been removed from UE side primitive CPDCP_RELOC-Conf from Figures 35 and 36 as it is unnecessary in there.
Summary of change:	⌘	From the relocation related test the words suspended is changed to stopped.
Consequences if not approved:	⌘	Specification remains confusing.

Clauses affected:	⌘	6.4.8.1, 6.4.8.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.4.8 SRNS Relocation

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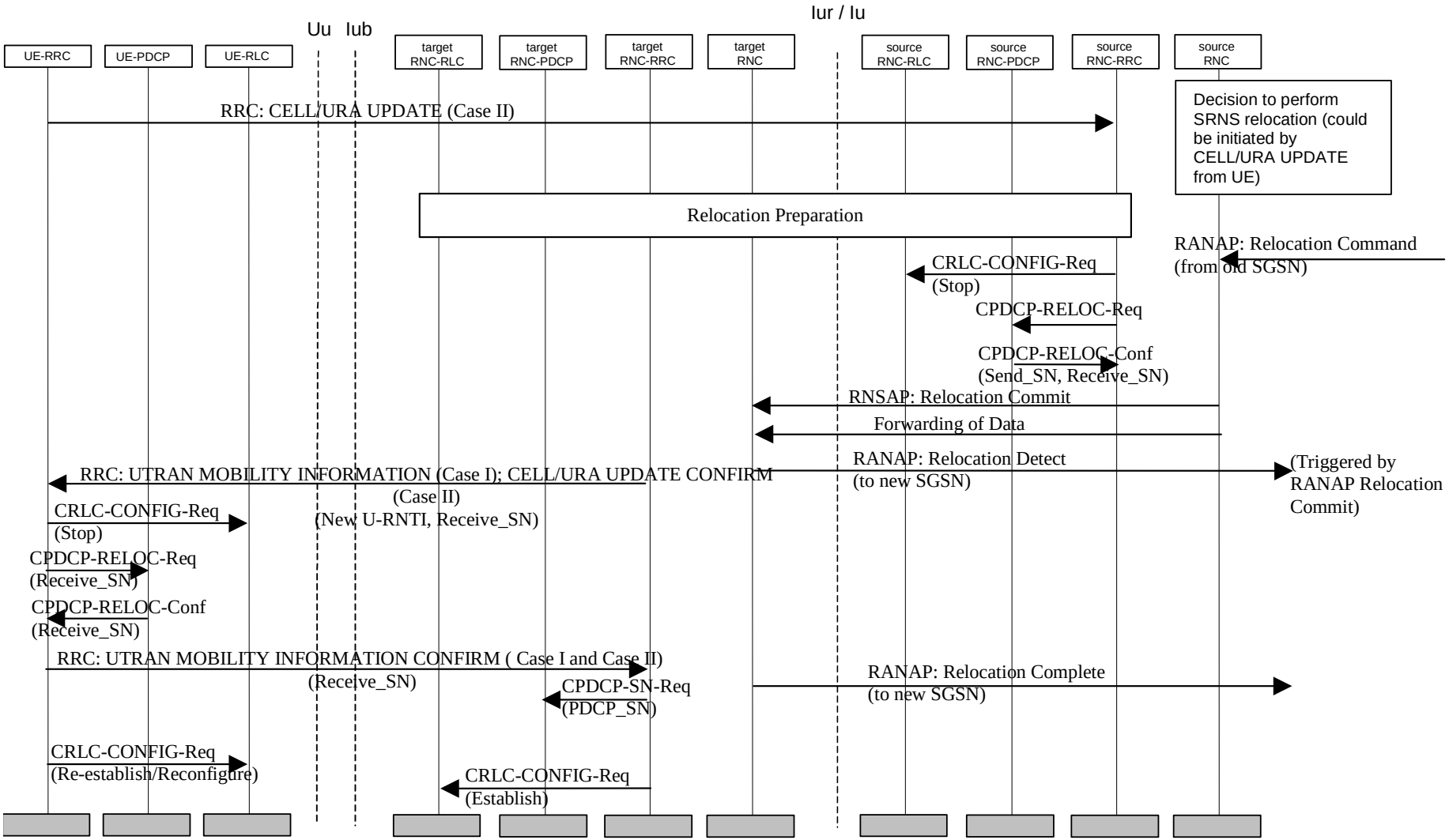
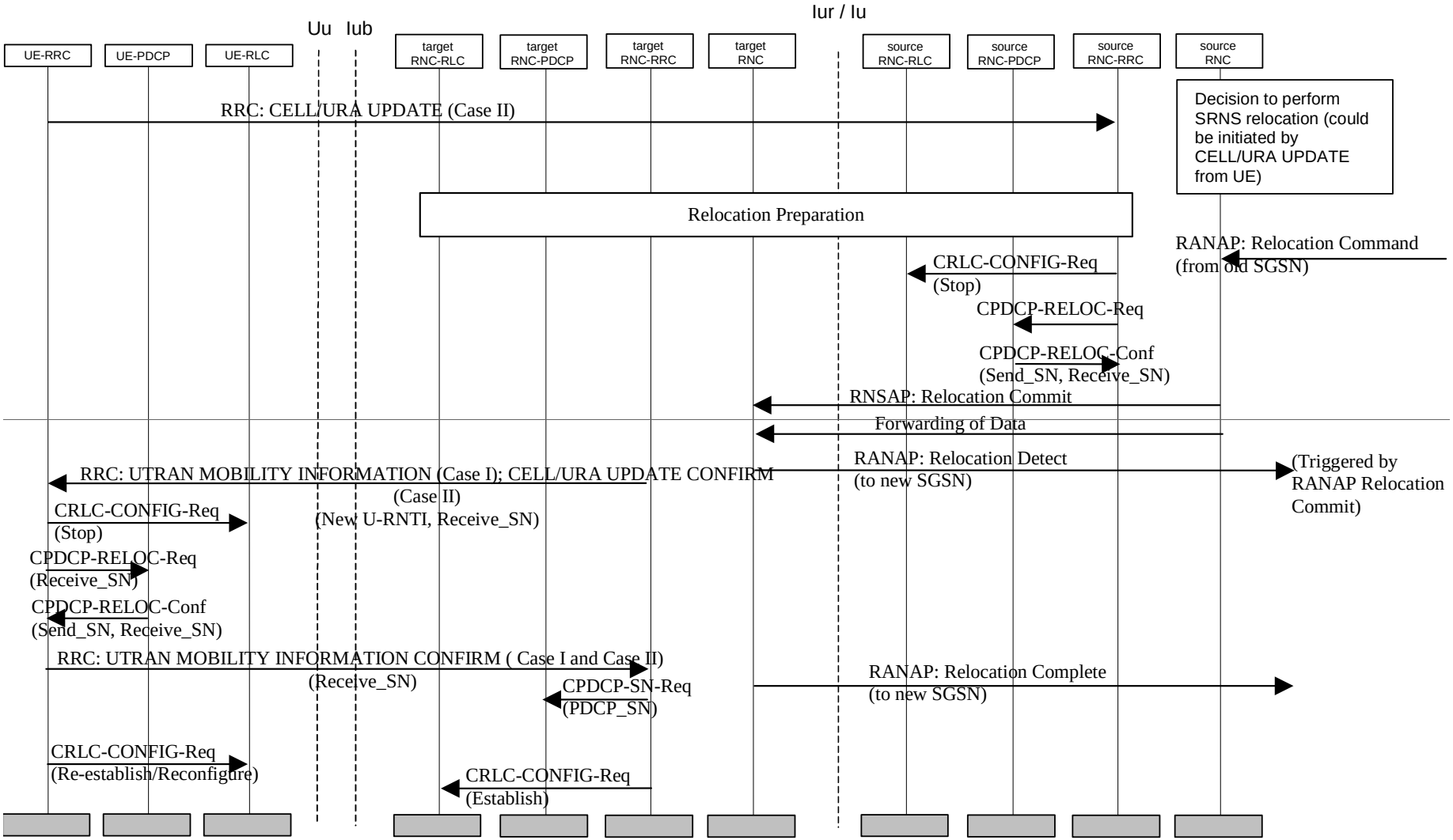

Iur / Iu
Uu
Iub
UE-RRC
UE-PDCP
UE-RLC
target RNC-RLC
target RNC-PDCP
target RNC-RRC
target RNC
source RNC-RLC
source RNC-PDCP
source RNC-RRC
source RNC
RRC: CELL/URA UPDATE (Case II)
Decision to perform SRNS relocation (could be initiated by CELL/URA UPDATE from UE)
Relocation Preparation
RANAP: Relocation Command (from old SGSN)
CRLC-CONFIG-Req (Stop)
CPDCP-RELOC-Req
CPDCP-RELOC-Conf (Send_SN, Receive_SN)
RNSAP: Relocation Commit
Forwarding of Data
RANAP: Relocation Detect (to new SGSN)
(Triggered by RANAP Relocation Commit)
RRC: UTRAN MOBILITY INFORMATION (Case I); CELL/URA UPDATE CONFIRM (Case II) (New U-RNTI, Receive_SN)
CRLC-CONFIG-Req (Stop)
CPDCP-RELOC-Req (Receive_SN)
CPDCP-RELOC-Conf (Receive_SN)
RRC: UTRAN MOBILITY INFORMATION CONFIRM (Case I and Case II) (Receive_SN)
CPDCP-SN-Req (PDCP_SN)
RANAP: Relocation Complete (to new SGSN)
CRLC-CONFIG-Req (Re-establish/Reconfigure)
CRLC-CONFIG-Req (Establish)



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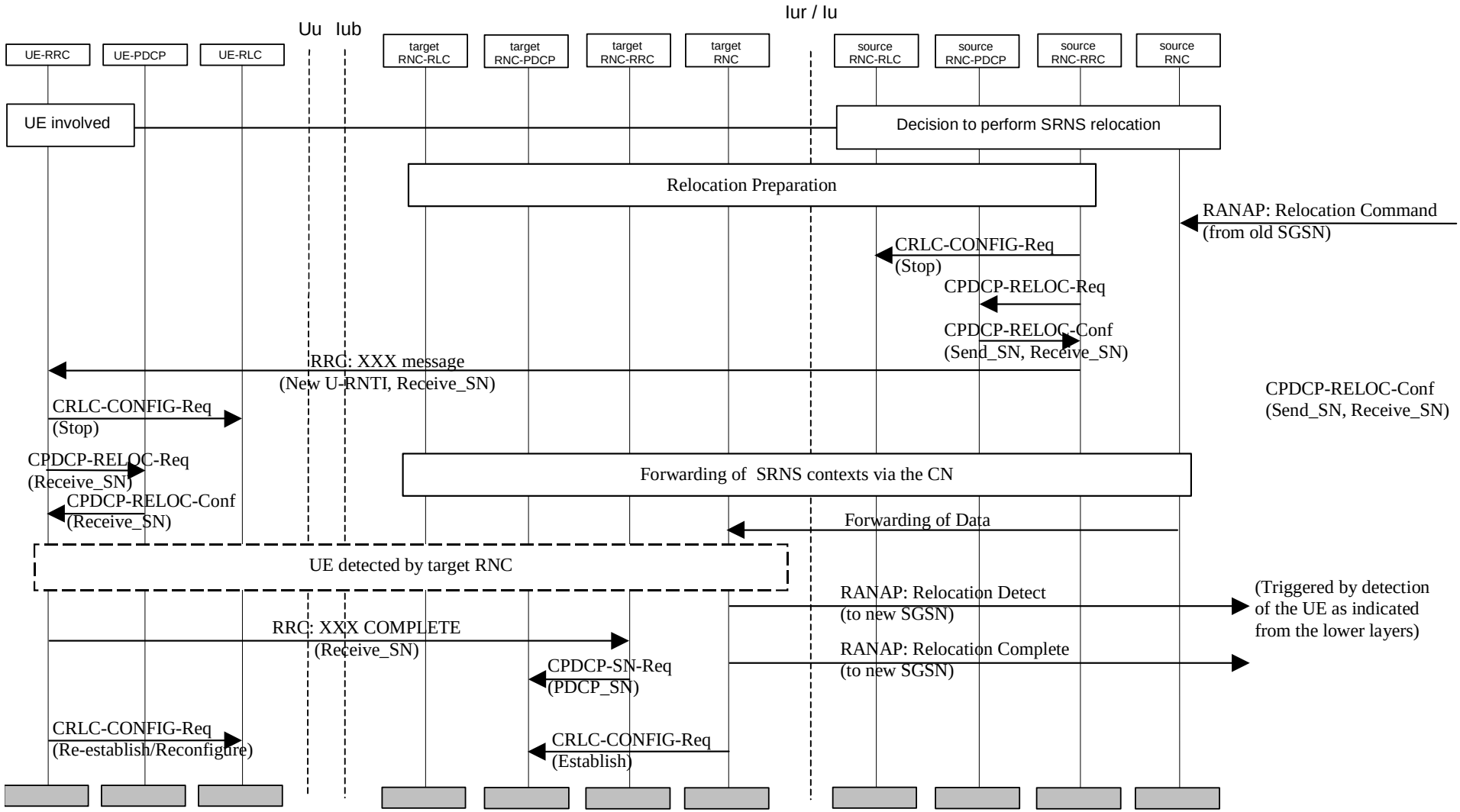
Iur / Iu
Uu
Iub
UE-RRC
UE-PDCP
UE-RLC
target RNC-RLC
target RNC-PDCP
target RNC-RRC
target RNC
source RNC-RLC
source RNC-PDCP
source RNC-RRC
source RNC
UE involved
Decision to perform SRNS relocation
Relocation Preparation
RANAP: Relocation Command
(from old SGSN)
CRLC-CONFIG-Req
(Stop)
CPDCP-RELOC-Req
CPDCP-RELOC-Conf
(Send_SN, Receive_SN)
RRC: XXX message
(New U-RNTI, Receive_SN)
CPDCP-RELOC-Conf
(Send_SN, Receive_SN)
CRLC-CONFIG-Req
(Stop)
CPDCP-RELOC-Req
(Receive_SN)
Forwarding of SRNS contexts via the CN
CPDCP-RELOC-Conf
(Receive_SN)
Forwarding of Data
UE detected by target RNC
RANAP: Relocation Detect
(to new SGSN)
(Triggered by detection of the UE as indicated from the lower layers)
RRC: XXX COMPLETE
(Receive_SN)
RANAP: Relocation Complete
(to new SGSN)
CPDCP-SN-Req
(PDCP_SN)
CRLC-CONFIG-Req
(Re-establish/Reconfigure)
CRLC-CONFIG-Req
(Establish)

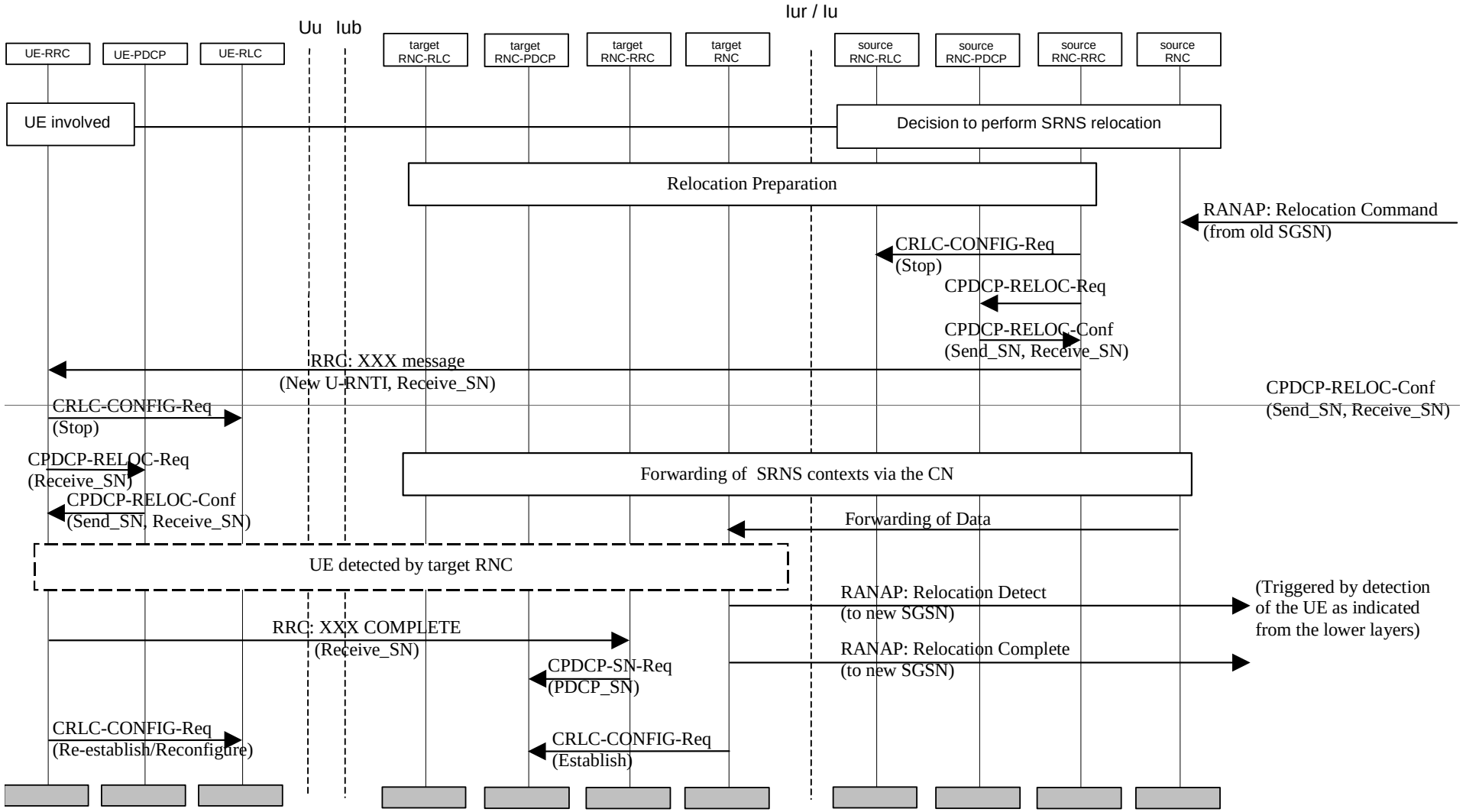

Figure 36: Combined Hard Handover and SRNS relocation