3GPP TSG-RAN Working Group 3   **TSGW3#4(99)531**
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Title: **Inter RNS Hard Handover via Iur**

Source: **InterDigital**

Agenda Item: **7.1 (UTRAN functions, 25.931)**

Document for: **Approval; change of 25.931**

In Tdoc 302, which was submitted to last meeting but not addressed, Italtel, Siemens, and CSELT proposed a new diagram to replace the diagram in section 9.13.2.1. This diagram shows the case where the source RNC is the same RNC as the serving RNC. The only fundamental differences in procedure descriptions we see in tdoc 302 and this contribution are that message 8 (Handover complete) terminates in the SRNC (source RNC in tdoc 302) not the target RNC, and the Iur ALCAP procedures are initiated in the SRNC not the source or target RNC.

However there are a three general cases that need to be documented. They are:
1. SRNC is the same as the source RNC (addressed in tdoc 302)
2. SRNC is the same as the target RNC
3. SRNC is neither the source or the target

Number 2 is the case where the serving RNC is the target RNC, which can occur when an UE has already performed handover to a drift RNC and then moves back to the serving RNC. Number 3 is the case where the serving RNC is neither the source RNC nor the target RNC, which would occur on a handover over one Iur to another Iur. Additionally this case is the case that shows all possible procedures, a setup on a new Iur and Iub connection and a tear down of an Iur and Iub connection.

The diagram below shows the case where the SRNC is neither the source nor target RNC. This diagram has the advantage of breaking out the SRNC so messages that originate from the SRNC (Radio link setup request, handover command etc.) are separated from messages originating from the source RNC (NBAP radio link deletion, etc.). Second it can be used to describe all three cases, because if the SRNC is the source RNC messages 9, 13 and 14 are not necessary, and if the SRNC is the target RNC messages 1, 5 and 6 are not necessary.

It is proposed to do one of the following:

1. Replace in the document 25.931 "UTRAN Functions, Example on Signaling Procedure" the content of section 9.13.2.1 with the sections presented below in this document.

2. Show each of the 3 cases in separate examples by deleting messages 9, 13 and 14 for the case where the SRNC is the source RNC, deleting message 1, 5 and 6 where the SRNC is the target RNC and showing the entire example (removing the notes) for the case when the SRNC is neither the source or the target.

9.13.2.1 Inter-RNS Hard Handover via Iur (DCH on Iur)

This example shows the Inter RNS Hard Handover procedure via Iur, assuming that a DCH is established on this interface.
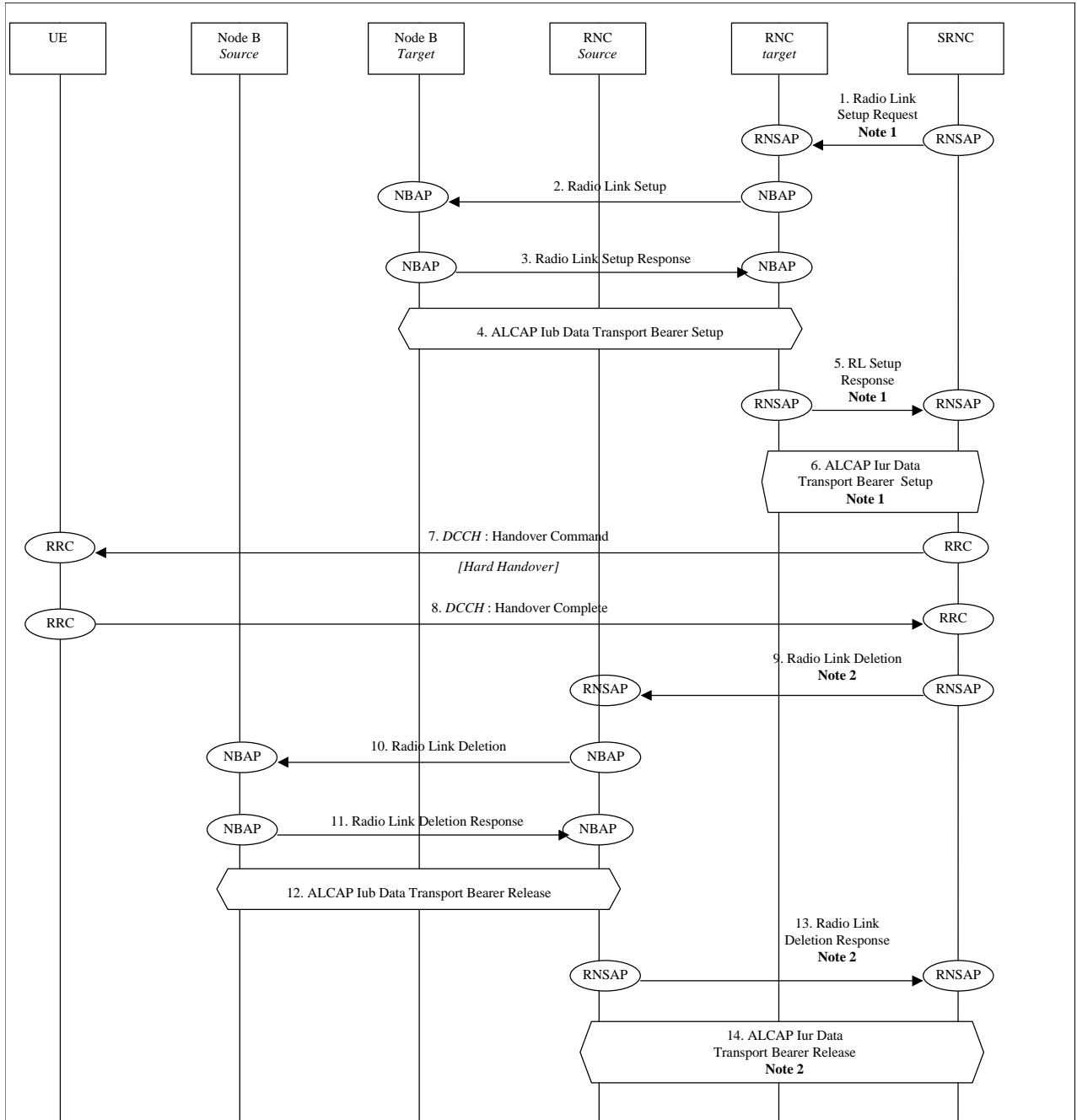
Inter-RNS Hard Handover via Iur (DCH on Iur)

1. SRNC sends **Radio Link Setup Request** message to the target RNC.
Parameters: target RNC identifier, s-RNTI, Cell id, Transport Format Set, Transport Format Combination Set.
Note 1: This message is not necessary when the target RNC is the SRNC.

2. The target RNC allocates RNTI and radio resources for the RRC connection (if possible), and sends the NBAP message **Radio Link Setup** to the target Node-B. Parameters: Cell id, Transport Format Set, Transport Format

Combination Set, frequency, UL scrambling code (FDD only), Time Slots (TDD only), User Codes (TDD only), DL channelisation code (FDD only), Power control information.

3. Node B allocates resources, starts PHY reception, and responses with NBAP message **Radio Link Setup Response**.
Parameters: Signalling link termination, Transport layer addressing information for the Iub Data Transport Bearer.

4. Target RNC initiates set-up of Iub Data Transport bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to the DCH. The request for set-up of Iub Data Transport bearer is acknowledged by Node B.

5. When the Target RNC has completed preparation phase, **Radio Link Setup Response** is sent to the SRNC. *Note 1: This message is not necessary when the target RNC is the SRNC.*

6. SRNC initiates set-up of Iur Data Transport bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iur Data Transport Bearer to the DCH. The request for set-up of Iur Data Transport bearer is acknowledged by Target RNC. *Note 1: This message is not necessary when the target RNC is the SRNC*

7. SRNC sends a RRC message **Handover Command** to the UE.

8. When the RRC connection is established with the target RNC and necessary radio resources have been allocated the UE sends RRC message **Handover Complete** to the SRNC.

9. The SRNC sends a RNSAP message **Radio Link Deletion** to the source RNC. *Note 2: This message is not necessary when the source RNC is the SRNC.*

10. The source RNC sends NBAP message **Radio Link Deletion** to the source Node B.
Parameters: Cell id, Transport layer addressing information.

11. The source Node B de-allocates radio resources. Successful outcome is reported in NBAP message **Radio Link Deletion Response**.

12. The source RNC initiates release of Iub Data Transport bearer using ALCAP protocol.

13. When the source RNC has completed the release the RNSAP message Radio Link Deletion Response is sent to the SRNC. *Note 2: This message is not necessary when the source RNC is the SRNC.*

14. SRNC initiates release of Iur Data Transport bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iur Data Transport Bearer to the DCH. The request for release of Iur Data Transport bearer is acknowledged by the Source RNC. *Note 2: This message is not necessary when the source RNC is the SRNC.*