TSG-RAN Meeting #9
Hawaii, US, 20 - 22 September 2000

TSGRP#9(00)0392

Title: **Agreed CRs to TS 25.931**

Source: **TSG-RAN WG3**

Agenda item: **5.3.3**

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num
R3-001875	25.931	001	1	Corrections to a minor mistake present in the spec.	F	agreed	3.0.0	3.1.0
R3-001876	25.931	002	1	Introduction of new scenarios related to channel switching over Iur	F	agreed	3.0.0	3.1.0
R3-002201	25.931	003	1	Correction of timing and message name	F	agreed	3.0.0	3.1.0

CHANGE REQUEST

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25.931	CR	**001r1**	Current Version:	**3.0.0**

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

For submission to:	**RAN#9**	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

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

Source:	R-WG3	**Date:**	2000-06-28

Subject: Corrections to a minor mistake present in the spec

Work item:

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

				Release:	
F	Correction	**X**		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 Soft Handover examples, since a RL is the first radio link via the DRNC for the UE to be setup, RNSAP message that the SRNC send to the DRNC must be "Radio Link Setup Request" and not the "Radio Link Addition Request".

Clauses affected: 7.10.1 and 7.10.3

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: Thanks to Xu Mingyan of CHINA.GDT Corp. Ltd for the suggestion.

help.doc

<---------- double-click here for help and instructions on how to create a CR.
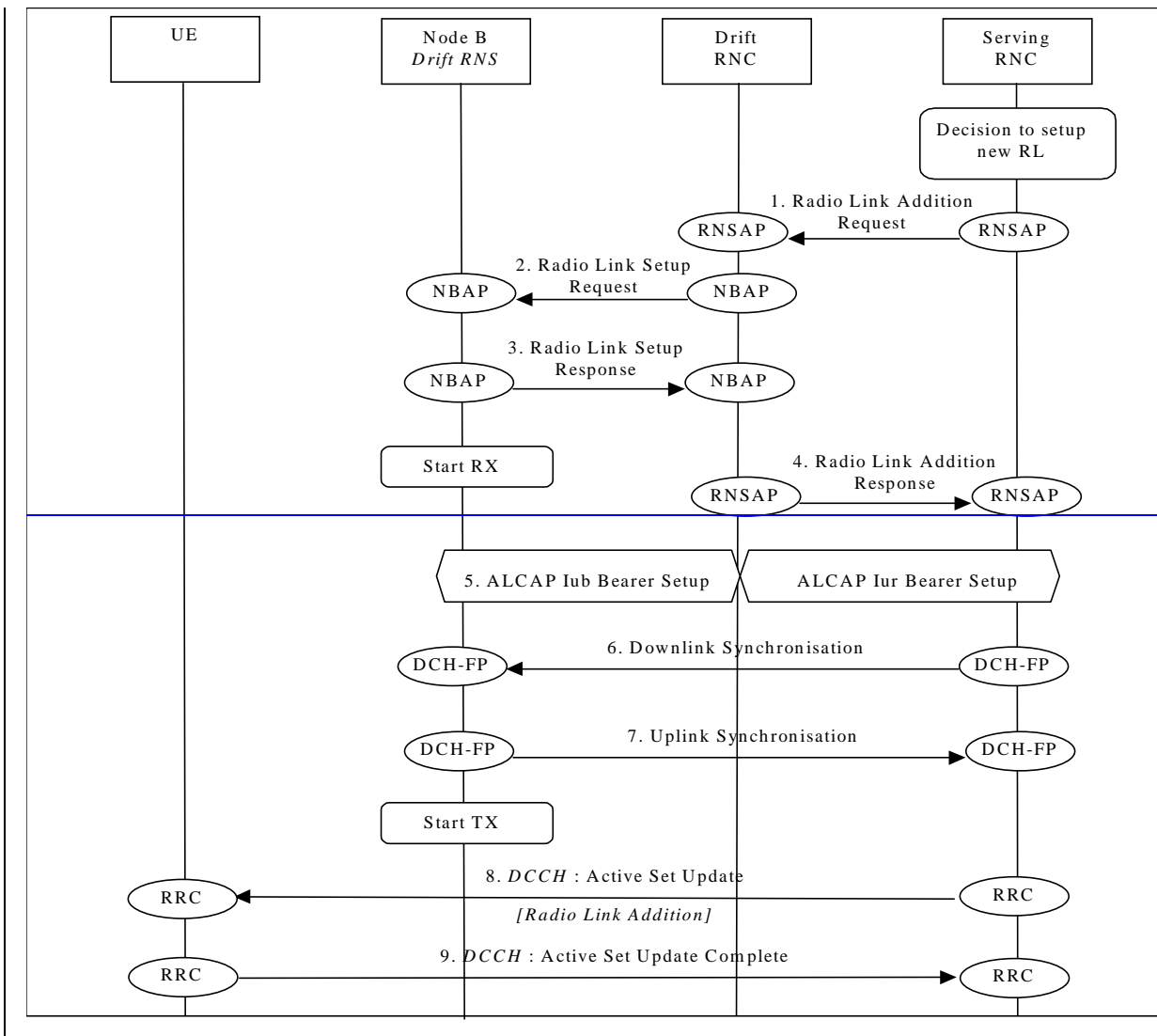
7.10　Soft Handover (FDD)

This subclause presents some examples of soft handover procedures. The following cases are considered:
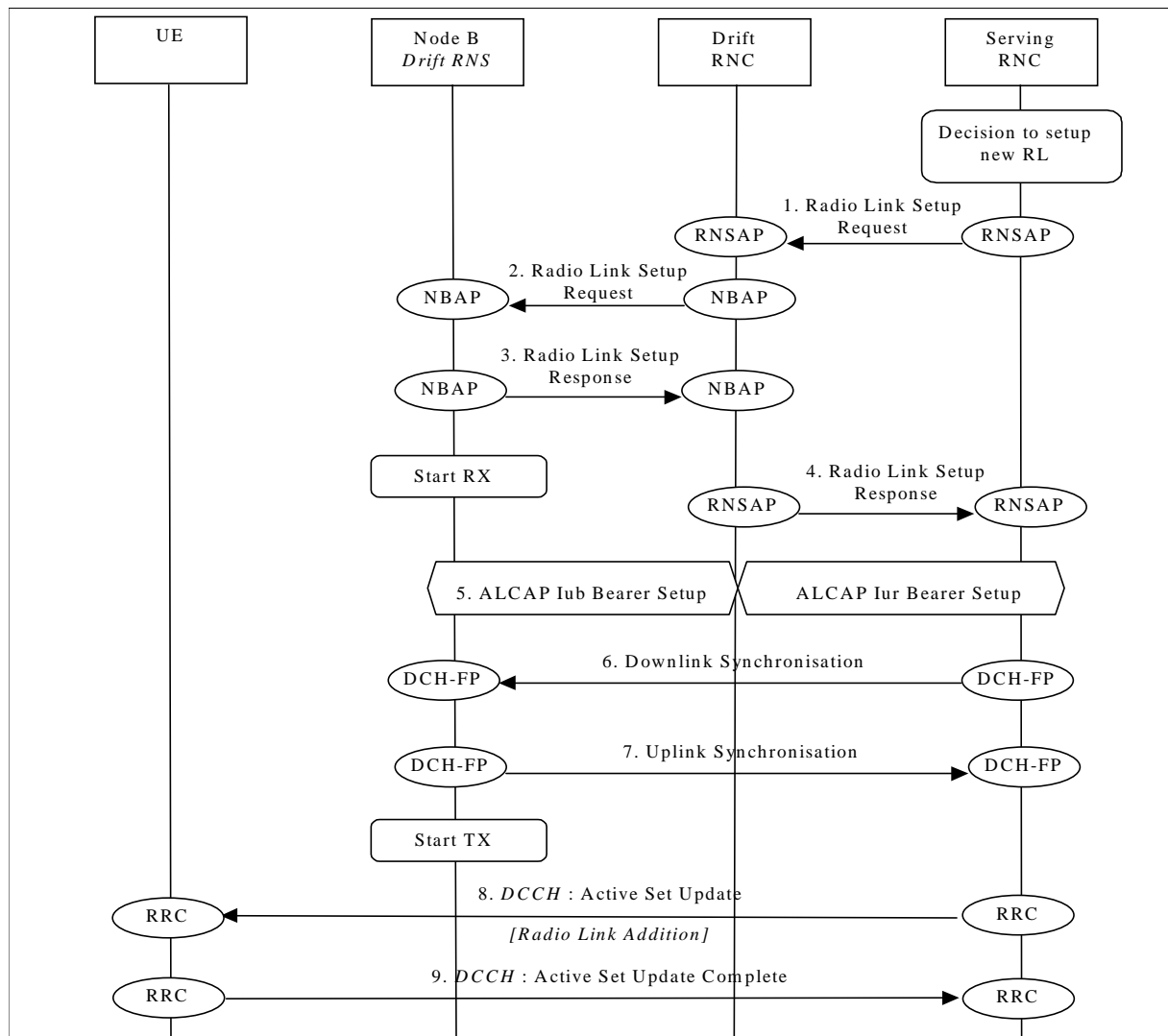
- Radio Link Addition (Branch Addition);

- Radio link Deletion (Branch Deletion);

- Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously).

Soft Handover applies only to FDD mode.

7.10.1　Radio Link Addition (Branch Addition)

This example shows establishment of a radio link via a Node B controlled by another RNC than the serving RNC. This is the first radio link to be established via this RNS, thus macro-diversity combining/splitting with already existing radio links within DRNS is not possible.

Figure 24: Soft Handover - Radio Link Addition (Branch Addition)

1. SRNC decides to setup a radio link via a new cell controlled by another RNC. SRNC requests DRNC for radio resources by sending RNSAP message **Radio Link ~~Addition~~ Setup Request**. If this is the first radio link via the DRNC for this UE, a new Iur signalling connection is established. This Iur signalling connection will be used for all RNSAP signalling related to this UE.
   Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

2. If requested resources are available, DRNC sends NBAP message **Radio Link Setup Request** to Node B.
   Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

3. Node B allocates requested resources. Successful outcome is reported in NBAP message **Radio Link Setup Response**.
   Parameters: Signalling link termination, Transport layer addressing information (AAL2 address, AAL2 Binding Identitie(s)) for Data Transport Bearer(s).
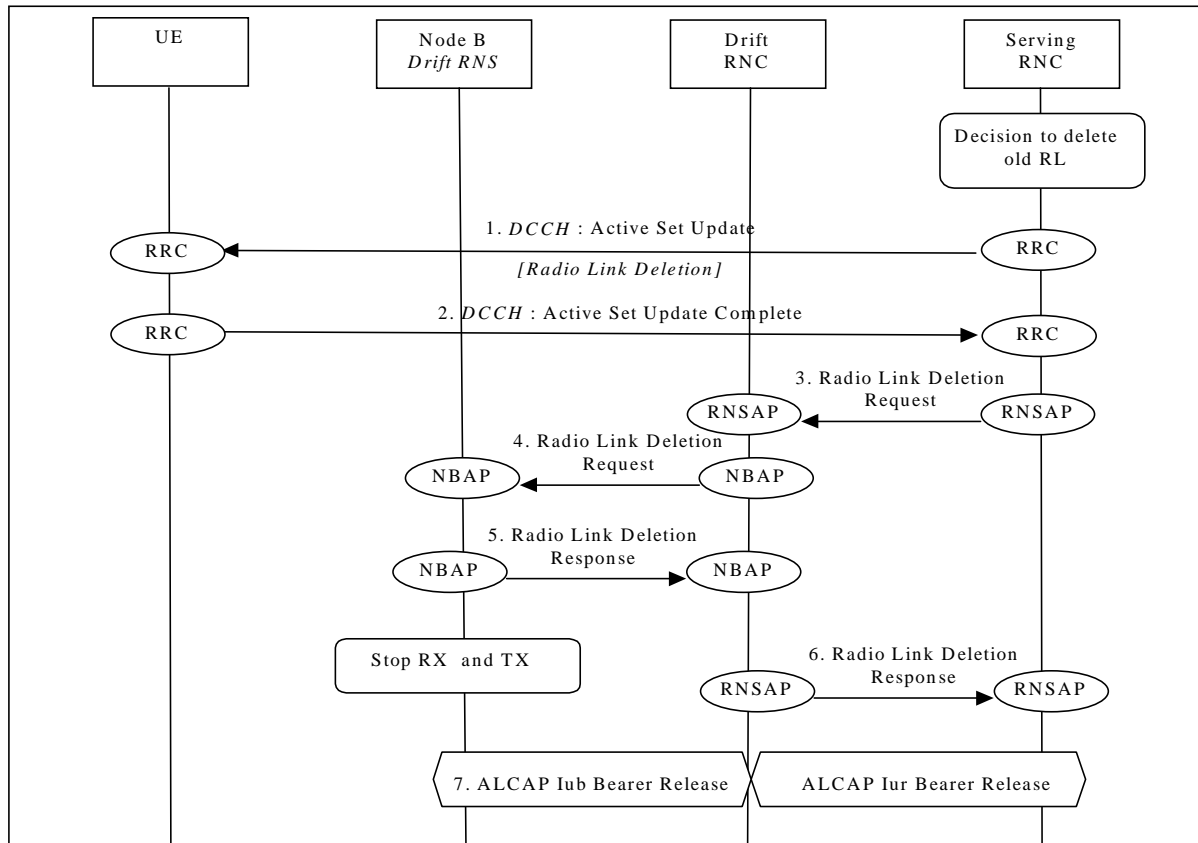
   Then Node B starts the UL reception.

4. DRNC sends RNSAP message **Radio Link ~~Addition~~ Setup Response** to SRNC.
   Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Identity) for Data Transport Bearer(s), Neighbouring cell information.

5. SRNC initiates setup of Iur/Iub Data Transport Bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
   This may be repeated for each Iur/Iub Data Transport Bearer to be setup.

6./7. Node B and SRNC establish synchronism for the Data Transport Bearer(s) by means of exchange of the appropriate DCH Frame Protocol frames **Downlink Synchronisation** and **Uplink Synchronisation**, relative already existing radio link(s). Then Node B starts DL transmission.

8. SRNC sends RRC message **Active Set Update** (Radio Link Addition) to UE on DCCH.
Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

9. UE acknowledges with RRC message **Active Set Update Complete**.

7.10.2   Radio link Deletion (Branch Deletion)

This example shows deletion of a radio link belonging to a Node B controlled by another RNC than the serving RNC.

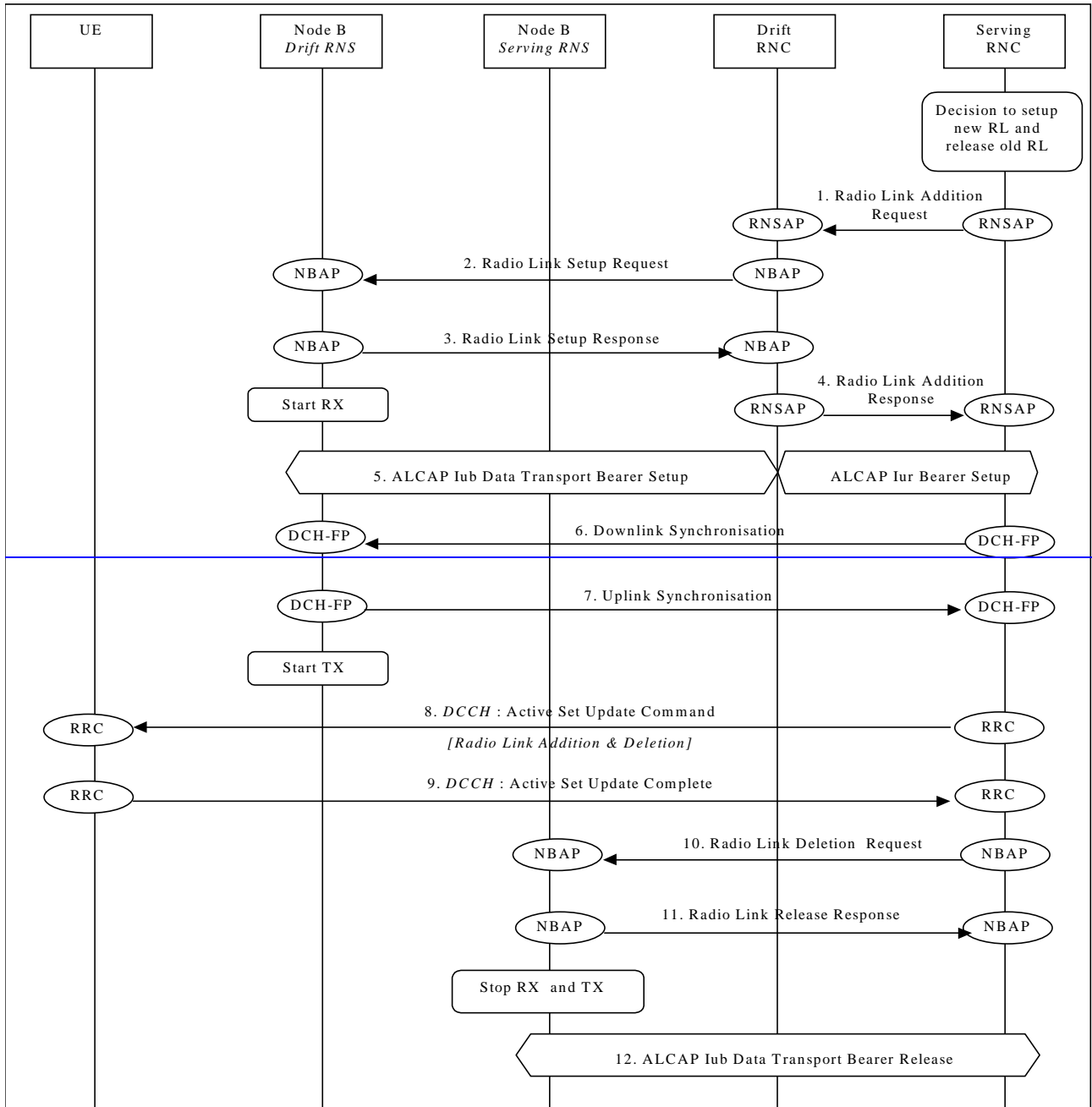**Figure 25: Soft Handover - Radio Link Deletion (Branch Deletion)**

   1. SRNC decides to remove a radio link via an old cell controlled by another RNC. SRNC sends RRC message **Active Set Update** (Radio Link Deletion) to UE on DCCH.
Parameters: Update type, Cell id.

2. UE deactivates DL reception via old branch, and acknowledges with RRC message **Active Set Update Complete**.

3. SRNC requests DRNC to deallocate radio resources by sending RNSAP message **Radio Link Deletion Request**.
Parameters: Cell id, Transport layer addressing information.

4. DRNC sends NBAP message **Radio Link Deletion Request** to Node B.
Parameters: Cell id, Transport layer addressing information.

5. Node B deallocates radio resources. Successful outcome is reported in NBAP message **Radio Link Deletion Response**.

6. DRNC sends RNSAP message **Radio Link Deletion Response** to SRNC.

7. SRNC initiates release of Iur/Iub Data Transport Bearer using ALCAP protocol.

7.10.3   Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously)

This example shows simultaneous deletion of a radio link belonging to a Node B controlled by the serving RNC and the establishment of a radio link via a Node B controlled by another RNC than the serving RNC. This is the first radio link

to be established via this RNS, thus macro-diversity combining/splitting with already existing radio links within DRNS is not possible.

This procedure is needed when the maximum number of branches allowed for the macrodiversity set has already been reached.
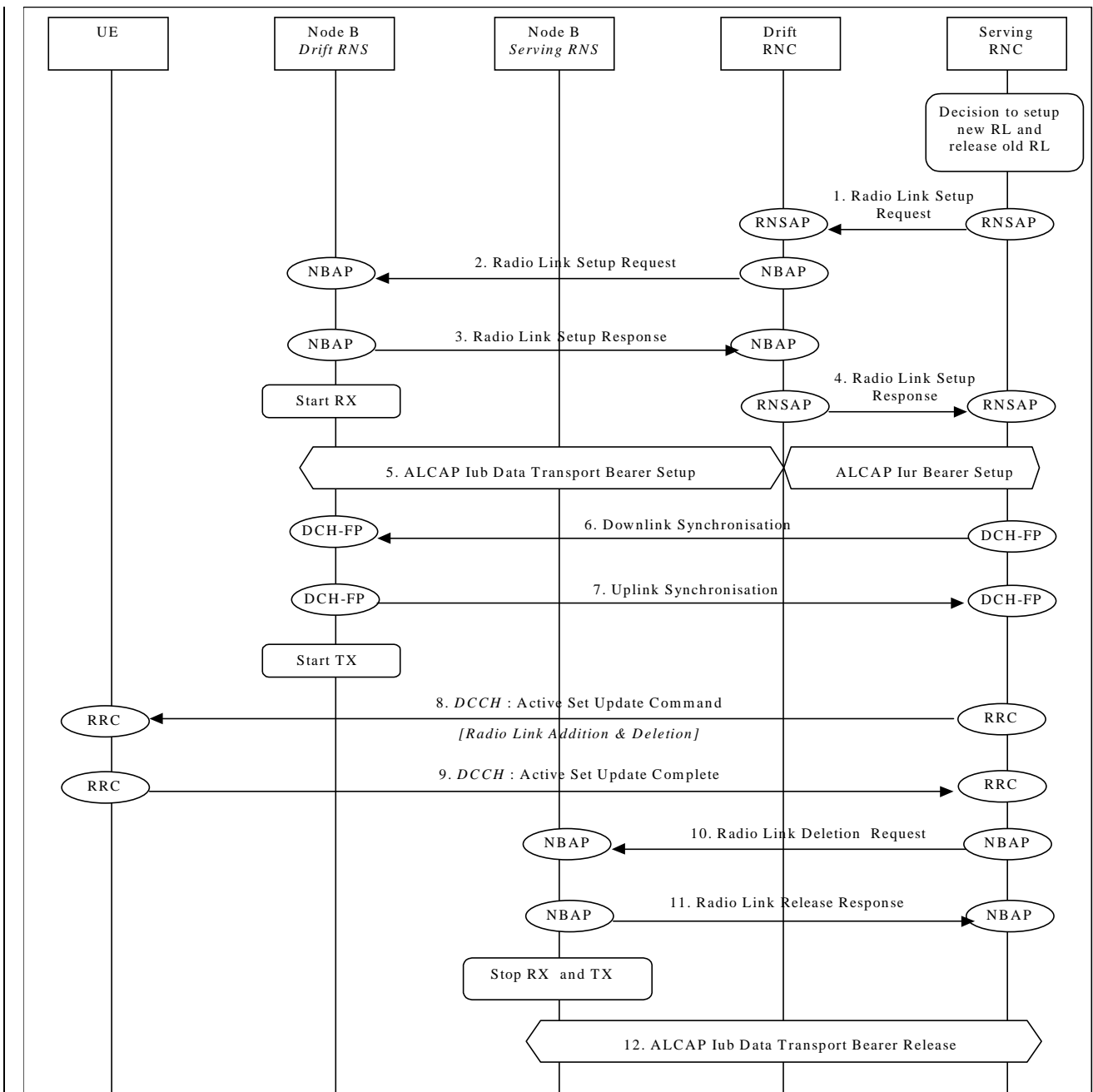
Figure 26: Soft Handover - Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously)

1.   ⇒ 7. See description 1. ⇒ 7. in subclause 7.10.1.

8.   SRNC sends RRC message **Active Set Update** (Radio Link Addition & Deletion) to UE on DCCH. Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

9.   UE deactivates DL reception via old branch, activates DL reception via new branch and acknowledges with RRC message **Active Set Update Complete**.

10. ⇒ 12. See description 3. ⇒ 7. in subclause 7.10.2.

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25.931	CR	**002r1**	Current Version:	3.0.0

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

For submission to:	**RAN#9**	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

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 [　] 　UTRAN / Radio [**X**] 　Core Network [　]

Source:	R-WG3		**Date:**	2000-06-28

Subject:	Introduction of new scenarios related to channel switching over Iur

Work item:	

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

			Release:	
F	Correction	**X**	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:	Inclusion of significant scenarios for better comprehension of channel switching and its related problems with solutions envisaged

Clauses affected:	New subchapter added, whose numbering is 7.18

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:	Thanks to Ericsson whose tdoc R3-001377, presented at R3#13, envisages an interesting scenario to be investigated. Updating of 25.931 seems mandatory.

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

7.18 Channel and Mobile State Switching on Iur

7.18.1 General Description

This subclause shows an example of switching of a mobile protocol state to another, while Iur is used, thus involving RNSAP procedures.

7.18.2 Switching from Cell_FACH to Cell_DCH State

The following examples show switching of protocl state from Cell_FACH to Cell_DCH providing UE with information on RACH/FACH flows and involving DRNC and Iur.

The resulting sequence is the following:
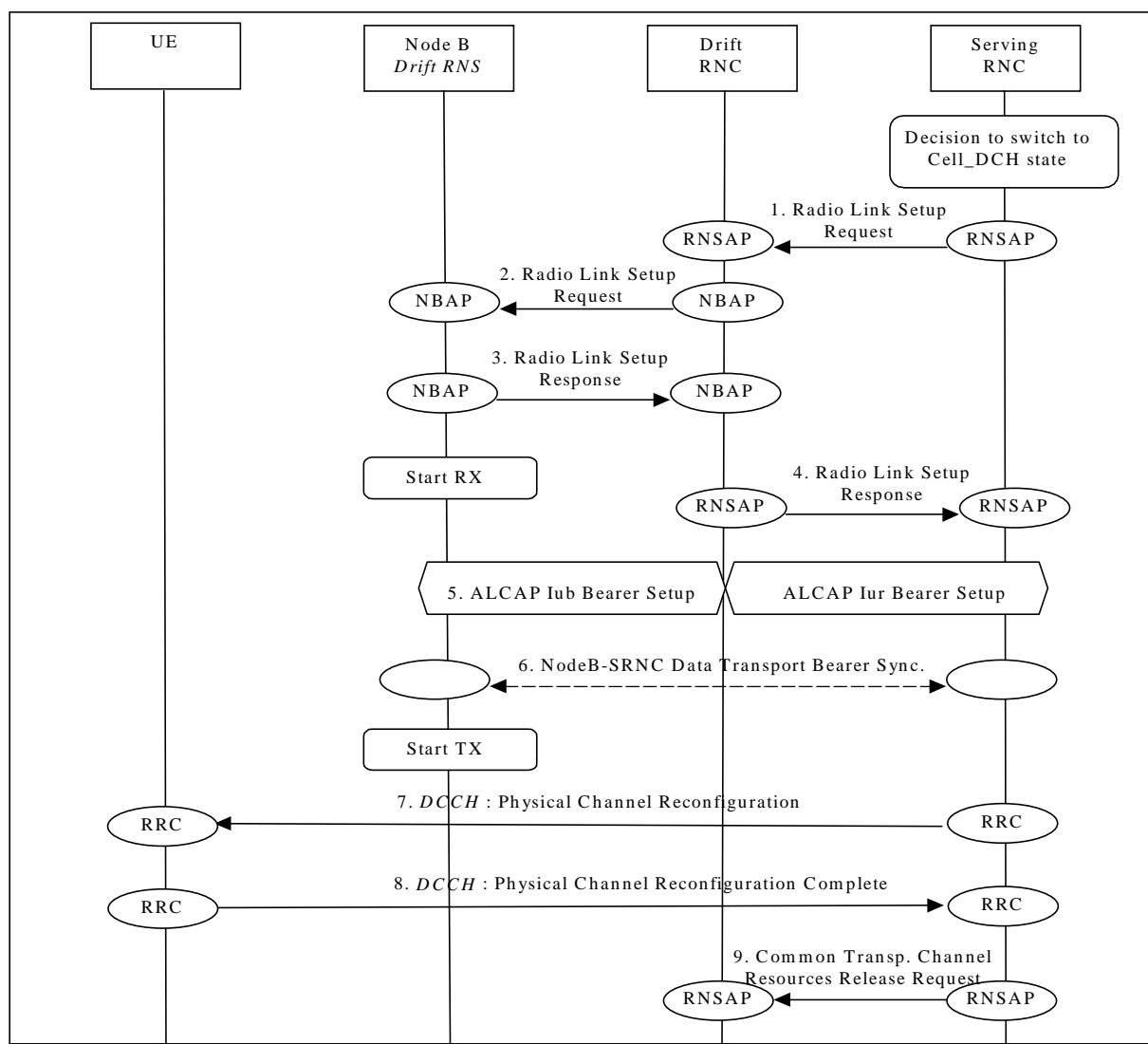
1. SRNC decides to switch to CELL_DCH state, setting up a new radio link via a new cell controlled by DRNC.

   SRNC requests DRNC for radio resources by sending RNSAP message **Radio Link Setup Request**. If this is the first radio link via the DRNC for this UE, a new Iur signalling connection is established. This Iur signalling connection will be used for all RNSAP signalling related to this UE.
   Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

2. DRNC sends NBAP message **Radio Link Setup Request** to Node B.
   Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

3. Successful outcome is reported in NBAP message **Radio Link Setup Response**.
   Parameters: Signalling link termination, Transport layer addressing information (AAL2 address, AAL2 Binding Identitie(s)) for Data Transport Bearer(s).

   Then Node B starts the UL reception.

4. DRNC sends RNSAP message **Radio Link Setup Response** to SRNC.
   Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Identity) for Data Transport Bearer(s), Neighbouring cell information.

5. SRNC initiates setup of Iur, while DRNC is in charge to setup Iub, Data Transport Bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
   Note: there is not a time relation between set up of Iur and Iub. Both must be carried out before next step.

6. Node B and SRNC establish synchronism for the Data Transport Bearer by means of exchange of the appropriate DCH Frame Protocol frames via **Downlink Synchronisation** and **Uplink Synchronisation**, relative to already existing radio link(s).

   Then Node B starts DL transmission.

7. SRNC sends RRC message **Physical Channel Reconfiguration** to UE on DCCH.
   Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

8. After the reconfiguration, the UE sends RRC message **Physical Channel Reconfiguration Complete** to SRNC.

9. The SRNC releases the UE context for CELL_FACH state in the source DRNC by sending a **Common Transport Channel Resources Release** message.

7.18.3   Switching from Cell_DCH to Cell_FACH State

In the this scenario the SRNC needs to get the C-RNTI from DRNC to be able to indicate to the UE a new C-RNTI and which cell it is valid in (given by the Primary Scrambling Code).

The SRNC also needs to get either:

1. information in the RACH and/or FACH to be used (if the DRNC selects RACH and/or FACH in a different way than the UE would do based on broadcast information) including User Plane flow control information for the Iur FACH FP.

2. User Plane flow control information for the FACH (Secondary CCPCH) that the UE selects if no Secondary CCPCH information is provide to the UE in the RRC Physical Channel Reconfiguration message

If receiving the C-ID the DRNC shall allocate a C-RNTI and provide it together with the Primary CPICH information to the SRNC. Further more, if the DRNC would like to select another RACH and/or FACH than the UE would select based on the broadcast information the DRNC also provides information on the DRNC Selected RACH and/or FACH (alternative 1). If the DRNC does not select any FACH the DRNC shall provide the user plane flow control information (alternative 2).

The above solution would result in the following sequence:
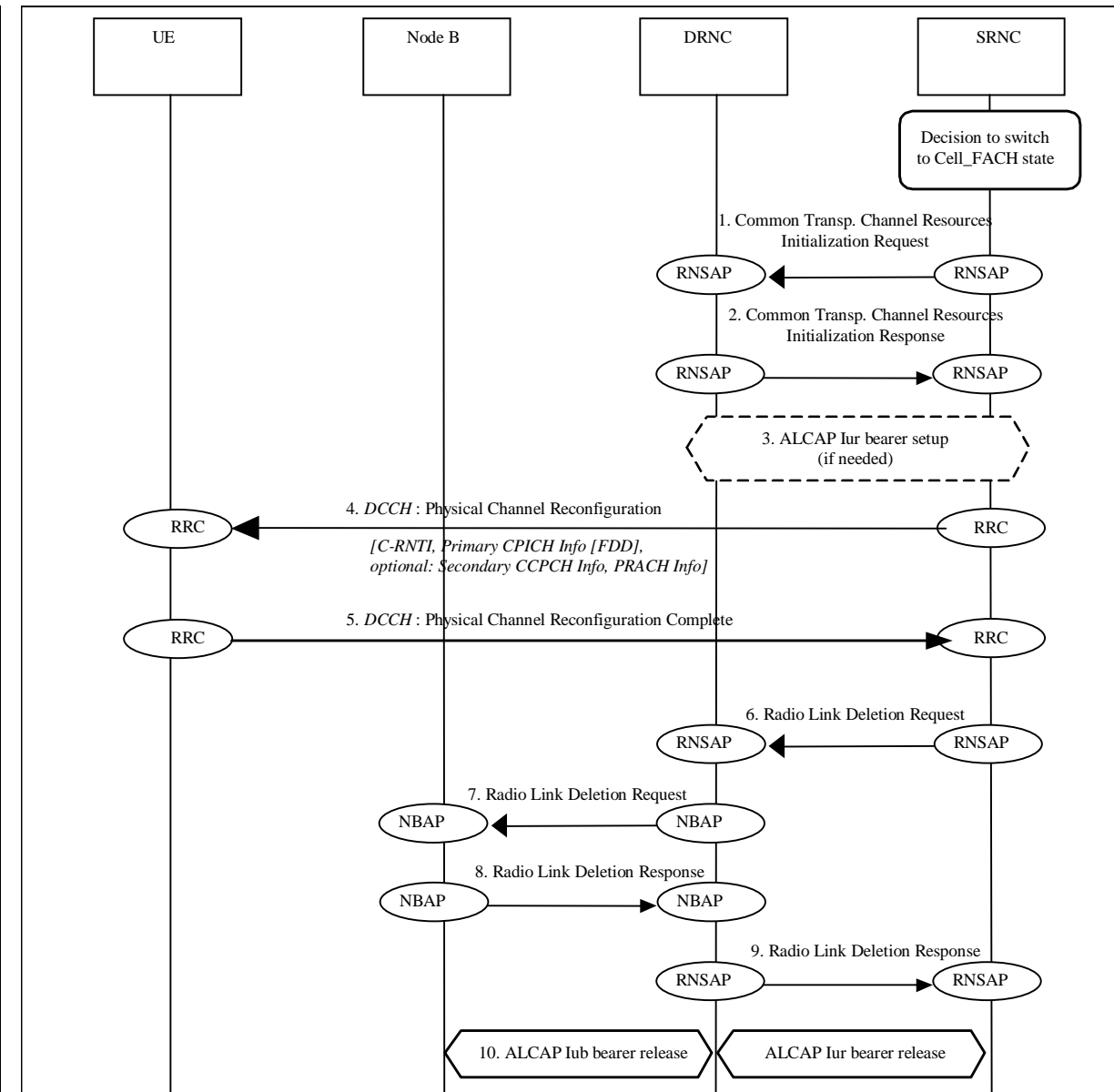
1. SRNC decides to switch to CELL_FACH state, releasing its present radio link via a the cell controlled by DRNC.

   The SRNC decides to setup a common channel for the UE via DRNC, informing DRNC with C-ID IE of the UE in order to obtain C-RNTI (allocated in the next step by DRNC) needed for RRC messages. This setup is done with the RNSAP **Common Transport Channel Resources Initialisation Request** message.

2. The target DRNC sends the transport layer address, binding identity and C-RNTI to the SRNC with the RNSAP **Common Transport Channel Resources Initialisation Response** message

3. SRNC initiates setup of Iur/Iub Data Transport Bearer (if needed) using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer.

4. SRNC sends RRC message **Physical Channel Reconfiguration** to UE on DCCH, with new C-RNTI and identification of the cell where it is valid.

5. After the reconfiguration, the UE sends RRC message **Physical Channel Reconfiguration Complete** to SRNC. Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

6. SRNC releases DRNC for radio resources allocated for DCH by sending RNSAP message **Radio Link Deletion Request**
   Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

7. DRNC sends NBAP message **Radio Link Deletion Request** to Node B.

8. Successful outcome is reported in NBAP message **Radio Link Deletion Response**.

9. DRNC sends RNSAP message **Radio Link Deletion Response** to SRNC.

10. Not used resources in-DRNC and Node B (Drift RNS) are released. DRNC initiates release of Iub and SRNC of Iur Data Transport bearer using ALCAP protocol.
Note: there is not a time relation between set up of Iur and Iub. Both must be carried out before next step.

3GPP TSG-RAN WG3 Meeting #15
Berlin, Germany, 21-25 Aug 2000

Document ***R3-002201***

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25.931	CR	003r1		Current Version:	3.0.0

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

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↑

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for information ☐

strategic ☐
non-strategic ☐

(for SMG use only)

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: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network ☐
(at least one should be marked with an X)

Source	R-WG3	**Date:**	8/2000

Subject:	Correction of timing and message name

Work item:	

Category:

	F	Correction	**X**
(only one category	A	Corresponds to a correction in an earlier release	☐
shall be marked	B	Addition of feature	☐
with an X)	C	Functional modification of feature	☐
	D	Editorial modification	☐

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	**X**
Release 00	☐

Reason for change:	Rev 1. Text in 7.10.1 is in line with the figure.
	For the consistency of the definitions of RL Setup Response/RL Deletion Response message in NBAP and the signalling procedure, this contribution proposes to modify the flow.
	(After Node B starts Rx, then sends RL Seup Response. And also after Node B stops Rx & Tx, then sends RL Deletion Resopnse)
	And this contribution also replaces Handover Command message to Inter-System Handover Command message as in RRC specification in case inter system handover.

Clauses affected:	7.10.1, 7.10.2, 7.10.3, 7.13.1, 7.13.5

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:	

7.10 Soft Handover (FDD)

This subclause presents some examples of soft handover procedures. The following cases are considered:

- Radio Link Addition (Branch Addition);

- Radio link Deletion (Branch Deletion);

- Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously).

Soft Handover applies only to FDD mode.

7.10.1 Radio Link Addition (Branch Addition)

This example shows establishment of a radio link via a Node B controlled by another RNC than the serving RNC. This is the first radio link to be established via this RNS, thus macro-diversity combining/splitting with already existing radio links within DRNS is not possible.

UE	Node B	Drift	Serving
	Drift RNS	RNC	RNC

Decision to setup new RL

1. Radio Link Addition Request

RNSAP ← RNSAP

2. Radio Link Setup Request

NBAP ← NBAP

3. Radio Link Setup Response

NBAP → NBAP

Start RX

4. Radio Link Addition Response

RNSAP → RNSAP

5. ALCAP Iub Bearer Setup   ALCAP Iur Bearer Setup

6. Downlink Synchronisation

DCH-FP ← DCH-FP

7. Uplink Synchronisation

DCH-FP → DCH-FP

Start TX

8. *DCCH* : Active Set Update

RRC ← RRC

[Radio Link Addition]

9. *DCCH* : Active Set Update Complete

RRC → RRC

Figure 24: Soft Handover - Radio Link Addition (Branch Addition)

1. SRNC decides to setup a radio link via a new cell controlled by another RNC. SRNC requests DRNC for radio resources by sending RNSAP message **Radio Link Addition Request**. If this is the first radio link via the DRNC for this UE, a new Iur signalling connection is established. This Iur signalling connection will be used for all RNSAP signalling related to this UE.
Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

2. If requested resources are available, DRNC sends NBAP message **Radio Link Setup Request** to Node B.
Parameters: Cell id, Transport Format Set per DCH, Transport Format Combination Set, frequency, UL scrambling code.

   <u>Then Node B starts the UL reception.</u>

3. Node B allocates requested resources. Successful outcome is reported in NBAP message **Radio Link Setup Response**.
Parameters: Signalling link termination, Transport layer addressing information (AAL2 address, AAL2 Binding Identitie(s)) for Data Transport Bearer(s).
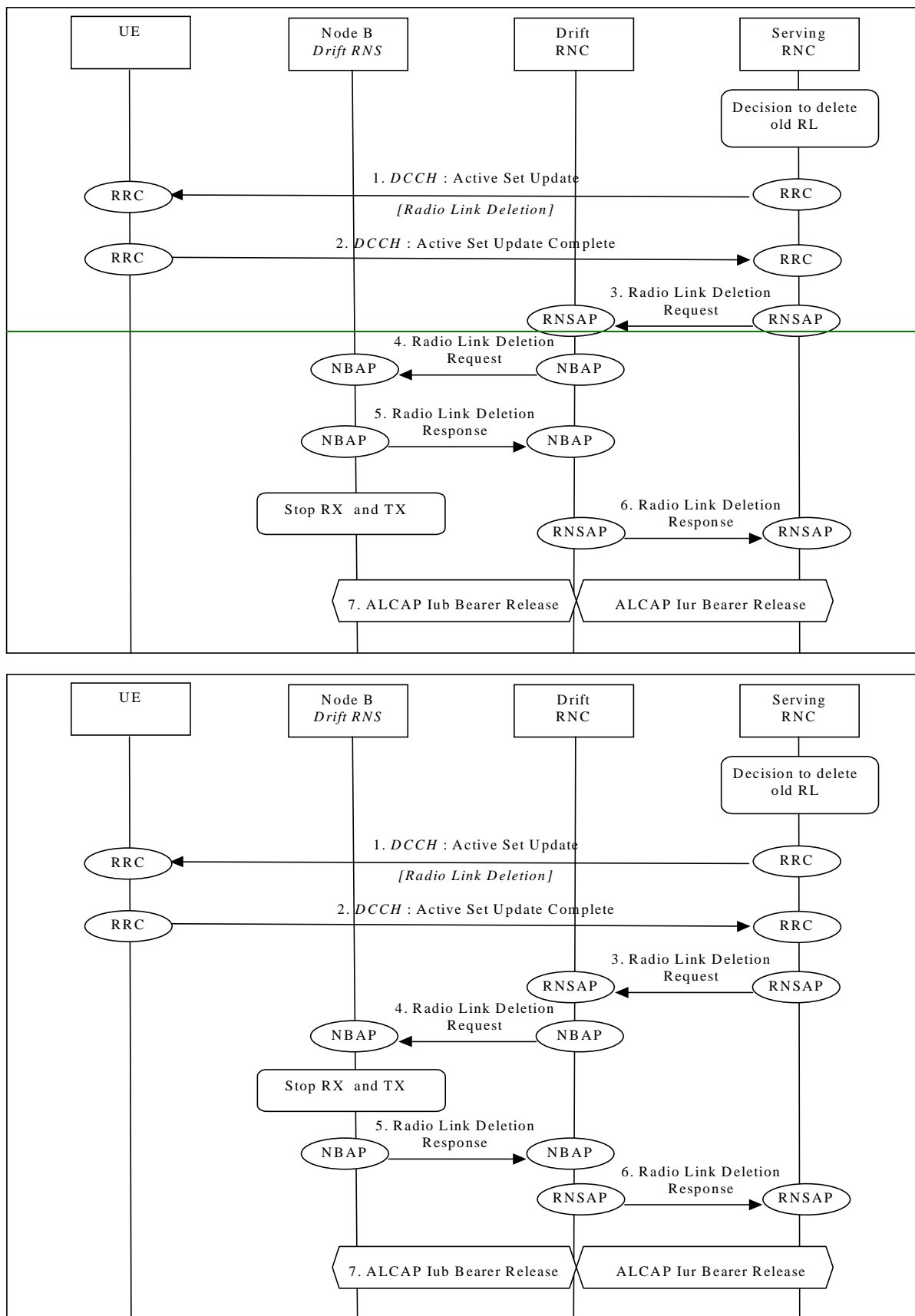
   ~~Then Node B starts the UL reception.~~

4. DRNC sends RNSAP message **Radio Link Addition Response** to SRNC.
Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Identity) for Data Transport Bearer(s), Neighbouring cell information.

5. SRNC initiates setup of Iur/Iub Data Transport Bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
    This may be repeated for each Iur/Iub Data Transport Bearer to be setup.

6./7. Node B and SRNC establish synchronism for the Data Transport Bearer(s) by means of exchange of the appropriate DCH Frame Protocol frames **Downlink Synchronisation** and **Uplink Synchronisation**, relative already existing radio link(s). Then Node B starts DL transmission.

8. SRNC sends RRC message **Active Set Update** (Radio Link Addition) to UE on DCCH.
    Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

9. UE acknowledges with RRC message **Active Set Update Complete**.

7.10.2   Radio link Deletion (Branch Deletion)

This example shows deletion of a radio link belonging to a Node B controlled by another RNC than the serving RNC.

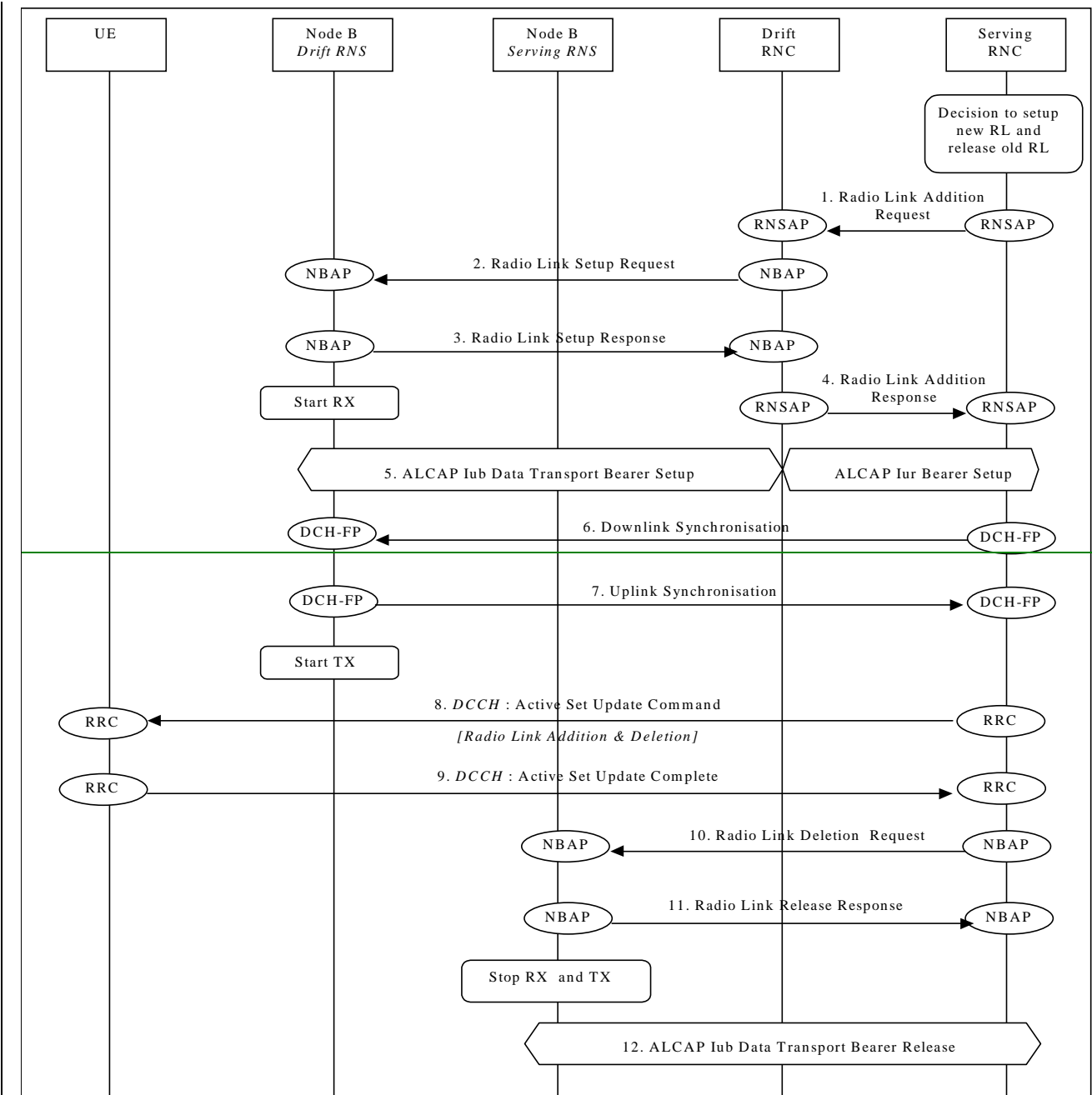**Figure 25: Soft Handover - Radio Link Deletion (Branch Deletion)**

1. SRNC decides to remove a radio link via an old cell controlled by another RNC. SRNC sends RRC message **Active Set Update** (Radio Link Deletion) to UE on DCCH.
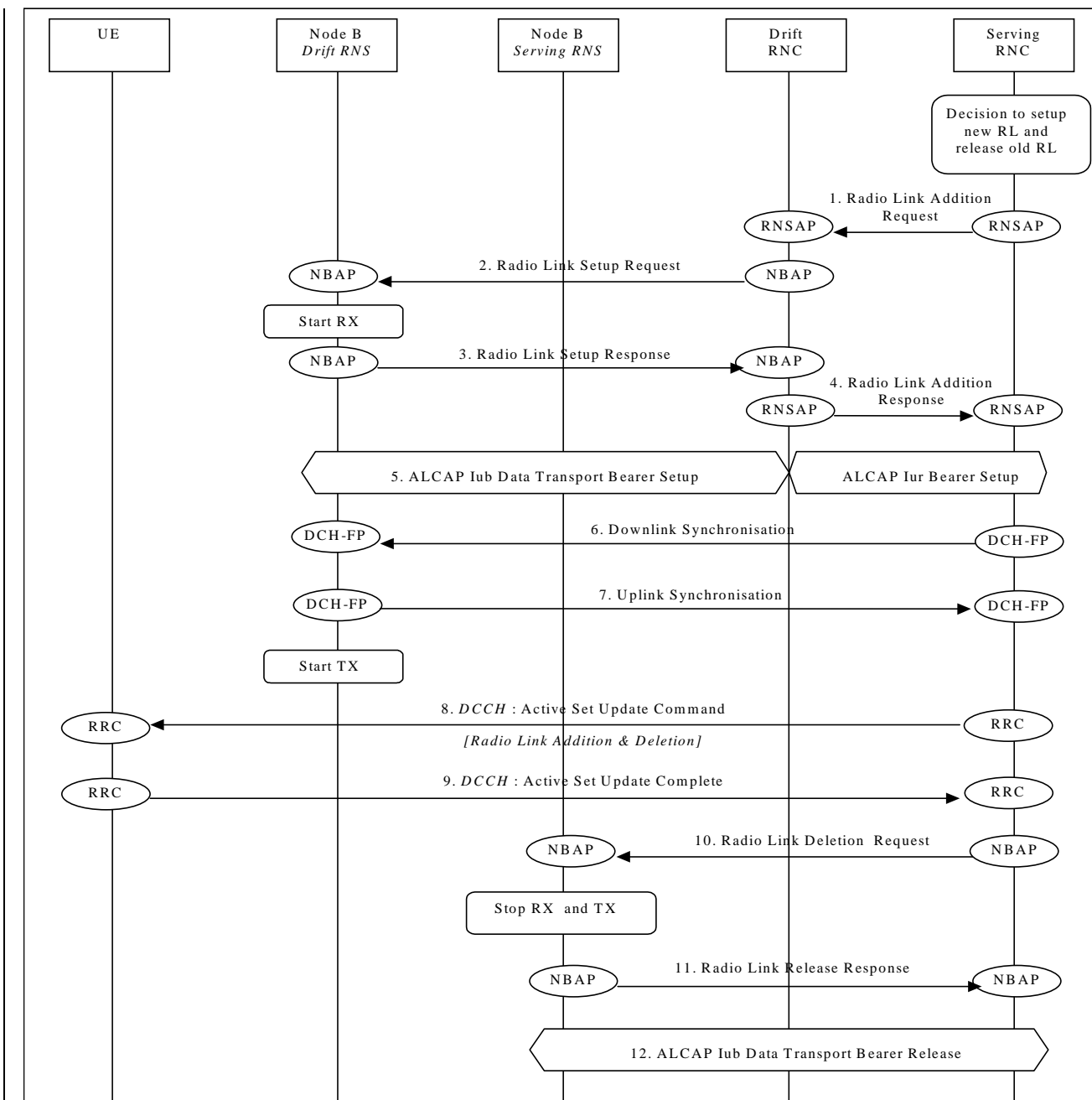Parameters: Update type, Cell id.

2. UE deactivates DL reception via old branch, and acknowledges with RRC message **Active Set Update Complete**.
3. SRNC requests DRNC to deallocate radio resources by sending RNSAP message **Radio Link Deletion Request**.
    Parameters: Cell id, Transport layer addressing information.
4. DRNC sends NBAP message **Radio Link Deletion Request** to Node B.
    Parameters: Cell id, Transport layer addressing information.
5. Node B deallocates radio resources. Successful outcome is reported in NBAP message **Radio Link Deletion Response**.
6. DRNC sends RNSAP message **Radio Link Deletion Response** to SRNC.
7. SRNC initiates release of Iur/Iub Data Transport Bearer using ALCAP protocol.

7.10.3 Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously)

This example shows simultaneous deletion of a radio link belonging to a Node B controlled by the serving RNC and the establishment of a radio link via a Node B controlled by another RNC than the serving RNC. This is the first radio link to be established via this RNS, thus macro-diversity combining/splitting with already existing radio links within DRNS is not possible.

This procedure is needed when the maximum number of branches allowed for the macrodiversity set has already been reached.

UE	Node B *Drift RNS*	Node B *Serving RNS*	Drift RNC	Serving RNC

Decision to setup new RL and release old RL

1. Radio Link Addition Request
RNSAP ← RNSAP

2. Radio Link Setup Request
NBAP ← NBAP

3. Radio Link Setup Response
NBAP → NBAP

Start RX

4. Radio Link Addition Response
RNSAP → RNSAP

5. ALCAP Iub Data Transport Bearer Setup   ALCAP Iur Bearer Setup

6. Downlink Synchronisation
DCH-FP ← DCH-FP

7. Uplink Synchronisation
DCH-FP → DCH-FP

Start TX

8. *DCCH* : Active Set Update Command
RRC ← RRC

[Radio Link Addition & Deletion]

9. *DCCH* : Active Set Update Complete
RRC → RRC

10. Radio Link Deletion Request
NBAP ← NBAP

11. Radio Link Release Response
NBAP → NBAP

Stop RX and TX

12. ALCAP Iub Data Transport Bearer Release

Figure 26: Soft Handover - Radio link Addition & Deletion (Branch Addition & Deletion - simultaneously)

1. ⇒ 7. See description 1. ⇒ 7. in subclause 7.10.1.

8. SRNC sends RRC message **Active Set Update** (Radio Link Addition & Deletion) to UE on DCCH. Parameters: Update type, Cell id, DL scrambling code, Power control information, Ncell information.

9. UE deactivates DL reception via old branch, activates DL reception via new branch and acknowledges with RRC message **Active Set Update Complete**.

10. ⇒ 12. See description 3. ⇒ 7. in subclause 7.10.2.

7.13   HO & Cell Reselection between UTRAN and GSM/BSS

This subclause presents some examples of handover procedure from UTRAN to GSM/BSS and vice versa.
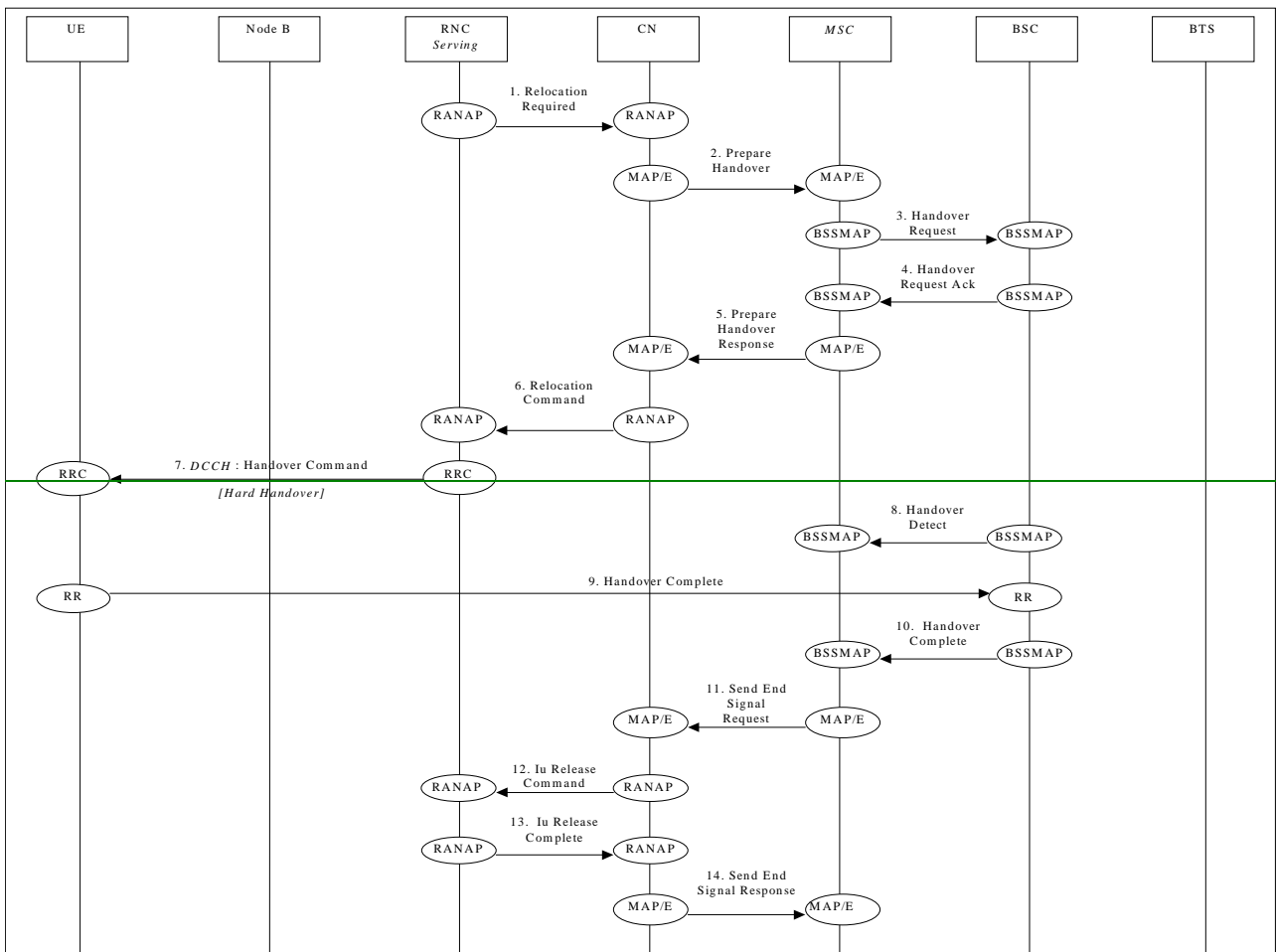
The case of a UTRAN connected to UMTS CN connected to a 2G-MSC (i.e. via MAP/E interface) is shown. The case of an UTRAN connected a GSM CN trough an IWF (where RANAP is interworked with BSSMAP) is not shown, because is equivalent from the point of view of the UTRAN.
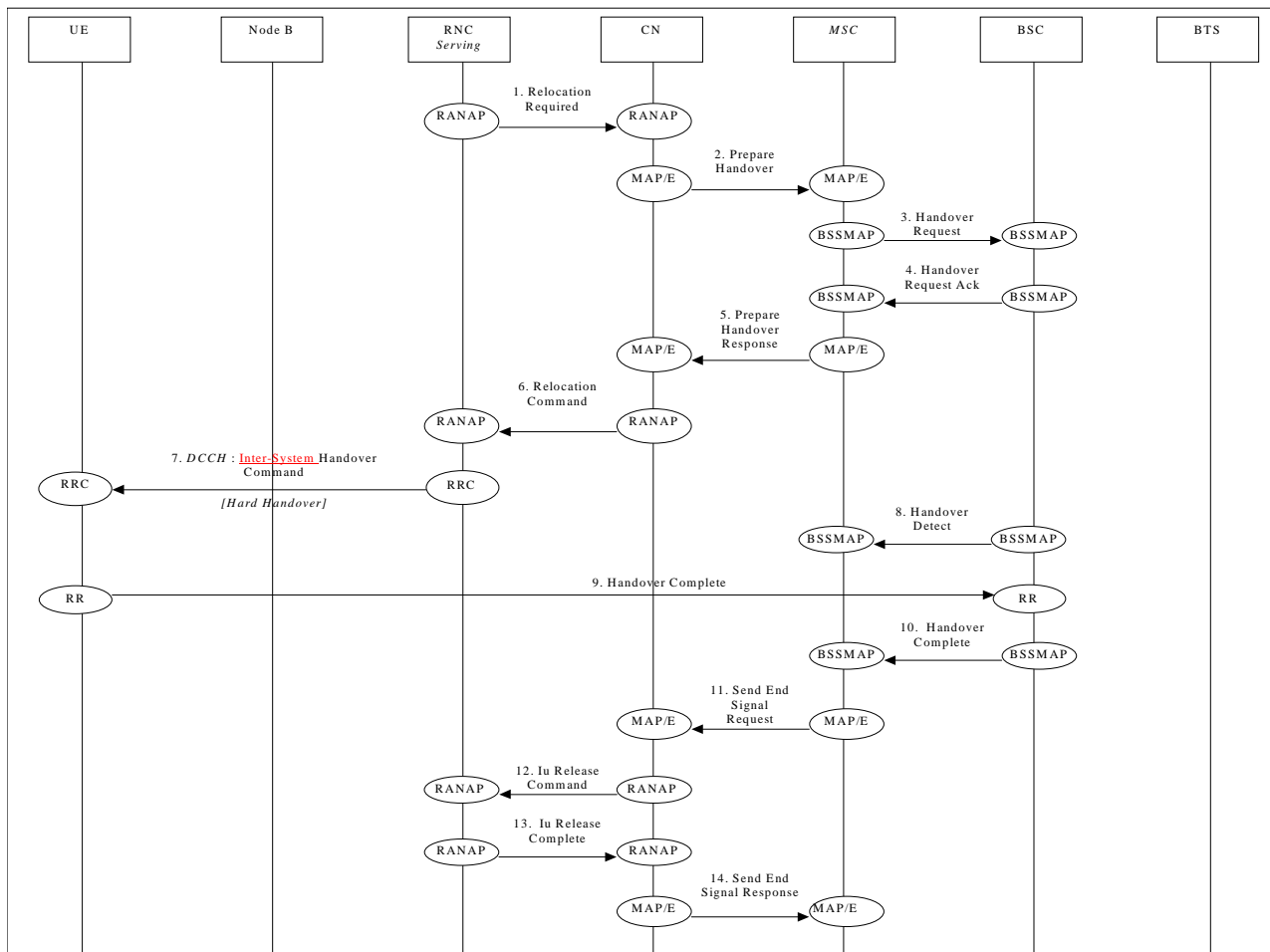
The case of HO between UTRAN and GPRS and viceversa are also considered.

7.13.1 UTRAN $\Rightarrow$ GSM/BSS

This example shows how handover (Hard Handover) is performed from UTRAN to GSM/BSS between a UMTS CN and a 2G-MSC.

NOTE: Procedures between CN and MSC, and between MSC and BSC are out of the scope of WG3, and are only included for clarity.

UE	Node B	RNC *Serving*	CN	*MSC*	BSC	BTS

RANAP —— 1. Relocation Required —→ RANAP

MAP/E —— 2. Prepare Handover —→ MAP/E

BSSMAP —— 3. Handover Request —→ BSSMAP

BSSMAP ←— 4. Handover Request Ack —— BSSMAP

MAP/E ←— 5. Prepare Handover Response —— MAP/E

RANAP ←— 6. Relocation Command —— RANAP

RRC ←— 7. *DCCH* : Handover Command —— RRC

[Hard Handover]

BSSMAP ←— 8. Handover Detect —— BSSMAP

RR ←————— 9. Handover Complete ————— RR

BSSMAP ←— 10. Handover Complete —— BSSMAP

MAP/E ←— 11. Send End Signal Request —— MAP/E

RANAP ←— 12. Iu Release Command —— RANAP

RANAP —— 13. Iu Release Complete —→ RANAP

MAP/E —— 14. Send End Signal Response —→ MAP/E

Figure 36: UTRAN $\Rightarrow$ GSM/BSS handover

1.   Upon detection of a trigger SRNC sends RANAP message **Relocation Required** to the CN.
2.   The UMTS CN will forward this request to the GSM MSC (indicated in the received message) over the MAP/E interface (MAP message **Prepare Handover**).

   Steps 3 & 4 follow the normal GSM procedures and are shown only for clarity.

5.   Once initial procedures are complete in GSM MSC/BSS the MSC returns MAP/E message **Prepare Handover**.
6.   CN responds to the initial request from SRNC by sending RANAP message **Relocation Command** to the SRNC.
7.   Via existing RRC connection, SRNC sends RRC message Inter-System Handover Command (Hard Handover) to the UE.
   Parameters: Handover type.

   Procedures related to synchronisation etc. to GSM BSS are not shown.

   Steps 8 & 10 follow normal GSM procedures and are shown only for clarity.

11. Detection of the UE within the GSM coverage results in the MSC sending MAP/E message **Send End Signal Request** to the CN.
12. CN initiates release of resources allocated by the former SRNC (**Iu Release Command**).
13. Previously allocated bearer resources are released within UMTS (e.g. using RANAP and ALCAP protocols [ALCAP not shown]) (Iu Release Complete).
14. Procedure is concluded from UMTS point of view by CN sending MAP/E message Send End Signal Response (this message is not sent until the end of the call).

7.13.5   UMTS $\Rightarrow$ GPRS Cell Reselection, Network Initiated

This subclause shows UTRAN signalling procedures for UTRAN to GPRS Cell Reselection triggered by Serving RNC.

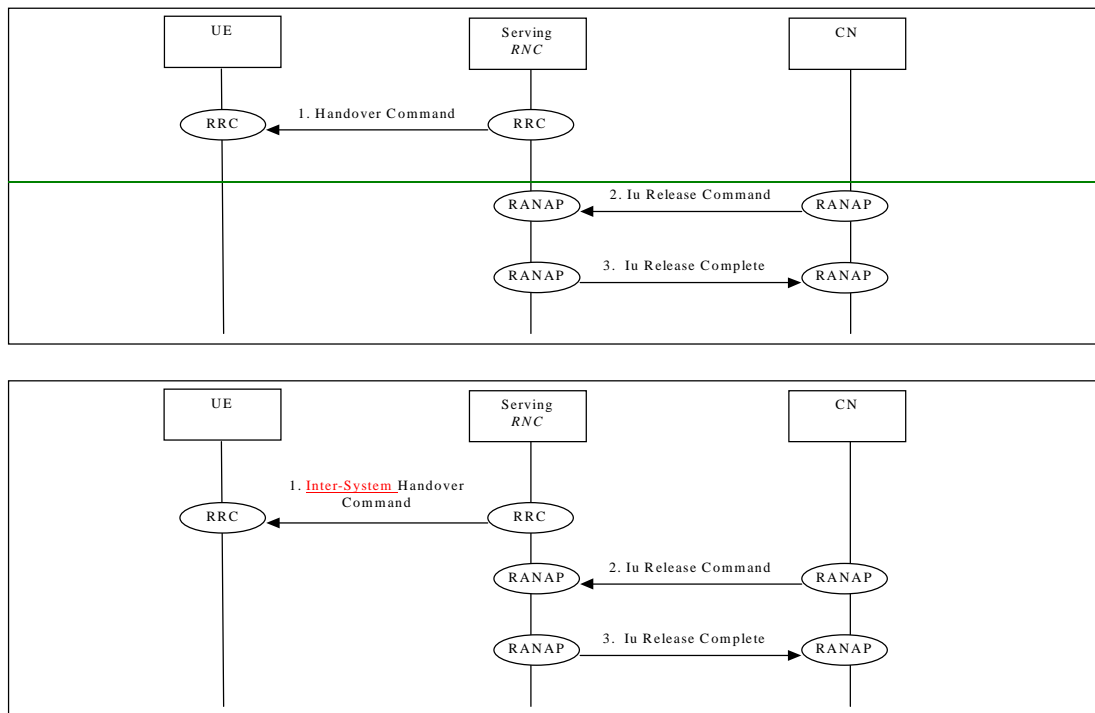Note: This case can only supported if the RNC could generate GSM messages.

Figure: 40

1. Based on UE measurements, SRNC triggers the handover to a GPRS cell by sending a Inter-System Handover Command to the UE. UE initiates establishment of UE-GPRS connection.
2. After necessary CN-GPRS preparations (e.g. UE context information retrieval), CN initiates release of the RRC connection.
3. SRNC releases all resources reserved for the UE.