

Agenda Item: 14.1, 15.2; 16.4
Source: Nortel Networks
Title: Iub and Iur support of Asymmetric RL Reconfiguration
Document for:

1 Introduction

At last meeting, LS [R1] stated the interest from the Radio point of view of such a procedure. This paper proposes a very simple support of this procedure over Iub and Iur.

2 Iub/Iur DCH Frame protocol support of Asymmetric RL Reconfiguration

[R1] has shown the need for the Node B to be able to signal to the SRNC when it has decoded the new configuration and for the SRNC to instruct the different Node Bs what configuration to use.

It is proposed to introduce four new control information elements in the DCH frame protocol:

RL New Configuration Apply: In order to indicate to all Node Bs when to use the new configuration in the UL, the SRNC sends an RL New Configuration Apply to the Node Bs.

Table below shows the structure of the payload when control frame is used for the RL New Configuration Apply. This control information is sent in DL only

NAME	RL New Configuration Apply
Parameters	RL Configuration ID CFN of execution

RL New Configuration Detected: In order to inform the SRNC that it has detected the new configuration the Node B sends an RL New Configuration Detected to the SRNC.

Table below shows the structure of the payload when control frame is used for the RL New Configuration Detected. This control information is sent in UL only

NAME	RL New Configuration Detected
Parameters	RL Configuration ID

RL New Configuration Commit: In order to order all Node Bs to use the new configuration, the SRNC sends an RL New Configuration Commit to the Node Bs.

Table below shows the structure of the payload when control frame is used for the RL New Configuration Commit. This control information is sent in DL only

NAME	RL New Configuration Commit
Parameters	RL Configuration ID

RL New Configuration Confirm: This is used by the Node Bs to acknowledge the reception of RL New configuration commit

Table below shows the structure of the payload when control frame is used for the RL New Configuration Confirm. This control information is sent in UL only

NAME	RL New Configuration Confirm
Parameters	RL Configuration ID Iub DCH Port ID

For this the same principle as for the silence detection is proposed to be applied.

3 RNSAP and NBAP support of Asymmetric RL Reconfiguration

In order to support the asymmetric RL Reconfiguration it is proposed to define a new information element for RNSAP and NBAP

X.X.X RL Configuration ID

RL Configuration ID is an identifier of the Radio Link configuration. It is initialised at Radio Link Setup and incremented at each RL reconfiguration so that it uniquely identify an Radio Link configuration between the SRNC and DRNS (CRNC and Node B for NBAP).

It is proposed to add this IE to the following messages

- RNSAP
 - RADIO LINK SETUP REQUEST
 - RADIO LINK RECONFIGURATION PREPARE
 - RADIO LINK RECONFIGURATION
- NBAP
 - RADIO LINK SETUP REQUEST
 - RADIO LINK RECONFIGURATION PREPARE
 - RADIO LINK RECONFIGURATION

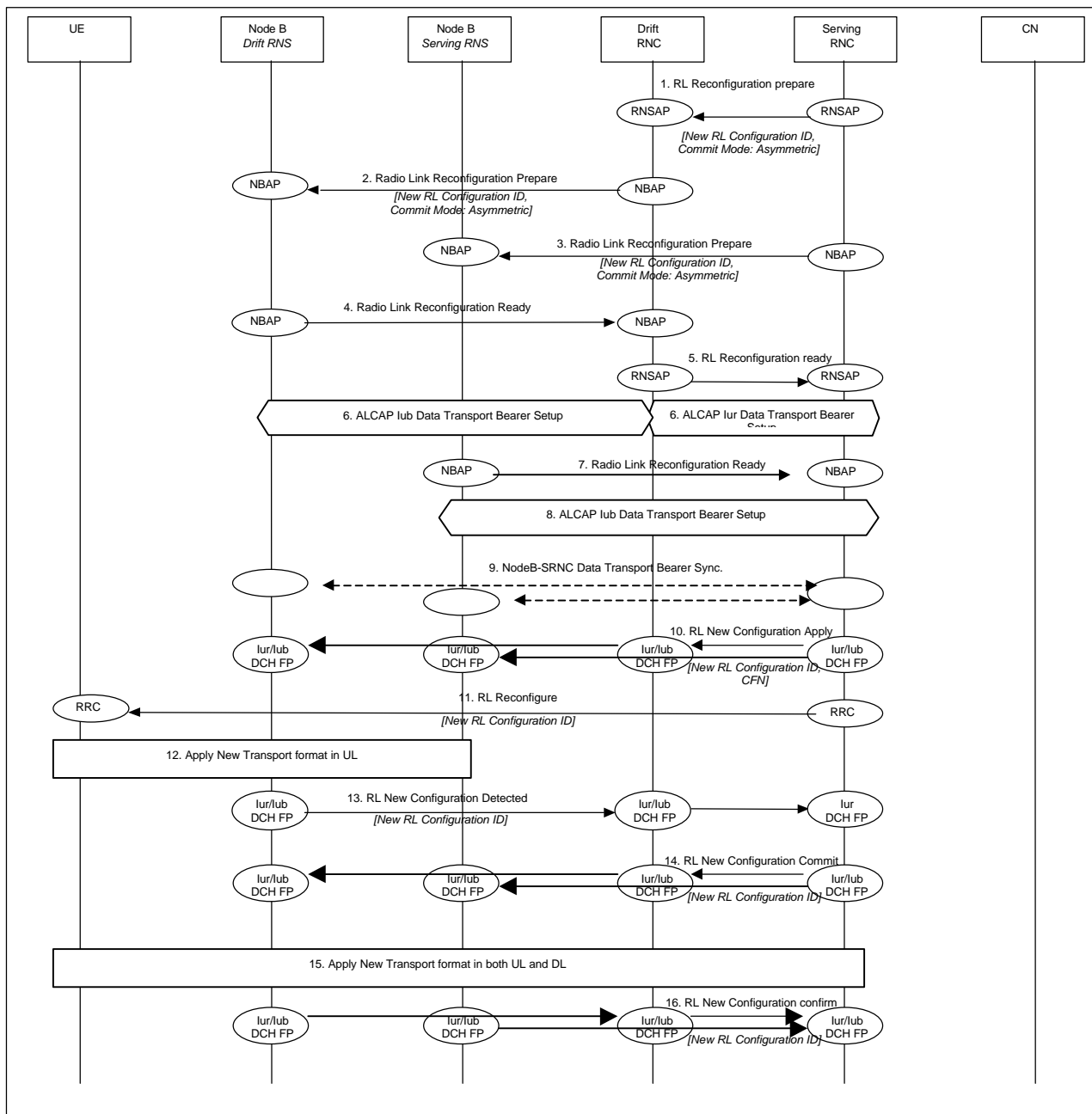
It is also proposed to add to the RADIO LINK RECONFIGURATION PREPARE for both RNSAP and NBAP the following information element:

X.X.X Commit Mode

Commit Mode indicates whether the commit is explicit through an RADIO LINK RECONFIGURATION COMMIT or whether the Asymmetric RL Reconfiguration in-band commit is used

4 Asymmetric RL Reconfiguration example

This example shows an Radio Link Reconfiguration using the asymmetric mode. The UE communicates via two Nodes B. One Node B is controlled by SRNC, one Node B is controlled by DRNC.



Asymmetric RL Reconfiguration

1. SRNC Requests DRNC for an Asymmetric RL Reconfiguration
Parameters: New configuration, New RL Configuration ID, Commit Mode: Asymmetric
2. DRNC requests its Node B for an Asymmetric RL Reconfiguration
Parameters: New configuration, New RL Configuration ID, Commit Mode: Asymmetric
3. SRNC requests its Node B for an Asymmetric RL Reconfiguration
Parameters: New configuration, New RL Configuration ID, Commit Mode: Asymmetric
4. Node B allocates resources and notifies DRNC that the preparation is done.
Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
5. DRNC notifies SRNC that the preparation is done.
Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
6. SRNC initiates setup of Iur/Iub Data Transport Bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iur Data Transport Bearer to DCH.
7. Node B allocates resources and notifies SRNC that the preparation is done.
Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
8. SRNC initiates setup of Iub Data Transport Bearer using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
9. The Nodes B and SRNC establish frame synchronism for the Iub and Iur Data Transport Bearer.
10. SRNC instructs all node B when to apply the new configuration in UL
Parameters: New configuration ID, CFN for execution

11. RRC message is sent by SRNC to UE to instruct the UE to change of RL configuration.
Parameters: New configuration ID.
12. The new configuration is applied in the Uplink
13. Node B reports to SRNC of the new configuration detected
Parameter: New configuration ID
14. SRNC instructs all Node B to apply the new configuration both in Uplink and Downlink
Parameter: New configuration ID
15. The new configuration is applied
16. Confirmation of the new configuration

5 Proposals

It is proposed:

- to modify [R2] according to section 2 with the definition of the IE in italic
- to modify [R3] and [R4] according to section 3 with the definition of the IE in italic
- to add section 4 to [R5]

6 References

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| [R1] | R3-99762 | LS on Asymmetric RL Reconfiguration, Source WG2 |
| [R2] | TS 25.427 | Iur/Iub User plane protocol for DCH Data streams, Source Editor |
| [R3] | TS 25.423 | UTRAN Iur Interface RNSAP Signalling, Source Editor |
| [R4] | TS 25.433 | NBAP Specification, Source Editor |
| [R5] | TR 25.931 | UTRAN Functions, Example on signalling procedures, Source Editor |