

Source: TSG CN WG3
Title: Rel-5 Work Item SCUDIF.
Agenda item: 8.7
Document for: APPROVAL

Introduction:

This document contains 1 CR on **Rel-5 Work Item SCUDIF**, including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel	C_Ver
N3-030437	Call flows for Service Change DURING THE ACTIVE STATE	23.172	012	2	F	Rel-5	5.1.0

CHANGE REQUEST

⌘ **23.172 CR 012** ⌘ rev **2** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Callflows for Service change during the active state		
Source:	⌘ TSG_CN WG3 [LM Ericsson]		
Work item code:	⌘ SCUDIF	Date:	⌘ 09/05/2003
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories: F (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 <u>one</u> 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) Rel-6 (Release 6)

Reason for change:	⌘ Service change section does not cover enough detail for the Server to control the MGW in split atchitecture for a SCUDIF call.
Summary of change:	⌘ Callflow diagrams added, reference to 26.102 –SDU format for MuMe.
Consequences if not approved:	⌘ Server-MGW behaviour for service change not fully defined – misoperation may occur.

Clauses affected:	⌘ 2, 4.3.1, 4.3.5										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘ 29.232 CR#056, 23.153 CR#061	
Y	N										
X											
	X										
	X										
Other comments:	⌘										

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.153: "Out of Band Transcoder Control; Stage 2".
- [3] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core network protocols; Stage 3".
- [4] 3GPP TS 26.103: "Speech Codec List for GSM and UMTS".
- [5] 3GPP TS 27.001: "General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)".
- [6] 3GPP TS 29.007: "General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)".
- [7] 3GPP TS 29.205: "Application of Q.1900 series to bearer-independent circuit-switched core network architecture; Stage 3".
- [8] 3GPP TS 22.101: "Service aspects; Service principles".
- [9] 3GPP TS 33.106: "3GPP Security; Lawful Interception Requirements".
- [x] [3GPP TS 29.232: "Technical Specification Group Core Network; Media Gateway Controller \(MGC\) – Media Gateway \(MGW\) Interface; Stage 3"](#)
- [y] [3GPP TS 26.102: "Mandatory Speech Codec; AMR Speech Codec; Interface to Iu, Uu, Nb: "](#)

***** Next Modified Section *****

4.3.1 Multimedia codec

The codec negotiation procedures transmit an ordered list of preferred codecs from the originating to the terminating MSC. A node that requires interaction with the user plane will remove the codecs it does not support. The terminating MSC shall select the codec to use ("selected codec") from the list of available codecs for the call. This selection shall be based on the received list of codecs and on the information given by the terminating UE in the CALL CONFIRMED message.

A dummy codec (defined in 3GPP TS 26.103 [4]) is included in the codec list to indicate that a multimedia call is requested. This codec is in the present document referred to as the 3G-324.M codec.

This codec is only used by the Core Network and shall not be sent from the terminal in the Supported Codec List IE. [The 3G-324.M codec shall be indicated to the MGW as codec stream mode property in accordance with the 3GPP TS 29.232 \[x9\]. The MGW shall treat the User Plane configuration \(SDU Format\) as for PCM, as defined in 3GPP TS 26.102 \[y40\].](#)

****** Next Modified Section ******

4.3.5 Service change during the active state

Whenever an In-Call Modification procedure is invoked by a terminal, unless it is not allowed as determined at call setup, the following shall take place:

- if the current mode is the speech mode and the MODIFY message contains a multimedia BC-IE, the normal Out-of-Band Transcoder Control procedures shall be invoked in order to change the Selected Codec to the 3G-324.M codec;
- if the current mode is the multimedia mode and the MODIFY message contains a speech BC-IE, the normal Out-of-Band Transcoder Control procedures shall be invoked in order to change the Selected Codec to the preferred speech codec.

The Codec Modification procedure shall be supported for service change. The use of mid-call codec negotiation procedure is optional for service change.

When a MSC detects through an Out-of-Band Transcoder Control procedure that the selected codec has changed from a speech codec to the 3G-324.M codec, or vice-versa, it shall initiate an In-Call Modification procedure towards the UE with a MODIFY message containing the multimedia BC-IE (or the speech BC-IE), unless the new mode has been denied at call setup (see clause 4.2.4).

4.3.5.1 Mid-Call Codec Modification Procedure For Service Change

The Codec Modification procedures as defined in [2] shall be applied with the following specific additional rules for the Service Change procedure.

In order to prevent the MGW generating an error or seizing resources during the interim period when its terminations are being altered and it may have a speech codec on one side of the context and the 3G-324M codec on the other side the Server shall modify the Stream-mode of the affected terminations to inactive during the Service change and shall restore the stream mode to active – (send/receive – bothway) on completion of the service -change procedure. In order to restore the stream mode to active, the MSC servers shall use the “Modify Bearer Characteristics” procedure for Iu terminations and for Nb terminations towards the succeeding node with respect to the “Modify Codec” message. The MSC servers shall use the “Confirm Bearer Characteristics” procedure for Nb terminations towards the preceding node with respect to the “Modify Codec” message.

If the affected termination’s stream mode is inactive a MGW shall not reject a “Modify Bearer Characteristics” or a “Reserve Bearer Characteristics” procedure because the multimedia codec and a speech codec are interconnected simultaneously in the same context.

For a service change ~~from speech to multimedia~~ where the CN shall initiate the IuUP on the Nb interface, the ~~terminating~~ MSC server terminating the service change shall trigger the IuUP initialisation towards the core network by setting the Iu-UP initialisation direction to “out” in the “Confirm Bearer Characteristics” procedure for the corresponding termination towards the core network.

Example call flows are shown in Figure 4.3.5.1/1 to 4.3.5.1/4.

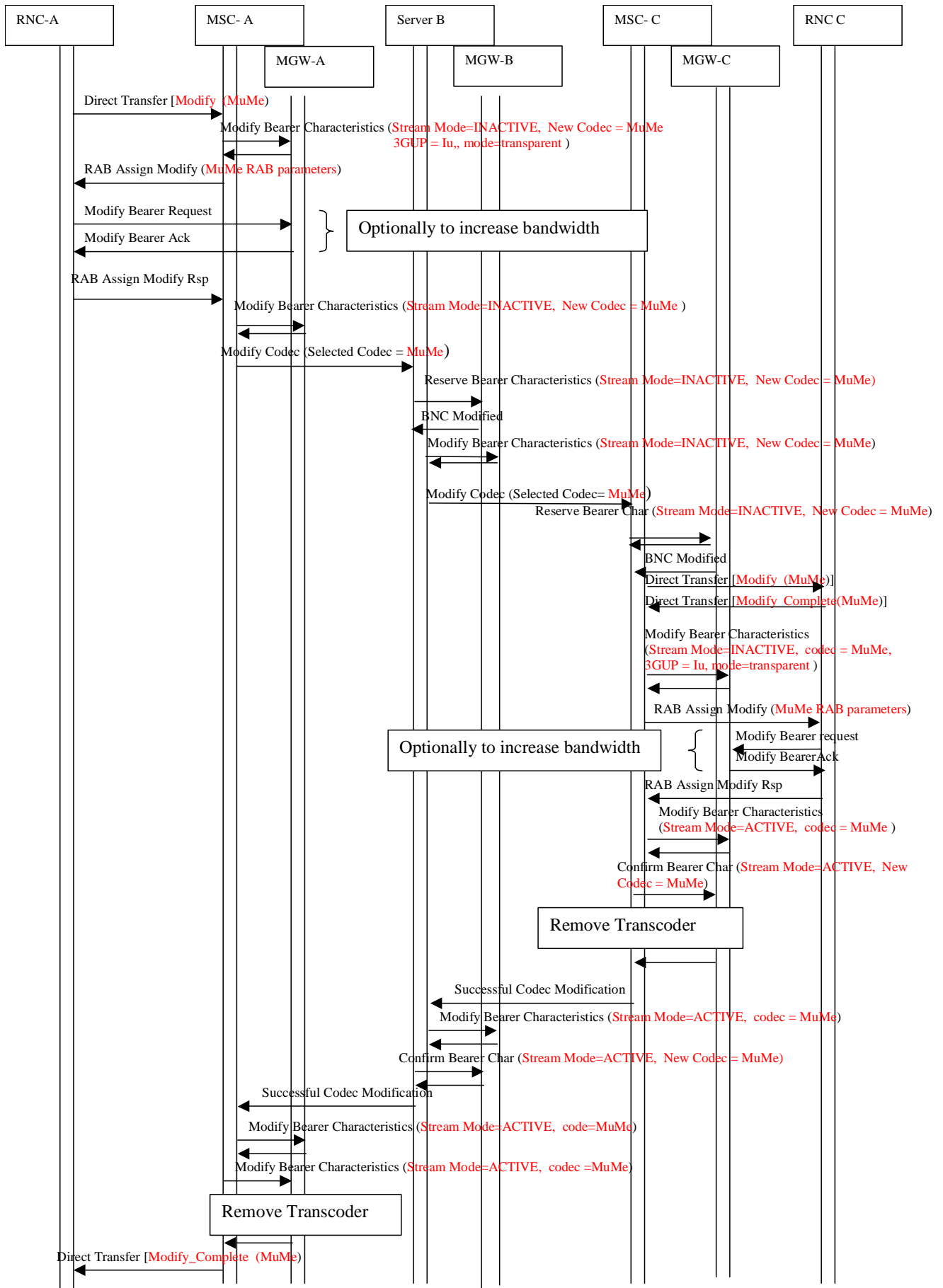
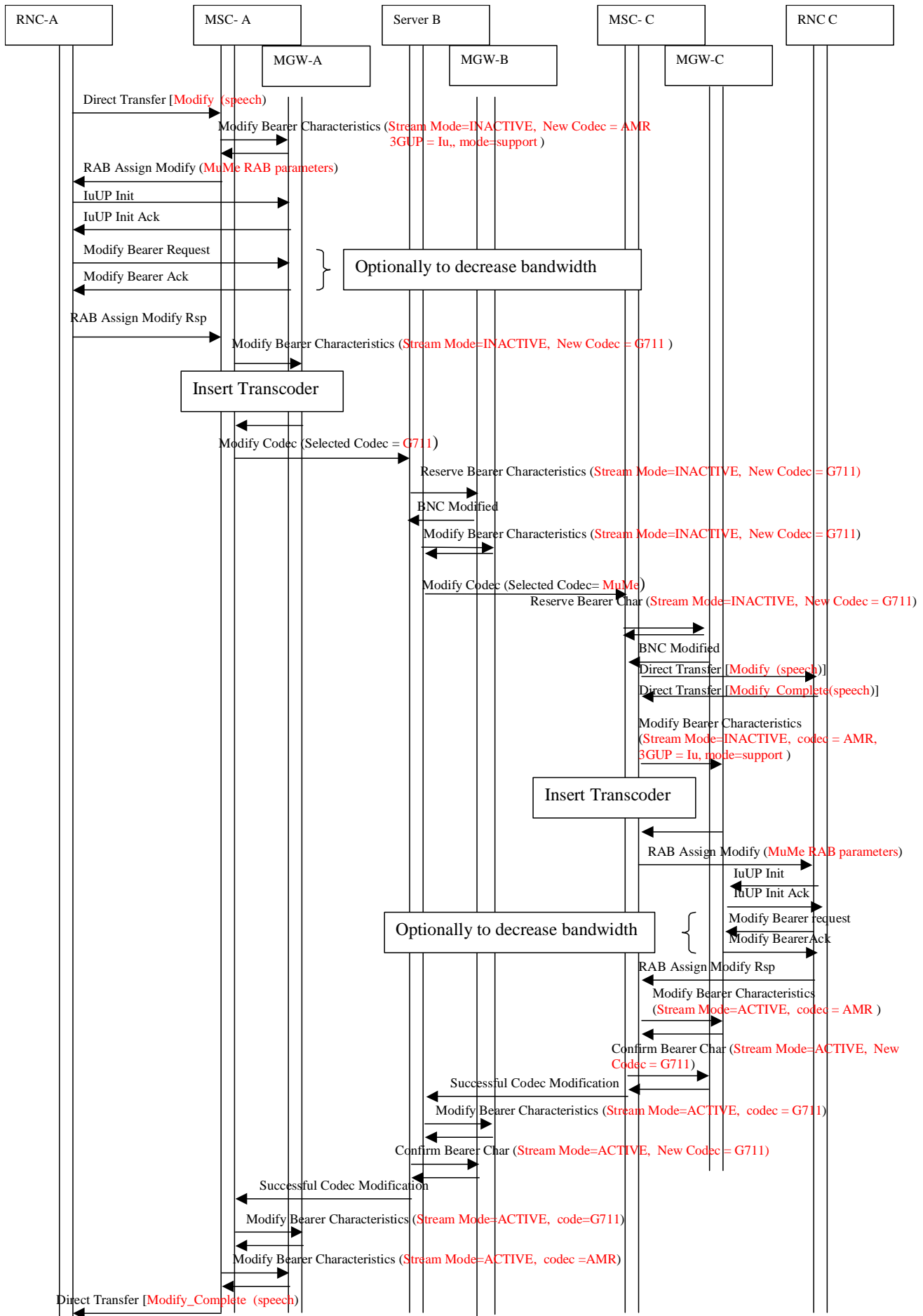
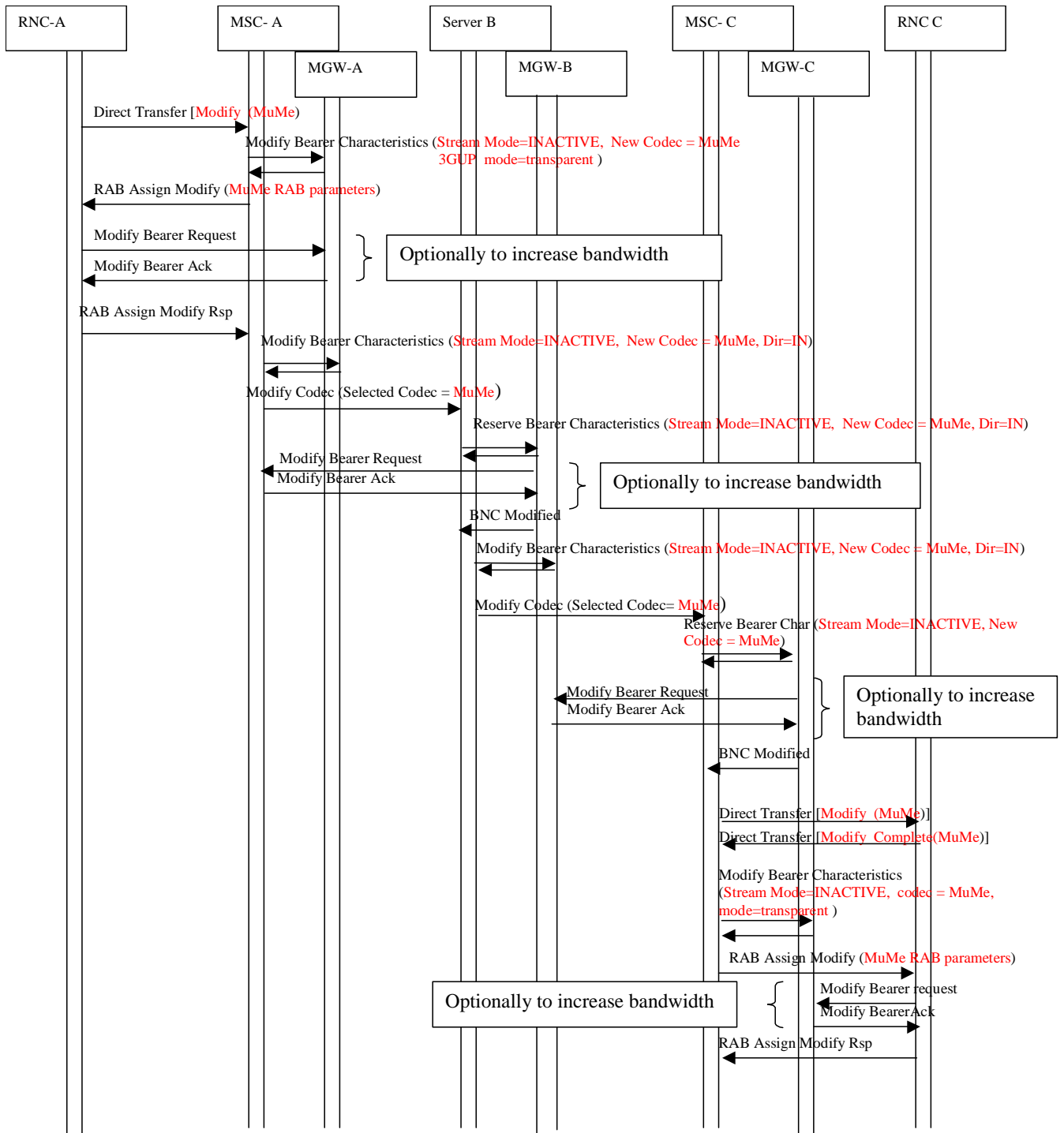


Figure 4.3.5.1/1: Service change PCM(G711) to MuMe

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[Figure 4.3.5.1/2: Service change MuMe to PCM\(G711\)](#)



[Figure 4.3.5.1/3a1: Service change AMR to MuMe](#)

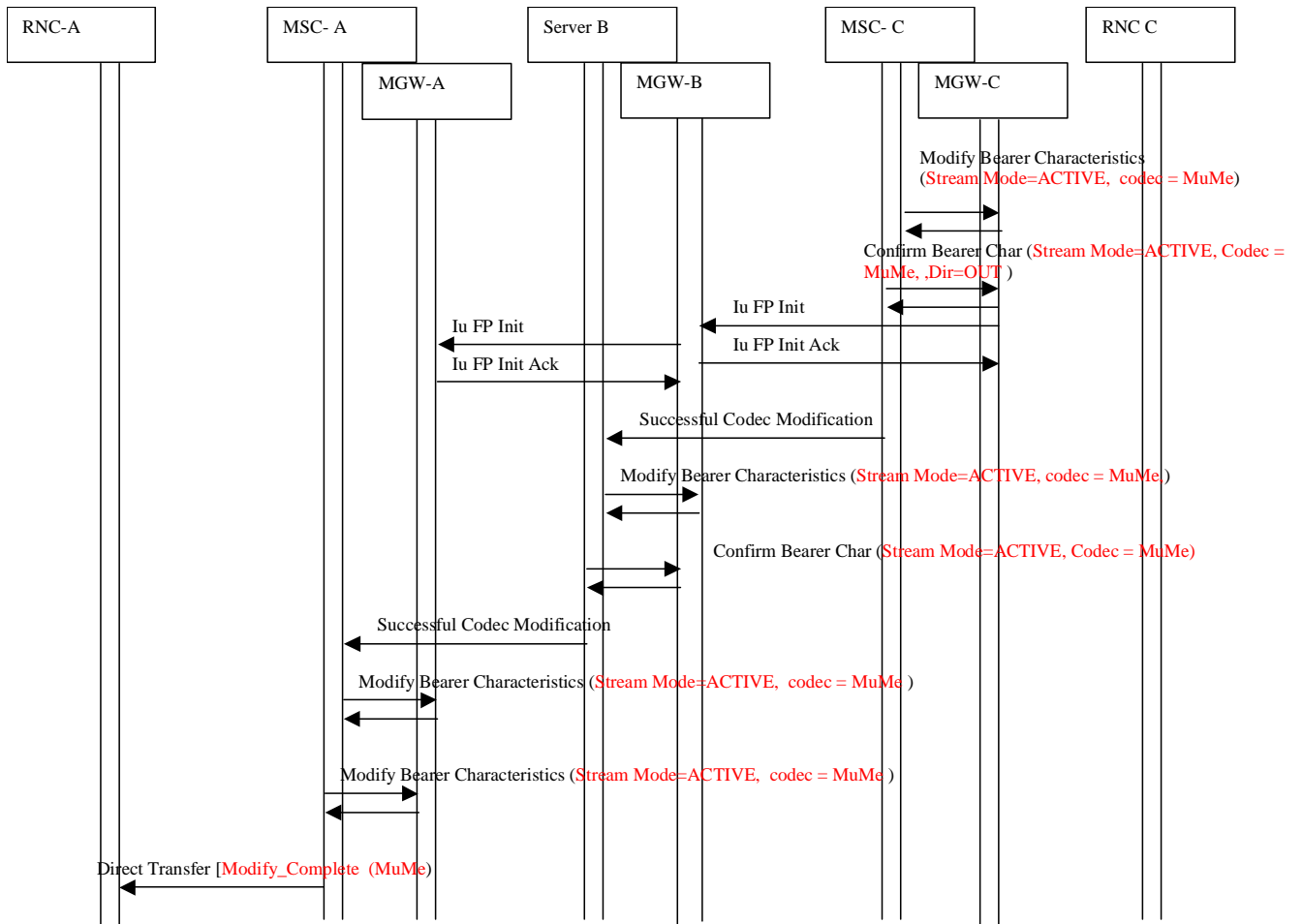


Figure 4.3.5.1/3b2: Service change AMR to MuMe (continued)

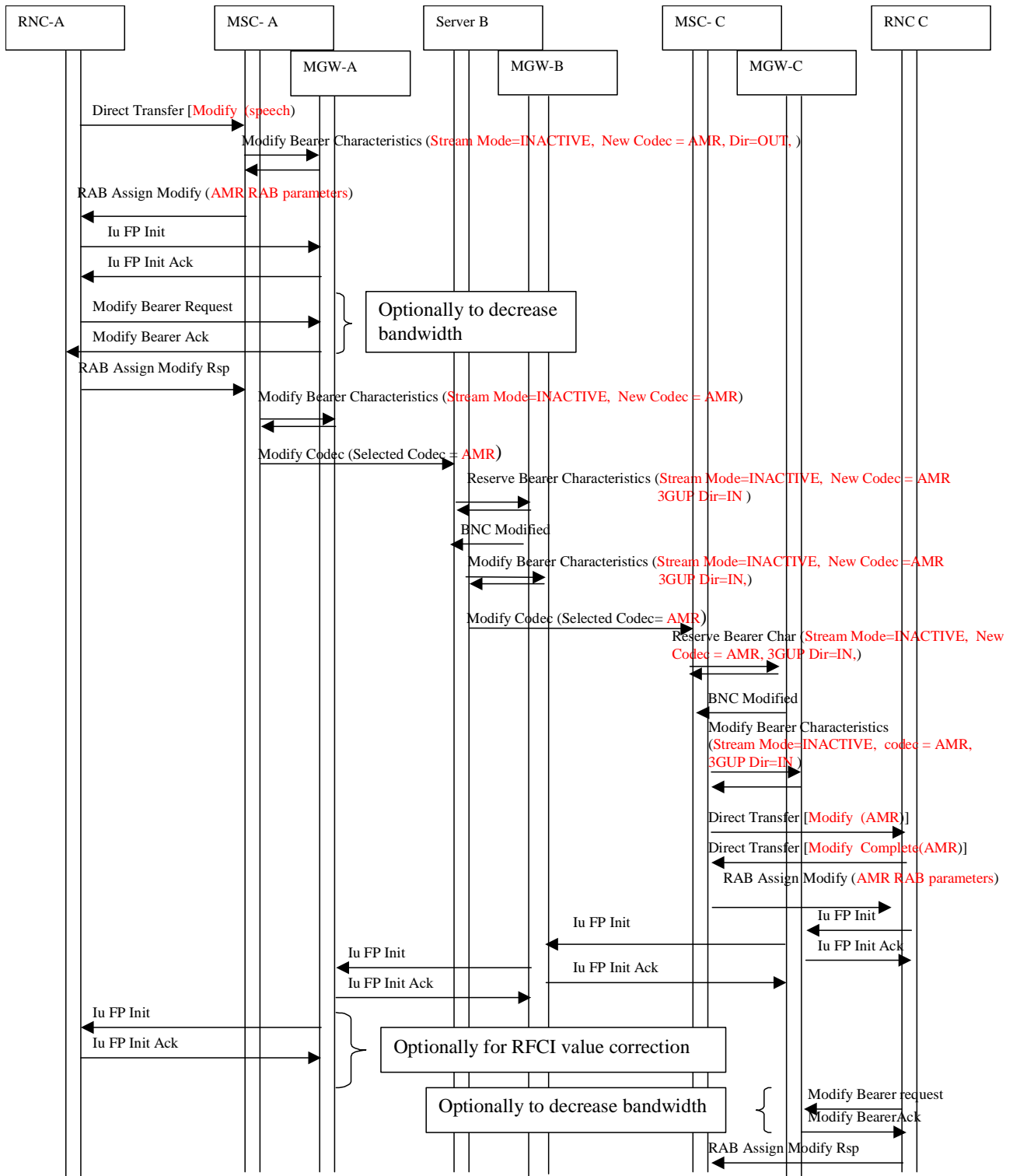


Figure 4.3.5.1/4a3: Service change MuMe to AMR

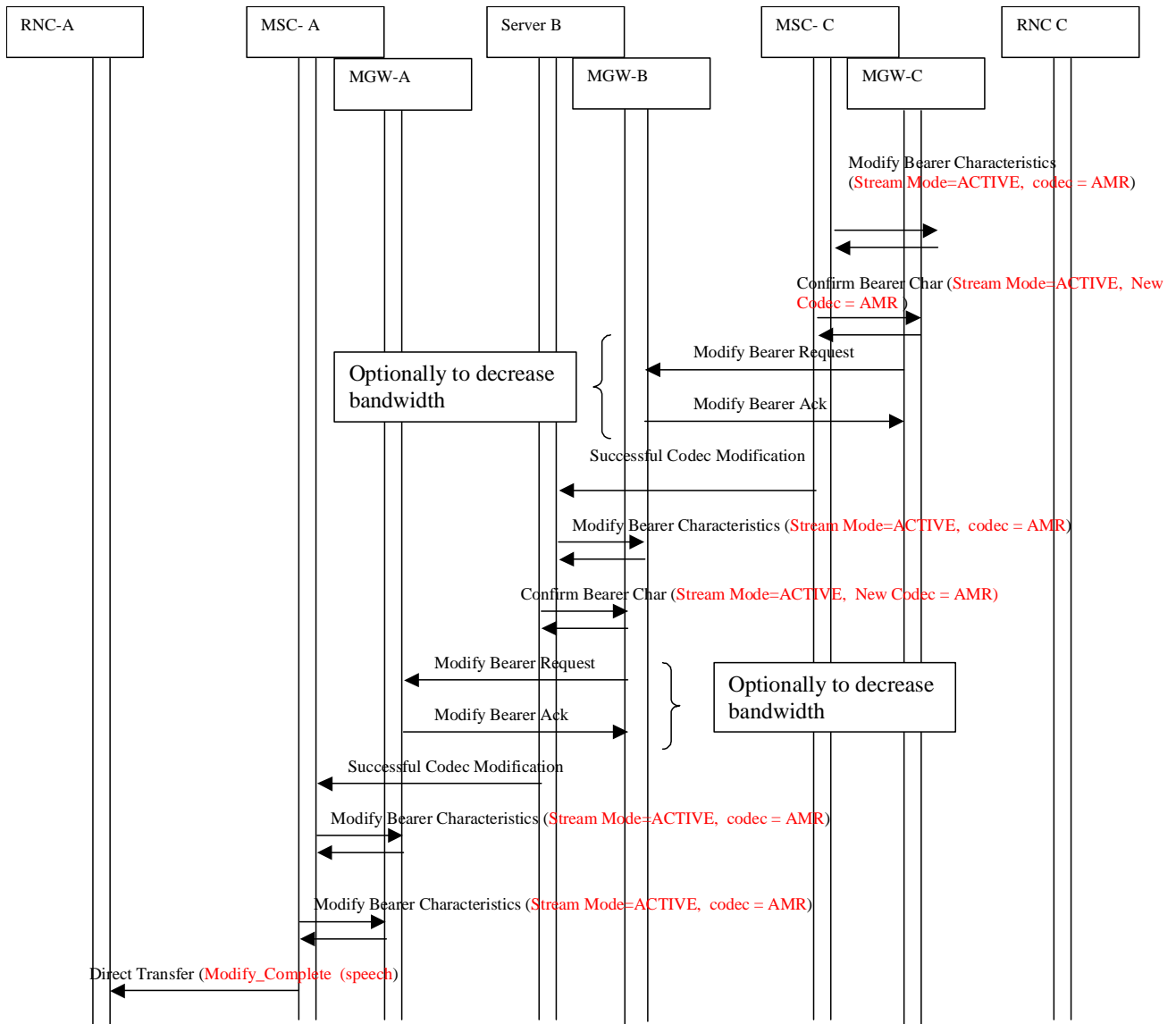


Figure 4.3.5.1/4b: Service change MuMe to AMR (continued)

4.3.5.2 Unsuccessful Service Change

In the case the service change is denied by the UE at the terminating side, the procedures for the unsuccessful Codec Modification as defined in [2] shall be applied to revert to the old medium (speech or multimedia).

The through-connection of terminations shall be performed as described in Section 4.3.5.1, with the “Codec Modification Failure” as trigger.

An example sequence is shown in Figure 4.3.5.2/1 to 4.3.5.2/2.

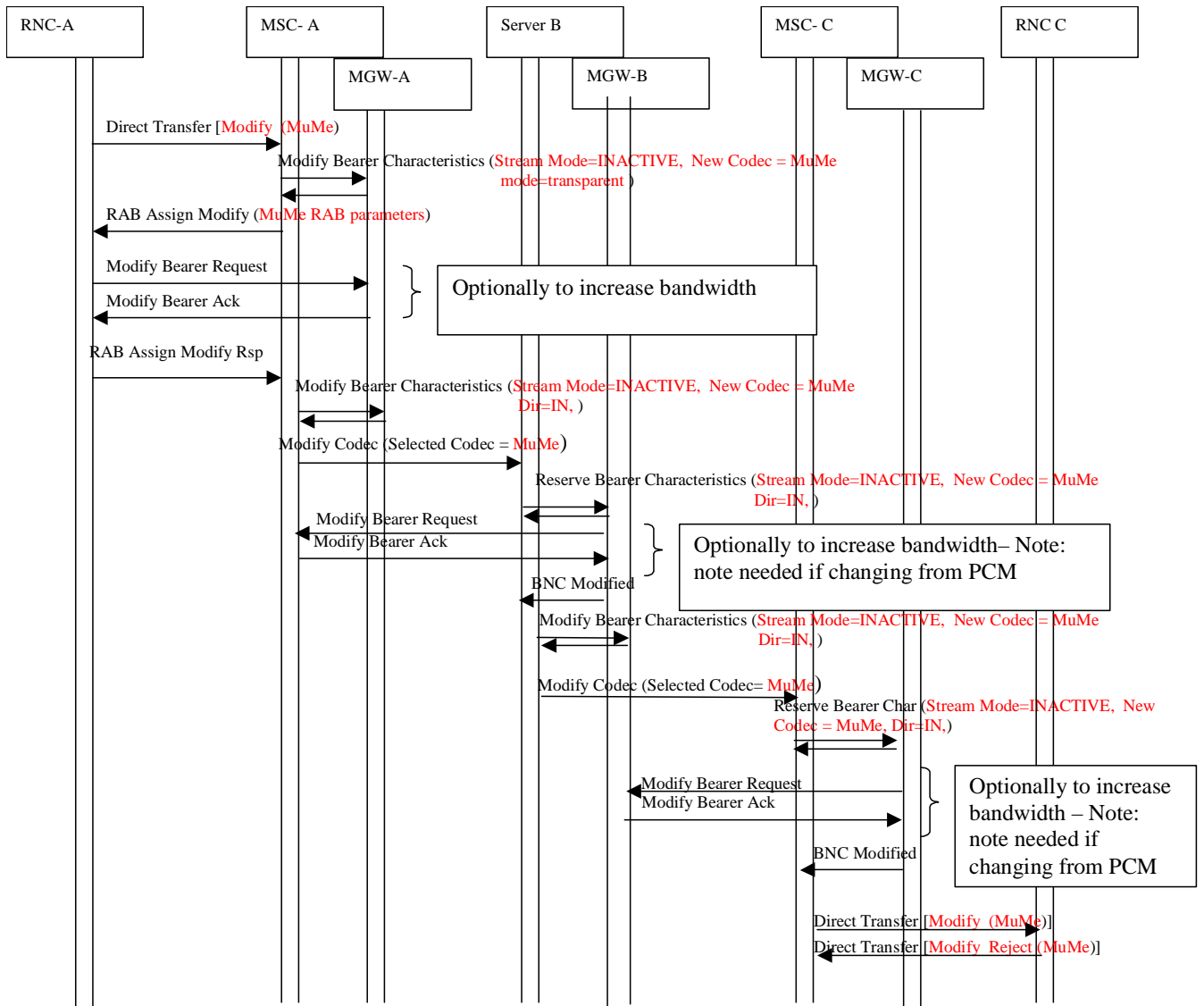


Figure 4.3.5.2/1a:Service Change Rejected

