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Technical Report

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Transport bearer modification procedure on lub, lur, and lu (Release 4)



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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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Introduction

The present document is to proceed the Release 4 work task “Transport bearer modification procedure on Iub, Iur, and Iu”.

Subclause 7.8 “Radio access bearer modification” of TR 25.931^[3] “UTRAN functions, examples on signalling procedures” (Release 99) utilizes Modification procedure of transport network bearer. But it is associated with a note that if the referred signalling protocol does not have the modification procedure, alternative procedure with release existing bearer and establish new one is applied to. The referred signalling protocol does not have the modification procedure. Subclause 7.14 “Transport channel reconfiguration (DCH to DCH)” of TR 25.931^[3] is described with the alternative procedure.

In Release 4 time frame, the modification procedure is available in enhanced the referred transport network signalling protocol Q.2630.2^[2].

1 Scope

The present document clarifies:

- rational to introduce transport bearer modification procedure on Iub, Iur, and Iu,
- requirement for the solution of transport bearer modification,
- study area in order to introduce the modification procedure,
- way to solve the study area , and
- Change request needs to be given in order to enhance Release 99 specification to Release 4 specification for the work task.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ITU-T Recommendation Q.2630.1 (12/1999): “AAL type 2 signalling protocol (Capability set 1)”.
- [2] ITU-T Recommendation Q.2630.2 (12/2000): “AAL type 2 signalling protocol (Capability set 2)”.
- [3] 3G TR 25.931: “UTRAN functions, examples on signalling procedures”.
- [4] 3G TR 25.934: “QoS optimization for AAL type 2 connections over Iub and Iur interfaces”.
- [5] 3G TS 25.413: “UTRAN Iu interface RANAP signalling”.
- [6] 3G TS 25.423: “UTRAN Iur interface RNSAP signalling”.
- [7] 3G TS 25.433: “UTRAN Iub interface NBAP signalling”.

3 Definitions, symbols and abbreviations

3.1 Definitions

No specific definition is made in this document.

3.2 Symbols

No specific definition is made in this document.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAL ATM Adaptation Layer

ALCAP	Access Link Control Application Part
ATM	Asynchronous Transfer Mode
CFN	Connection Frame Number
CID	Channel Identifier
CN	Core Network
DCH	Dedicated Channel
DRNC	Drift RNC
ECF	Establish Confirm message
ERQ	Establish Request message
ID	Identifier
MOA	Modification Acknowledge message
MOD	Modification Request message
NBAP	Node B Application Part
RANAP	Radio Access Network Application Part
REL	Release Request message
RLC	Release Confirm message
RNC	Radio Network Controller
RNSAP	Radio Network Subsystem Application Part
RRC	Radio Resource Control
SRNC	Serving RNC
UP	User Plane
UTRAN	Universal Terrestrial Radio Access Network

4 Rationale

This clause shows rationale to introduce modification procedure instead of Release 99 procedure with establishment and release.

4.1 Bandwidth efficiency

In Release 99 procedure with establishment and release, the order of the procedures must be establish new bearer and then release old one to keep the communication during the procedures. If the required bandwidth for the old one is "A" and for the new one is "B", required bandwidth for the communication is A+B when the establishment procedure executes. In the modification procedure, it is (B-A)+A=B in increasing case (A<B) and is A in decreasing case (A>B). When the radio access bearer modification or the transport channel reconfiguration runs often, the difference between the A+B and the B or A may not be small.

4.2 Number of signalling message

Release 99 procedure with establishment and release needs four messages (ERQ, ECF, REL, and RLC). The modification procedure needs two messages (MOD and MOA).

4.3 Simplicity of transport bearer change

In Release 99 procedure with establishment and release, traffic has to be switched over from old transport bearer to new one. With the modification procedure, the traffic needs no longer be switched over from old transport bearer to new one.

5 Requirements

The following requirements are identified:

The solution shall support the possibility to change the transport bearer Link characteristics. The characteristics modification shall be possible by changing the characteristics of the existing bearer without a need to establish a new bearer and to release the existing bearer.

The solution shall support the existence of intermediate AAL2 switches.

The solution shall enable interworking with the R99 solution. Nodes with different capability sets shall be able to interwork meaning that Iub, Iur and Iu connections shall be able to have different capability sets.

6 Study area

This clause describes elements they shall be considered in the introduction of transport bearer modification procedure on Iub, Iur, and Iu.

6.1 Coexistence with Release 99 node

One of new parameters “Modify support for link characteristics” in Q.2630.2^[2] is to help coexistence with Release 99 node it does not support the modification procedure. “Preferred link characteristics” parameter is for core network use and thus is out of scope of the present document.

At the time the transport network bearer which is the target of the modification attempt is established, connection originating AAL type 2 endpoint can know if the modification procedure is supported through out the connection from the presence of the new parameter in Establish confirm (ECF) message. Connection terminating AAL type 2 endpoint can know it from the presence of the parameter in Establish request (ERQ) message. This mechanism works in any transport network configuration with/without AAL type 2 switch, Q.2630.1^[1], or Q.2630.2^[2] with no implementation of the modification capability.

An access transport bearer consists of series of connections in UTRAN i.e. SRNC to DRNC and DRNC to Node B. Different procedures, Release 99 procedure or the modification procedure, may be required at DRNC for the connections. The Modify support for link characteristics parameter indicates whether the modification procedure or Release 99 procedure shall be used for a connection.

Figures 5 through 8 in subclauses 6.5.5 through 6.5.8 show example signalling procedures for the interworking of Release 99 procedure and the modification procedure.

6.2 Timing of transport bearer change

In Release 99 procedure with establishment and release, traffic has to be switched over from old transport bearer to new one.

In synchronised signalling procedures, i.e. Figure 20 “Radio access bearer modification – DCH modification – synchronised” and Figure 41 “Synchronised transport channel reconfiguration” of TR 25.931^[3], timing of the switching over is at the reconfiguration CFN indicated in the Commit messages at related network nodes. The timing of switching over is at initialization of UP protocol for Iu interface in the Radio access bearer modification signalling procedure and Figure 21 “Radio access bearer modification – RACH/FACH modification” of TR 25.931^[3]. In an unsynchronised signalling procedure, i.e. Figure 42 “Unsynchronised transport channel reconfiguration” of TR 25.931^[3], there is no trigger for the switching over at related network nodes. The timing of switching over is right after the establishment phase of the new transport bearer at each section.

With the modification procedure, timing to execute the modification procedure is implementation specific.

6.3 Treatment of Binding ID

The modification procedure does not change AAL type 2 path ID+CID of the addressed AAL type 2 connection or transport bearer. Thus re-binding of Radio network layer application part (RANAP^[5], RNSAP^[6], or NBAP^[7]) and ALCAP^{[1][2]} identifiers is not required.

In RANAP^[5], binding ID is always given by CN in Radio access bearer modification signalling procedure as it is decided by SRNC if the existing transport bearer needs to be modified (with Release 99 procedure) or not in Release 99. If not, the binding ID is not used and is freed at the end of signalling procedure. The same treatment shall be given to the case that the existing transport bearer needs to be modified and with the modification procedure in Release 4.

In RNSAP^[6] and NBAP^[7], binding IDs are given by DRNC and Node B respectively in Radio access bearer modification and Transport bearer modification signalling procedures if it is indicated by SRNC and DRNC respectively that the existing transport bearer needs to be modified (with Release 99 procedure) in Release 99. If the Modify support for link characteristics parameter indicates the modification procedure shall be used at Iur or Iub interface, “new transport bearer is not required” shall be indicated then no binding ID shall be given by DRNC or Node B in Release 4.

6.4 Backward compatibility

Q.2630.1^[1] and Q.2630.2^[2] have their own compatibility mechanism since Q.2630.1^[1]. To utilize the mechanism, see section 8.2.1.4 “Interworking with AAL type 2 nodes conforming only to ITU-T Recommendation Q.2630.1” and Annex B “Coding of the compatibility information” of Q.2630.2^[2].

Q.2630.2^[2] specifies optional capabilities/features to enhance Q.2630.1^[1]. And Q.2630.2^[2] includes Q.2630.1^[1]. This means if a new capability in Q.2630.2^[2] is not utilized, related implementation with the capability is not affected even Q.2630.2^[2] is referred.

6.5 Example signalling procedures

6.5.1 Synchronised Bandwidth Modification, Increase

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE.

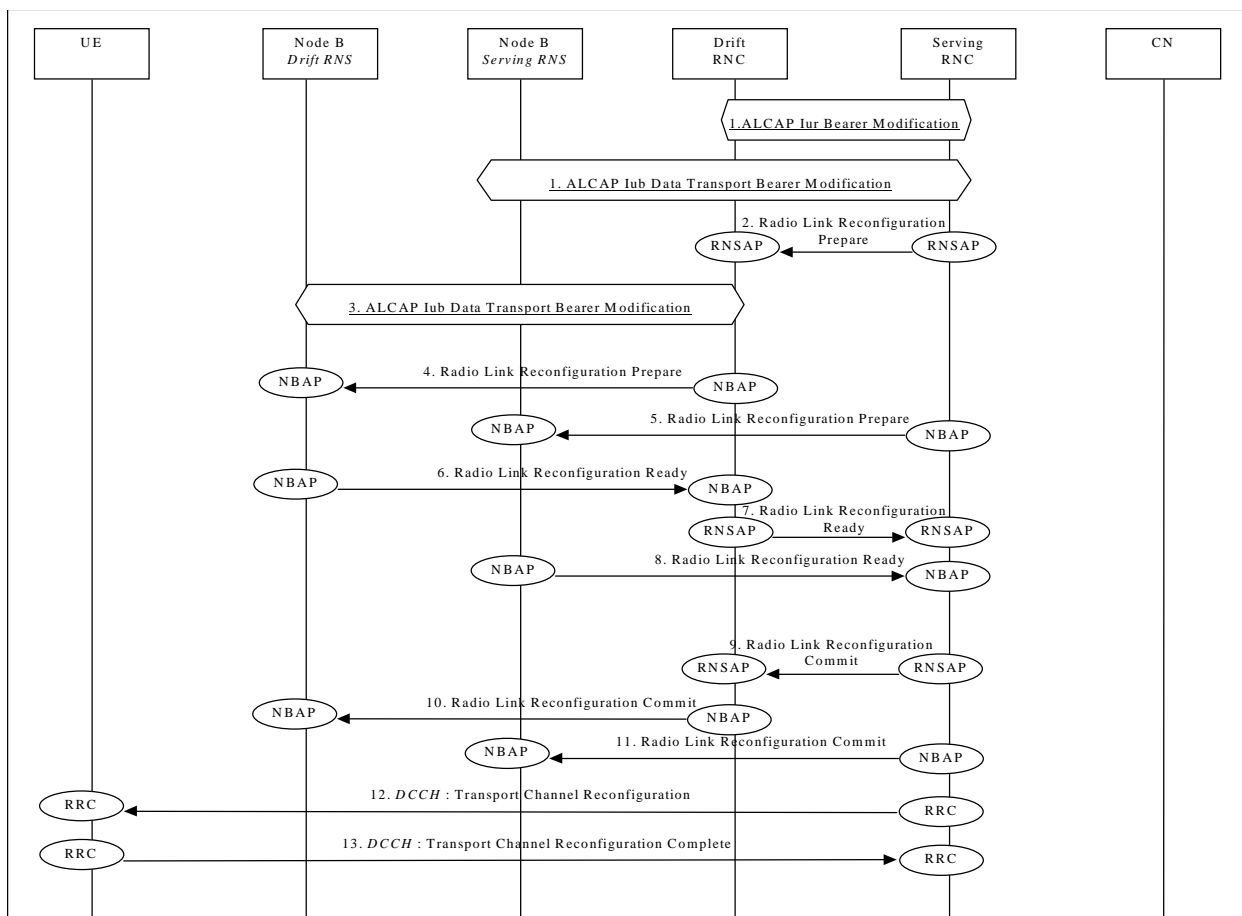


Figure 1: Synchronised Bandwidth Modification, Increase

1. SRNC decides that there is a need for synchronous Transport Channel Reconfiguration and initiates transport bearer modification of the Transport Bearer(s), if LC modification is enabled over the connection(s).

2. SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. DRNC initiates transport bearer modification on Iub connection.
4. DRNC requests its Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
5. SRNC requests its Node B to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
6. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
7. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
8. Node B allocates resources and notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
9. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC.
Parameters: CFN
10. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B.
Parameters: CFN
11. NBAP message **Radio Link Reconfiguration Commit** is sent from SRNC to Node B.
Parameters: CFN
12. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
13. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.

6.5.2 Synchronised Bandwidth Modification, Decrease

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE.

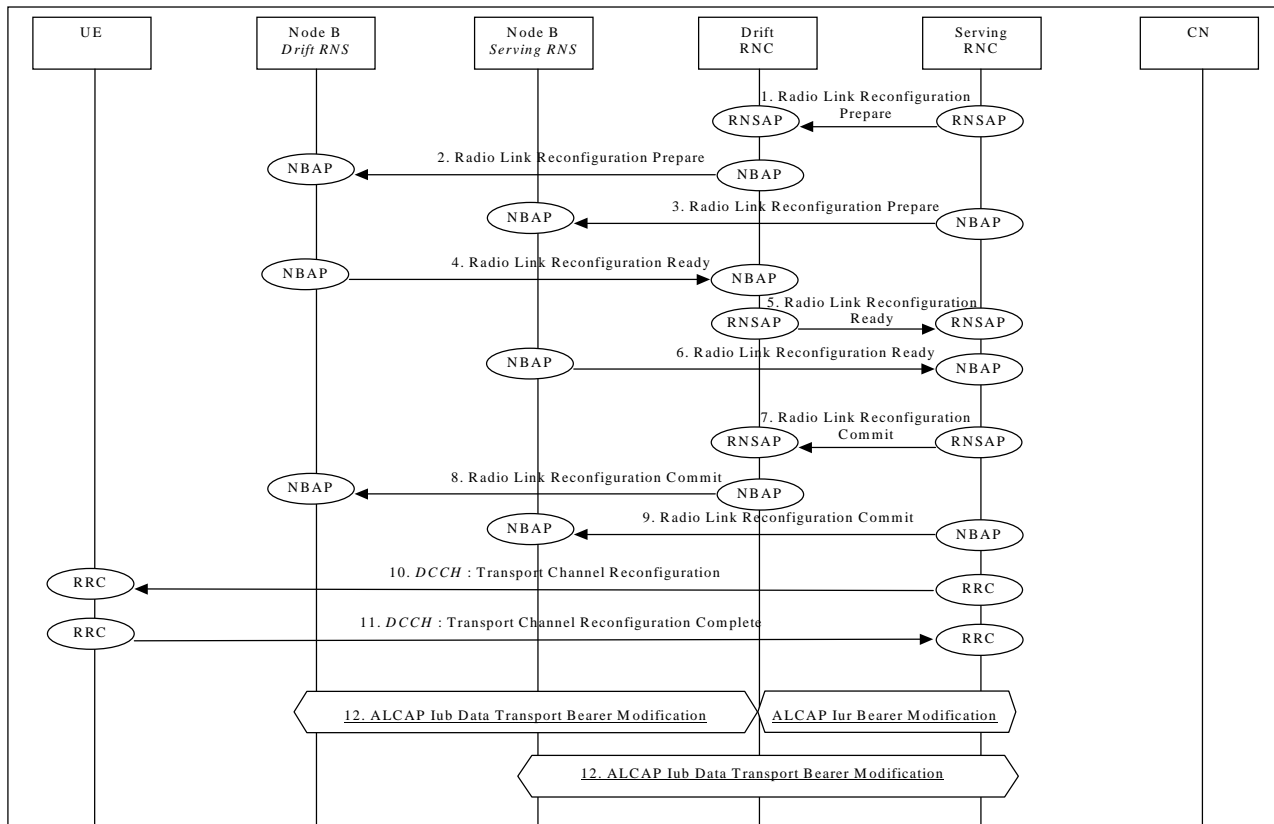


Figure 2: Synchronised Bandwidth Modification, Decrease

1. SRNC decides that there is a need for a synchronous Transport Channel Reconfiguration and this procedure is initiated, if LC modification is enabled over the Transport Bearer(s). SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
2. DRNC requests the Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. SRNC requests its Node B to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
4. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
5. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
6. Node B allocates resources and notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
7. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC.
Parameters: CFN.
8. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B
Parameters: CFN.
9. NBAP message **Radio Link Reconfiguration Commit** is sent from SRNC to Node B.
Parameters: CFN.

10. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
11. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
12. SRNC initiates a transport bearer modification for the Transport Bearer(s).

6.5.3 Unsynchronised Bandwidth Modification, Increase

The procedure can be applied when the reconfiguration time does not require being synchronised among Node-Bs, SRNC and UE.

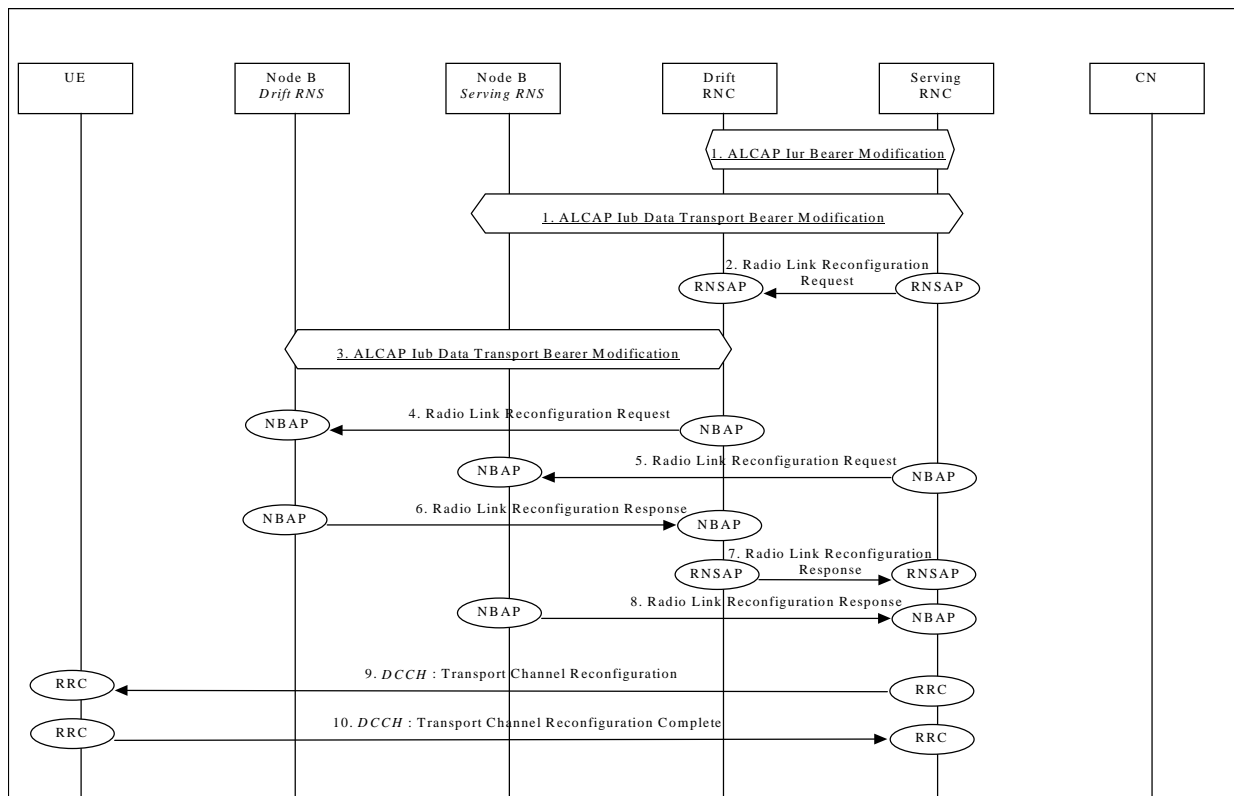


Figure 3: Unsynchronised Bandwidth Modification, Increase

1. SRNC decides that there is no need for a synchronised Transport Channel Reconfiguration and initiates the transport bearer modification of the Transport Bearer(s), if LC modification is supported over the Transport Bearer(s).
2. SRNC requests DRNC to reconfigure the DCH. It includes in the message **Radio Link Reconfiguration Request** that the modification shall be done immediately without waiting for the commit message. Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. DRNC initiates transport bearer modification, if LC modification is supported over the bearer.
4. DRNC requests its Node B to reconfigure the DCH in the existing Radio Link (**Radio Link Reconfiguration Request**). Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only). The flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
5. SRNC requests its Node B to reconfigure the DCH in the existing Radio Link (**Radio Link Reconfiguration Request**). Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
6. Node B of the DRNC allocates resources and notifies DRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).
7. DRNC notifies SRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).

8. Node B of the SRNC allocates resources and notifies DRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).
9. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
10. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.

6.5.4 Unsynchronised Bandwidth Modification, Decrease

The procedure can be applied when the reconfiguration time does not require being synchronised among Node-Bs, SRNC and UE.

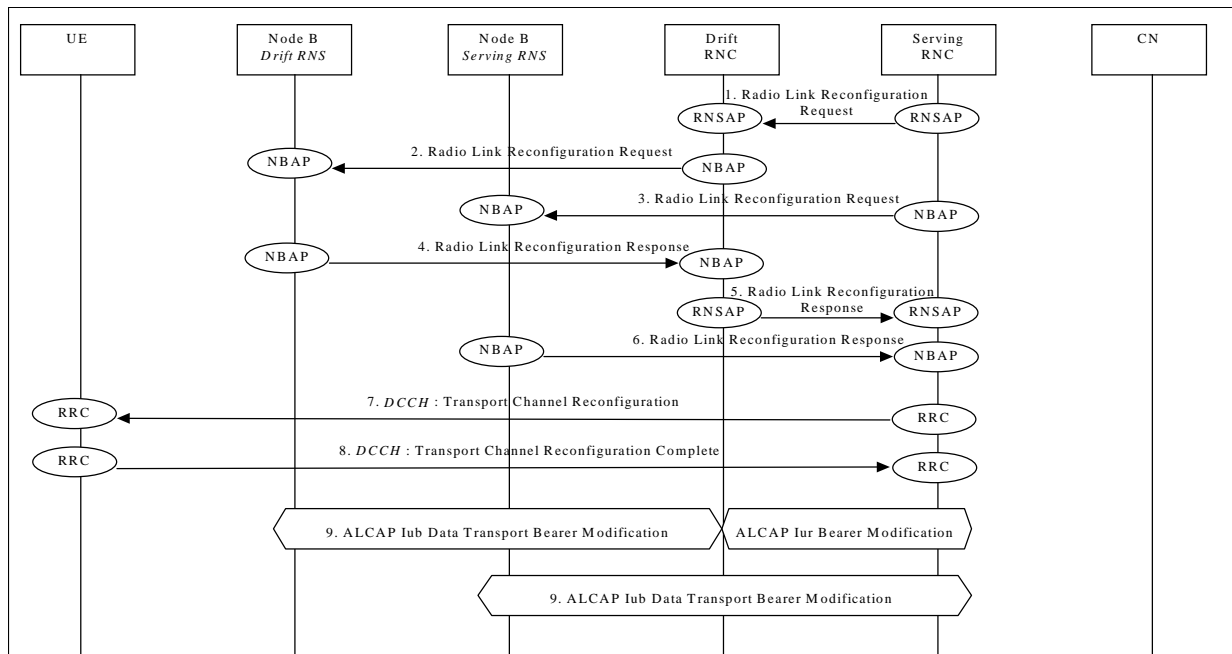


Figure 4: Unsynchronised Bandwidth Modification, Decrease

1. SRNC decides that there is no need for synchronised Transport Channel Reconfiguration and initiates this procedure, if LC modification is enabled over the Transport Bearer(s). SRNC requests DRNC to reconfigure the DCH. It includes in the message **Radio Link Reconfiguration Request** that the modification shall be done immediately without waiting for the commit message. Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED
2. DRNC requests its Node B to reconfigure the DCH in the existing Radio Link (**Radio Link Reconfiguration Request**). Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. SRNC requests its Node B to reconfigure the DCH in the existing Radio Link (**Radio Link Reconfiguration Request**). Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only).), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED
4. Node B of the DRNC allocates resources and notifies DRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).
5. DRNC notifies SRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).
6. Node B of the SRNC allocates resources and notifies DRNC that the reconfiguration is done (**Radio Link Reconfiguration Response**).
7. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
8. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
9. SRNC initiates Transport Bearer modification of the Transport Bearer(s).

6.5.5 Synchronised Bandwidth Modification, Increase (Interworking of Release 99 Iub and Iur with the modification procedure)

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE, and when the interworking of Release 99 Iub and Iur with the modification procedure.

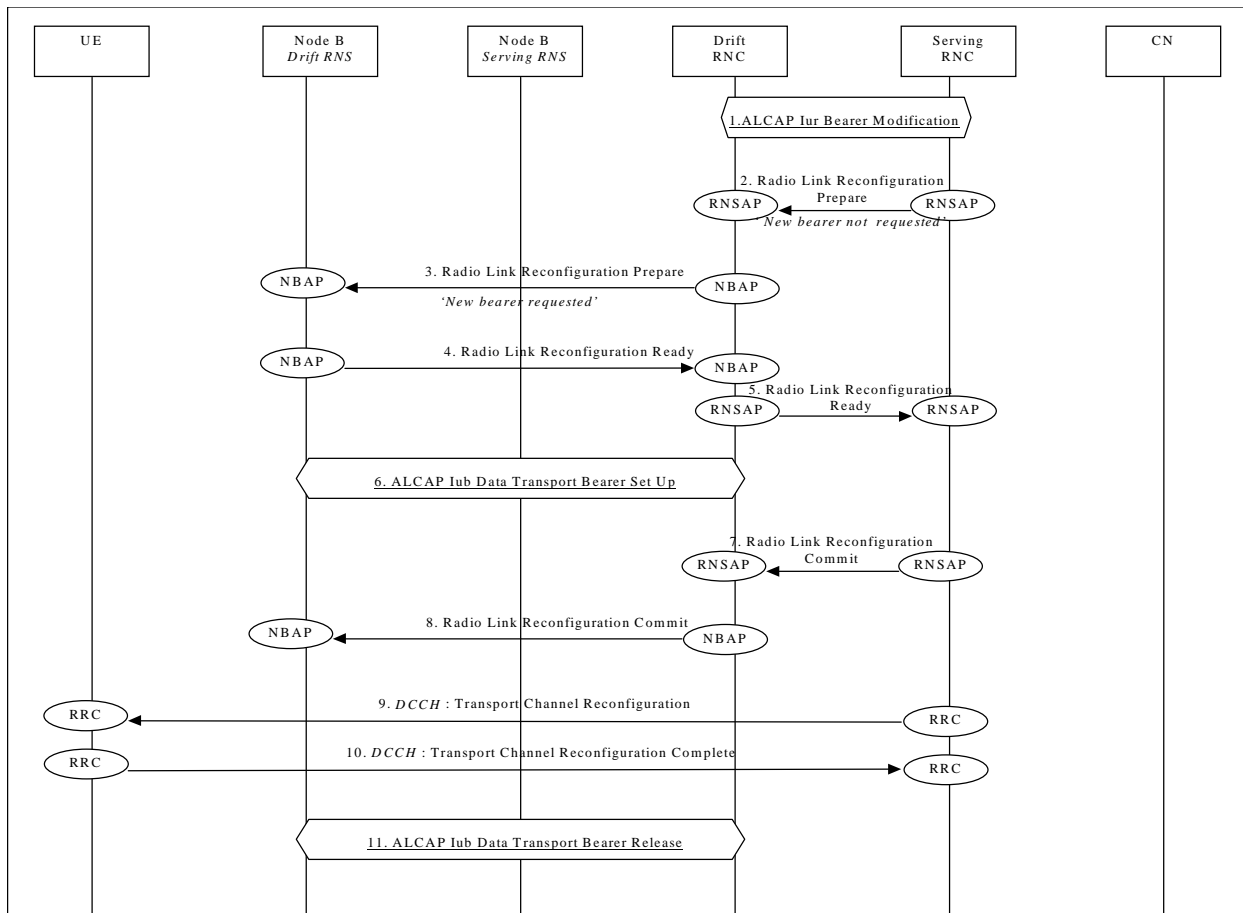


Figure 5: Synchronised Bandwidth Modification, Increase (Interworking of Release 99 Iub and Iur with the modification procedure)

1. SRNC decides that there is a need for synchronous Transport Channel Reconfiguration and initiates transport bearer modification of the Transport Bearer(s).
2. SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. DRNC requests its Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER REQUESTED.
4. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**). Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
5. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
6. DRNC initiates the establishment of new Iub Data Transport Bearers using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
7. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC.
Parameters: CFN

8. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B.
Parameters: CFN
9. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
10. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
11. Not used resources in the DRNC and Node B (Drift RNS) are released. DRNC initiates release of Iub (Drift RNS) Data Transport bearer using ALCAP protocol.

6.5.6 Synchronised Bandwidth Modification, Increase (Interworking of Iub with the modification procedure and Release 99 Iur)

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE, and when the interworking of Iub with the modification procedure and Release 99 Iur.

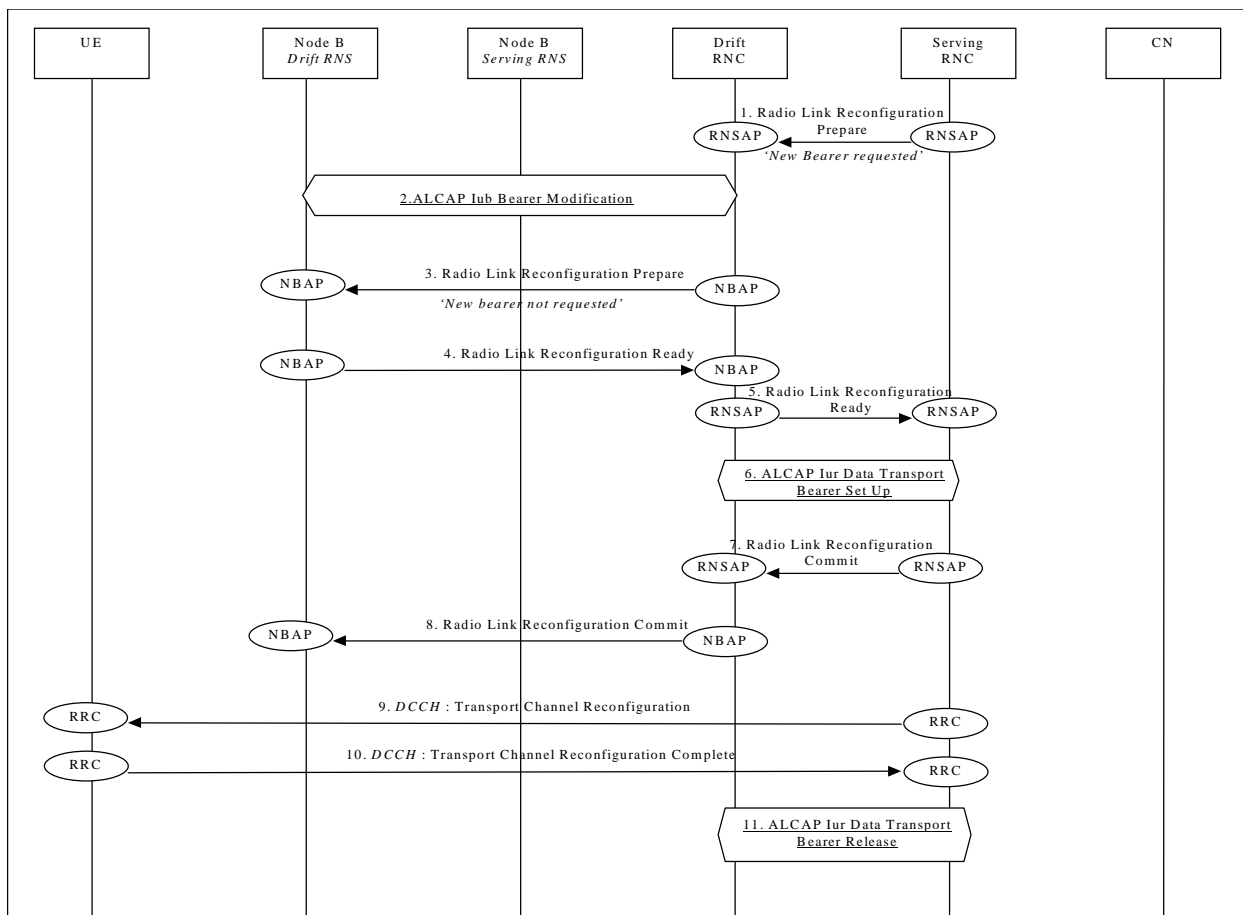


Figure 6: Synchronised Bandwidth Modification, Increase (Interworking of Iub with the modification procedure and Release 99 Iur)

1. SRNC decides that there is a need for synchronous Transport Channel Reconfiguration and SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER REQUESTED.
2. DRNC initiates transport bearer modification of the Transport Bearer(s).
3. DRNC requests its Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
4. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).

5. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**). Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
6. SRNC initiates the establishment of new Iur Data Transport Bearers using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iur Data Transport Bearer to DCH.
7. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC. Parameters: CFN
8. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B. Parameters: CFN
9. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
10. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
11. Not used resources in the SRNC and DRNC are released. SRNC initiates release of Iur Data Transport bearer using ALCAP protocol.

6.5.7 Synchronised Bandwidth Modification, Decrease (Interworking of Release 99 Iub and Iur with the modification procedure)

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE, and when the interworking of Release 99 Iub and Iur with the modification procedure.

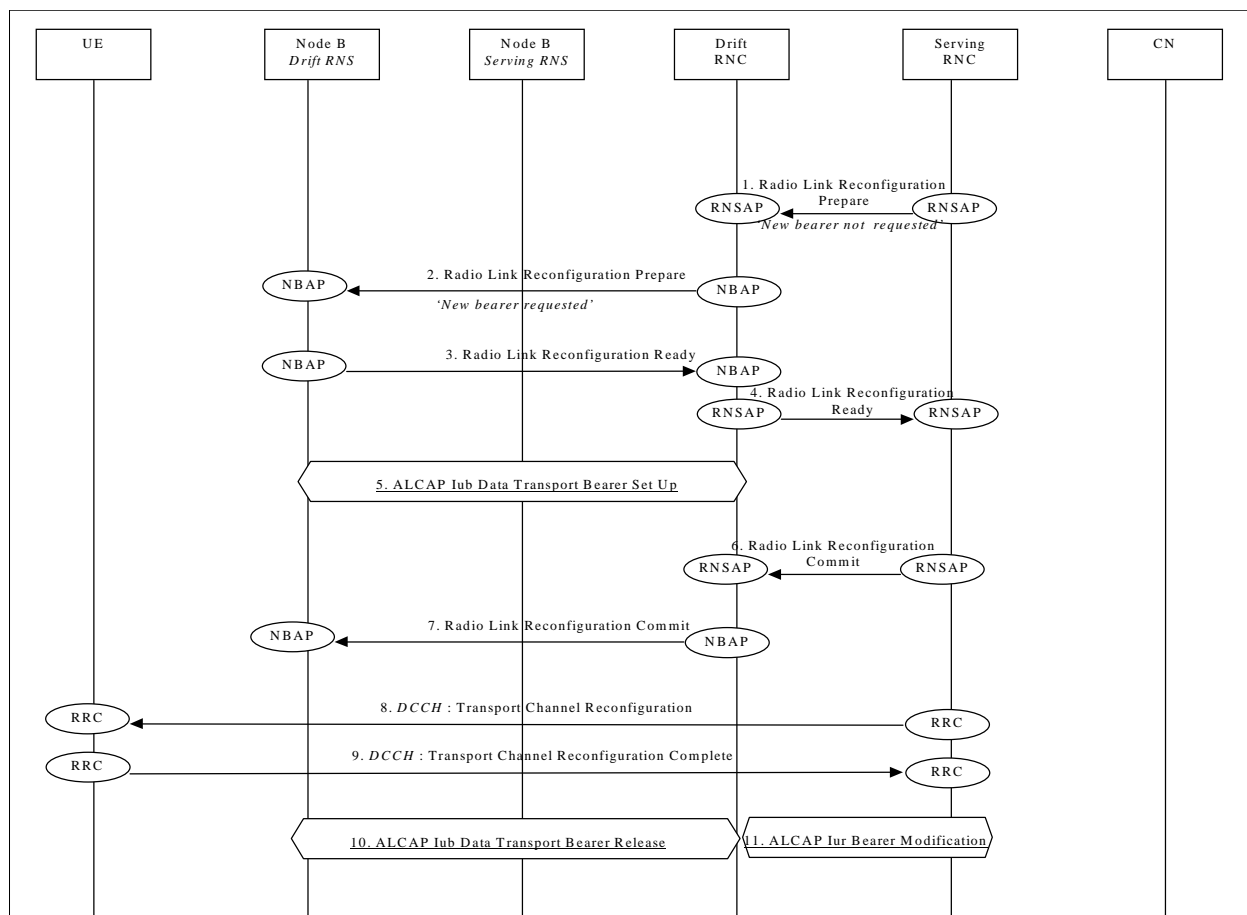


Figure 7: Synchronised Bandwidth Modification, Decrease (Interworking of Release 99 Iub and Iur with the modification procedure)

1. SRNC decides that there is a need for a synchronous Transport Channel Reconfiguration. SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**). Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
2. DRNC requests the Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).

Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag “Transport Bearer Request Indicator” shall be set to BEARER REQUESTED.

3. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**). Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
4. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
5. DRNC initiates the establishment of new Iub Data Transport Bearers using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iub Data Transport Bearer to DCH.
6. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC. Parameters: CFN.
7. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B. Parameters: CFN.
8. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
9. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
10. Not used resources in the DRNC and Node B are released. DRNC initiates release of Iub Data Transport bearer using ALCAP protocol.
11. SRNC initiates a transport bearer modification for the Transport Bearer(s).

6.5.8 Synchronised Bandwidth Modification, Decrease (Interworking of Iub with the modification procedure and Release 99 Iur)

This procedure can be applied when the reconfiguration time requires to be synchronised among the Node-Bs, SRNC and the UE, and when the interworking of Iub with the modification procedure and Release 99 Iur.



Figure 8: Synchronised Bandwidth Modification, Decrease (Interworking of Iub with the modification procedure and Release 99 Iur)

1. SRNC decides that there is a need for a synchronous Transport Channel Reconfiguration. SRNC requests DRNC to prepare reconfiguration of DCH (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information, Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER REQUESTED.
2. DRNC requests the Node B to prepare reconfiguration of DCH to carry the radio access bearer (**Radio Link Reconfiguration Prepare**).
Parameters: Transport Format Set, Transport Format Combination Set, Power control information Time Slots (TDD only), User Codes (TDD only), the flag "Transport Bearer Request Indicator" shall be set to BEARER NOT REQUESTED.
3. Node B allocates resources and notifies DRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**).
4. DRNC notifies SRNC that the reconfiguration is ready (**Radio Link Reconfiguration Ready**). Parameters: Transport layer addressing information (AAL2 address, AAL2 Binding Id) for Iub Data Transport Bearer.
5. DRNC initiates the establishment of new Iur Data Transport Bearers using ALCAP protocol. This request contains the AAL2 Binding Identity to bind the Iur Data Transport Bearer to DCH.
6. RNSAP message **Radio Link Reconfiguration Commit** is sent from SRNC to DRNC.
Parameters: CFN.
7. NBAP message **Radio Link Reconfiguration Commit** is sent from DRNC to Node B
Parameters: CFN.
8. RRC message **Transport Channel Reconfiguration** is sent by SRNC to UE.
9. UE sends RRC message **Transport Channel Reconfiguration Complete** to SRNC.
10. DRNC initiates a transport bearer modification for the Transport Bearer(s).
11. Not used resources in the SRNC and DRNC are released. SRNC initiates release of Iur Data Transport bearer using ALCAP protocol.

7 Agreements

7.1 Timing to execute the modification procedure

With the modification procedure, timing to execute the modification procedure is implementation specific.

7.2 Treatment of Binding ID

In RANAP^[5], binding ID is always given by CN in Radio access bearer modification signalling procedure as it is decided by SRNC if the existing transport bearer needs to be modified (with Release 99 procedure) or not in Release 99. If not, the binding ID is not used and is freed at the end of signalling procedure. The same treatment shall be given to the case that the existing transport bearer needs to be modified and with the modification procedure in Release 4.

In RNSAP^[6] and NBAP^[7], binding IDs are given by DRNC and Node B respectively in Radio access bearer modification and Transport bearer modification signalling procedures if it is indicated by SRNC and DRNC respectively that the existing transport bearer needs to be modified (with Release 99 procedure) in Release 99. If the Modify support for link characteristics parameter indicates the modification procedure shall be used at Iur or Iub interface, "new transport bearer is not required" shall be indicated then no binding ID shall be given by DRNC or Node B in Release 4.

7.3 Example signalling procedures

In increase case, ALCAP modification procedure shall be executed at the beginning of the signalling procedure. In decrease case, ALCAP modification procedure shall be executed at the end of the signalling procedure.

8 Change request

This clause lists up place where Change request needs to be given in order to enhance Release 99 specification to Release 4 specification for the work task.

8.1 Q.2630.1^[1] to Q.2630.2^[2]

This subclause shows place where Change request is needed in order to refer to enhanced the transport network signalling protocol.

Table 1: Place where Change request is given in order to refer to Q.2630.2^[2]

3G TS/TR	Title	Clause/Subclause	Number of point(s)	Remarks
3G TS 25.410	UTRAN Iu interface: general aspects and principles	4.5.2.1, 6.2 Figure 6.1	Subtotal: 2	
3G TS 25.414	UTRAN Iu interface: data transport & transport signalling	Contents - 5.2.2.1, 2 [10], 5.2.1 Figure 2, 5.2.2.1	Subtotal: 5	
3G TS 25.420	UTRAN Iur interface: general aspects and principles	8 Figure 4	Subtotal: 1	
3G TS 25.424	UTRAN Iur interface: data transport & transport signalling for common transport channel data streams	2 [4], 6.2	Subtotal: 2	
3G TS 25.426	UTRAN Iur and Iub interfaces: data transport & transport signalling for DCH data streams	2 [5], 6.1, 7.2 Figure 2, 8.2 Figure 3	Subtotal: 5	
3G TS 25.430	UTRAN Iub interface: general aspects and principles	7 Figure 7	Subtotal: 1	
3G TS 25.434	UTRAN Iub interface: data transport & transport signalling for common transport channel data streams	2 [3], 6.2, 7.2, 7.2 Figure 2	Subtotal: 5	
3G TR 25.931	UTRAN functions, examples on signalling procedures	Contents - 4.6.1, 4.6, 4.6.1, 4.6.1 Figure 2, 7.8.1 text step 10	Subtotal: 6	

8.2 Treatment of Binding ID

This subclause shows where Change request is needed in order to reflect the “Treatment of Binding ID” mentioned in subclause 7.2.

Table 2: Place where Change request is given in order to reflect Treatment of Binding ID

3G TS/TR	Title	Clause/Subclause	Remarks
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3G TS 25.413	UTRAN Iu interface RANAP signalling	8.2 RAB assignment	A paragraph R99 CR205r2 mentioned
3G TR 25.931	UTRAN functions, examples on signalling procedures	7.8 Radio access bearer modification 7.14 Transport channel reconfiguration (DCH to DCH)	

8.3 Timing to execute the modification procedure

This subclause shows where Change request is needed in order to show examples for the “Timing to execute the modification procedure” mentioned in subclause 7.1.

Table 3: Place where Change request is given in order to show examples of Timing of transport bearer change

3G TS/TR	Title	Clause/Subclause	Remarks
3G TR 25.931	UTRAN functions, examples on signalling procedures	7.8 Radio access bearer modification 7.14 Transport channel reconfiguration (DCH to DCH)	

8.4 Signalling procedures in TR 25.931^[3]

This subclause shows where Change request is needed in order to reflect the modification procedure with the agreement in subclause 7.3.

Table 4: Place where Change request is given in order to reflect the modification procedure

3G TS/TR	Title	Clause/Subclause	Remarks
3G TR 25.931	UTRAN functions, examples on signalling procedures	7.8 Radio access bearer modification 7.14 Transport channel reconfiguration (DCH to DCH)	

8.5 Handling of other new capabilities in Q.2630.2^[2]

One of other new capabilities in Q.2630.2^[2] “Path type” may be utilized for UTRAN. However it is out of scope of the present document. See TR 25.934^[4] “QoS optimization for AAL type 2 connections over Iub and Iur interfaces”.

Annex A: Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New

Document history		
Date	Version	Comment
19 th January 2001	0.0.1	First version. Output of the Modification procedure ad hoc session at R3#18 meeting, 15 th – 19 th January 2001.
19 th January 2001	1.0.0	Output of R3#18 meeting, 15 th – 19 th January 2001.
8 th February 2001	1.0.1	Output from QoS&Mod ad hoc meeting, 6 th – 9 th February 2001. Reflects agreement in the meeting.
27 th February 2001	1.0.2	Output from Rel4 plenary items session of R3#19 meeting on 26 th February 2001. Makes timing to execute the modification procedure implementation specific.
1 st March 2001	2.0.0	Output from R3#19 meeting, 26 th February - 2 nd March 2001. No change from V1.0.2. To be raised to V4.0.0 at TSG RAN#11, 13 th – 16 th March 2001.
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This document is written in Microsoft Word version 98.		

Annex B (Temporary): Document Stability Assessment Table

(Sub) clause	Content missing	Incomplete	Content Checking needed	Editorial work required	Almost stable	Stable
1						X
2						X
3.1						X
3.2						X
3.3						X
4						X
4.1						X
4.2						X
4.3						X
5						X
6						X
6.1						X
6.2						X
6.3						X
6.4						X
6.5						X
7.1						X
7.2						X
7.3						X
8						X
8.1						X
8.2						X
8.3						X
8.4						X
8.5						X