Source: CT3

Title: CR to Rel-6 related to NI downgrade on Work Item SCUDIF

Agenda item: 9.25

Document for: APPROVAL

Introduction:

This document contains 1 CR to Rel-6 on Work Item "SCUDIF" that have been agreed by TSG CT WG3, and are forwarded to TSG CT Plenary for approval.

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver	Work Item
C3-050409	23.172	038	1	F	Network initiated downgrade procedures for SCUDIF, signaling flows	Rel-6	6.2.0	SCUDIF

3GPP TSG-CT WG3 Meeting #36 *Tdoc* ⌘ *C3-050409*

Cancun, Mexico. 25th - 29th April 2005.

	CR-Form-v7.1
CHANGE REQUEST	

⌘ **TS23.172 CR 038** ⌘**rev 1** ⌘ Current version: **6.2.0** ⌘

*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 **X** Radio Access Network **X** Core Network **X**

Title: ⌘	Network-Initiated downgrade, signaling flows	
Source: ⌘	Nokia	
Work item code:⌘	TEI6	***Date:*** ⌘ 25/04/2005
Category: ⌘ **F**		***Release:*** ⌘ Rel-6

Use one 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 one of the following releases:
 Ph2 (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)
 Rel-7 (Release 7)

Reason for change: ⌘	The signaling flows in section 4.3.5.1 are not describing the network- initiated service change from multimedia to speech. The AMR codec and G.711 codec specific parts of the signaling are made more visible with the parenthesis.
Summary of change:⌘	The figure for the network-initiated service change from multimedia to speech is included to section 4.3.5.1
Consequences if not approved: ⌘	Incomplete stage 2 description of the network-initiated downgrade procedures

Clauses affected: ⌘	4.3.5.1

	Y	N		
Other specs ⌘		X	Other core specifications	⌘
affected:		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	

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.

When a visited MSC invokes Network-initiated Service change in the active state (see Clause 4.2.5), this visited MSC shall also invoke the normal Out-of-Band Transcoder Control procedures in order to change the Selected Codec to speech or to the 3G-324.M codec, respectively.

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 3GPP TS 23.153 [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 where the CN shall initiate the IuUP on the Nb interface, the MSC server terminating the service change shall trigger the IuUP initialisation towards the core network by setting the IuUP initialisation direction to "out" in the "Confirm Bearer Characteristics" procedure for the corresponding termination towards the core network.

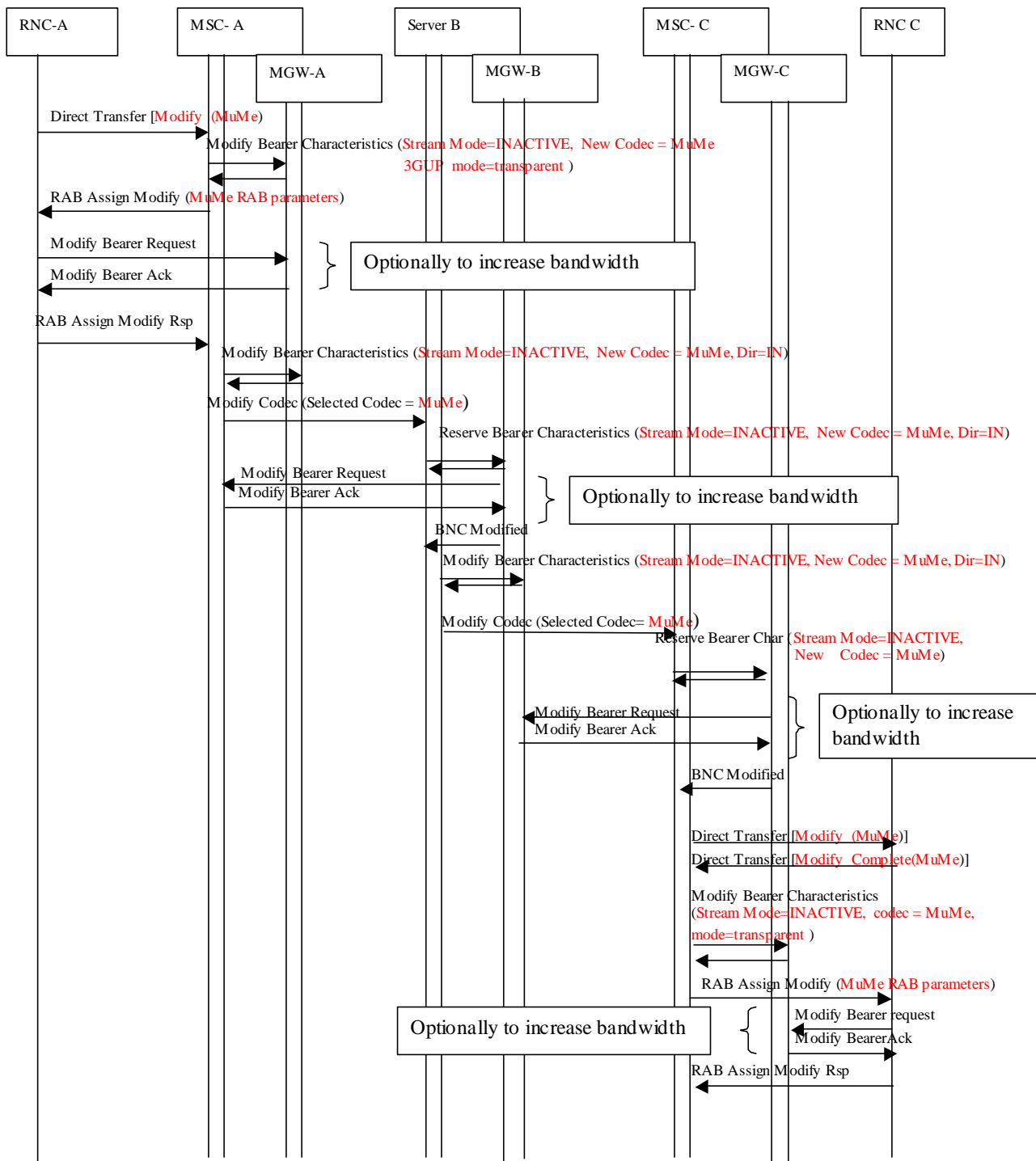Example call flows are shown in Figure 4.3.5.1/1 to 4.3.5.1/6x.

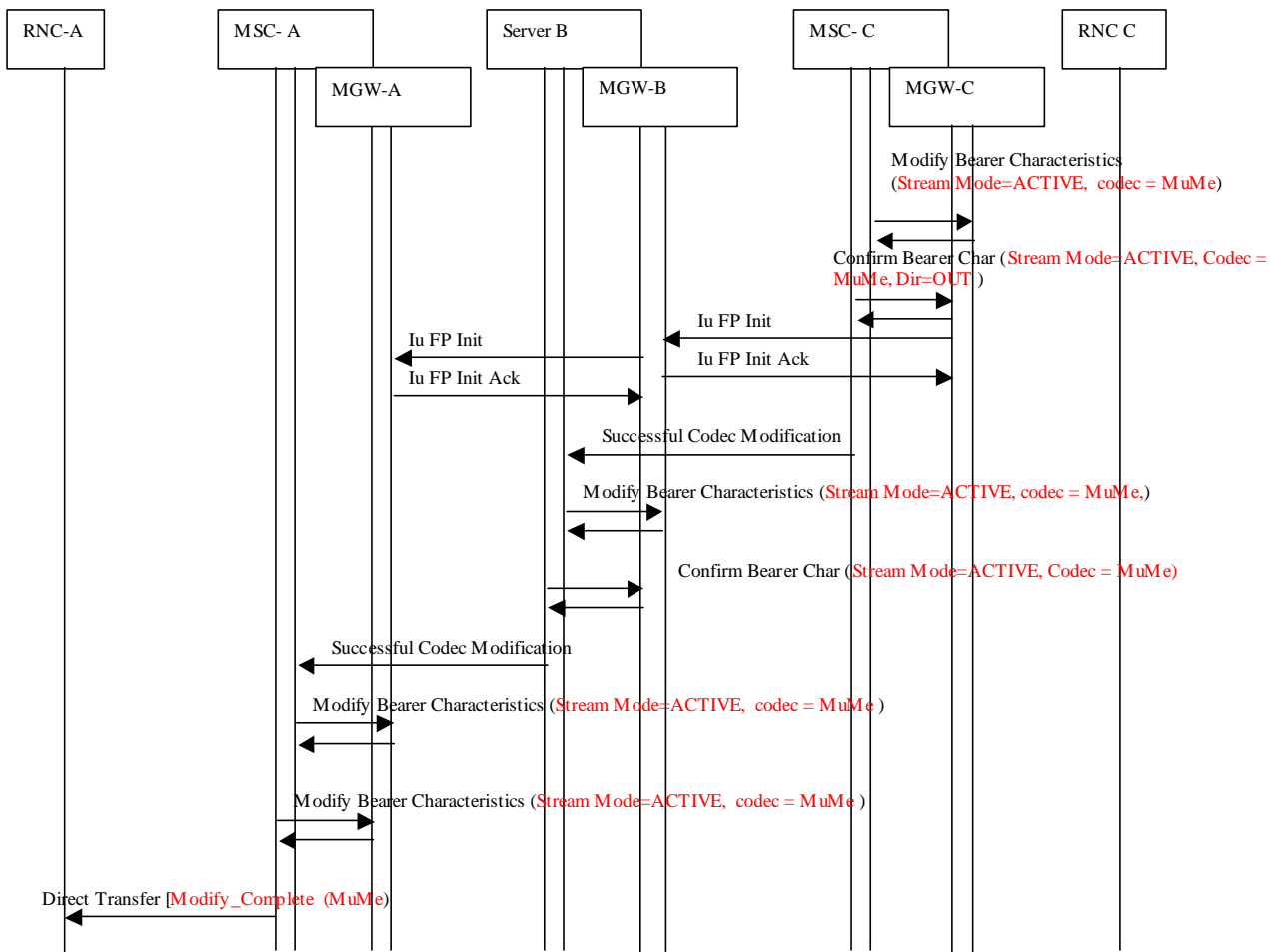**Figure 4.3.5.1/1: Service change speech to MuMe**
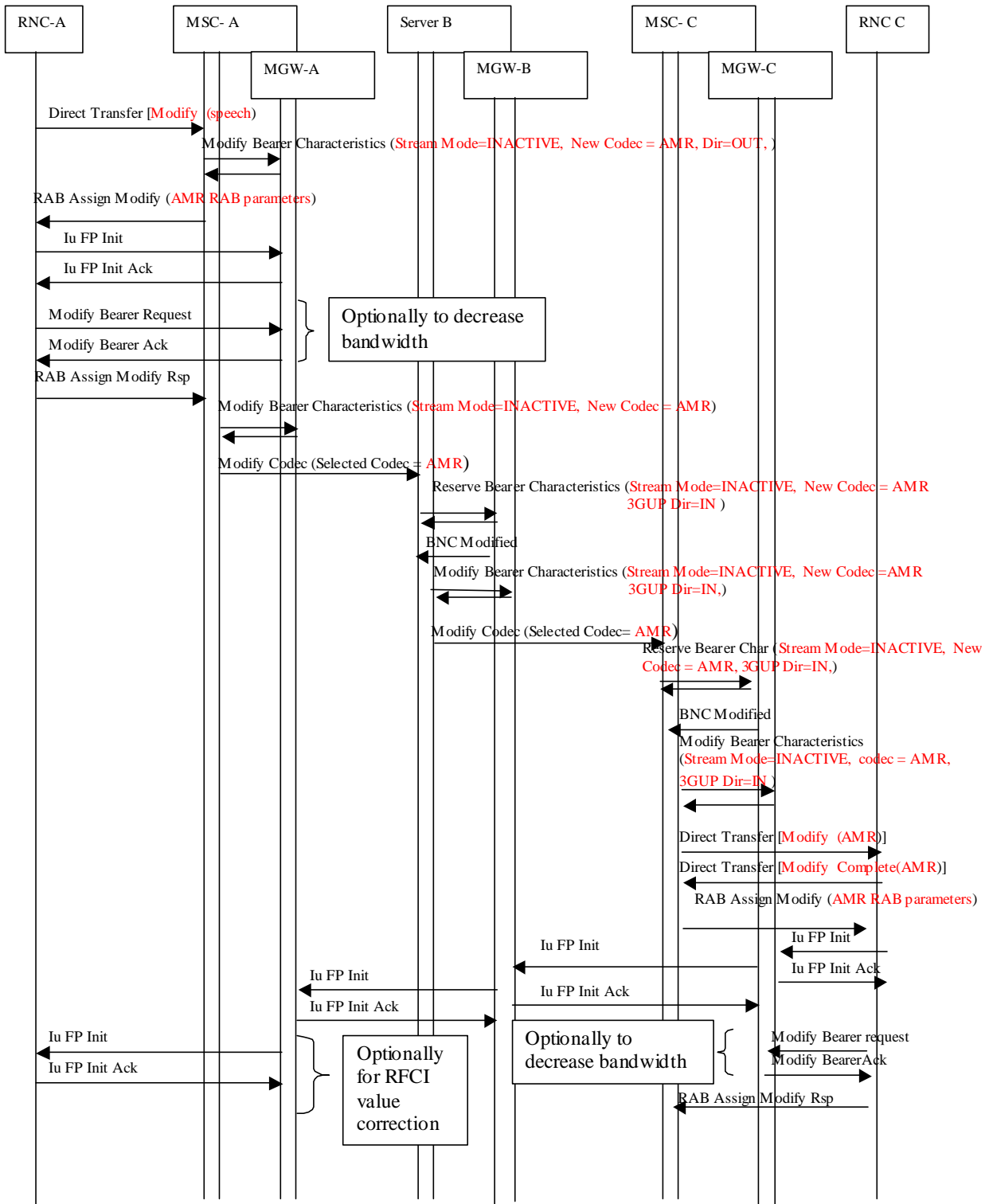
Figure 4.3.5.1/2: Service change speech to MuMe (continued)

RNC-A | MSC- A | Server B | MSC- C | RNC C

MGW-A | MGW-B | MGW-C

Direct Transfer [Modify (speech)]

Modify Bearer Characteristics (Stream Mode=INACTIVE, New Codec = AMR, Dir=OUT,)

RAB Assign Modify (AMR RAB parameters)

Iu FP Init

Iu FP Init Ack

Modify Bearer Request

Modify Bearer Ack

Optionally to decrease bandwidth

RAB Assign Modify Rsp

Modify Bearer Characteristics (Stream Mode=INACTIVE, New Codec = AMR)

Modify Codec (Selected Codec = AMR)

Reserve Bearer Characteristics (Stream Mode=INACTIVE, New Codec = AMR 3GUP Dir=IN)

BNC Modified

Modify Bearer Characteristics (Stream Mode=INACTIVE, New Codec =AMR 3GUP Dir=IN,)

Modify Codec (Selected Codec= AMR)

Reserve Bearer Char (Stream Mode=INACTIVE, New Codec = AMR, 3GUP Dir=IN,)

BNC Modified

Modify Bearer Characteristics (Stream Mode=INACTIVE, codec = AMR, 3GUP Dir=IN)

Direct Transfer [Modify (AMR)]

Direct Transfer [Modify Complete(AMR)]

RAB Assign Modify (AMR RAB parameters)

Iu FP Init

Iu FP Init

Iu FP Init Ack

Iu FP Init

Iu FP Init Ack

Iu FP Init Ack

Iu FP Init

Iu FP Init Ack

Optionally for RFCI value correction

Optionally to decrease bandwidth

Modify Bearer request

Modify BearerAck

RAB Assign Modify Rsp

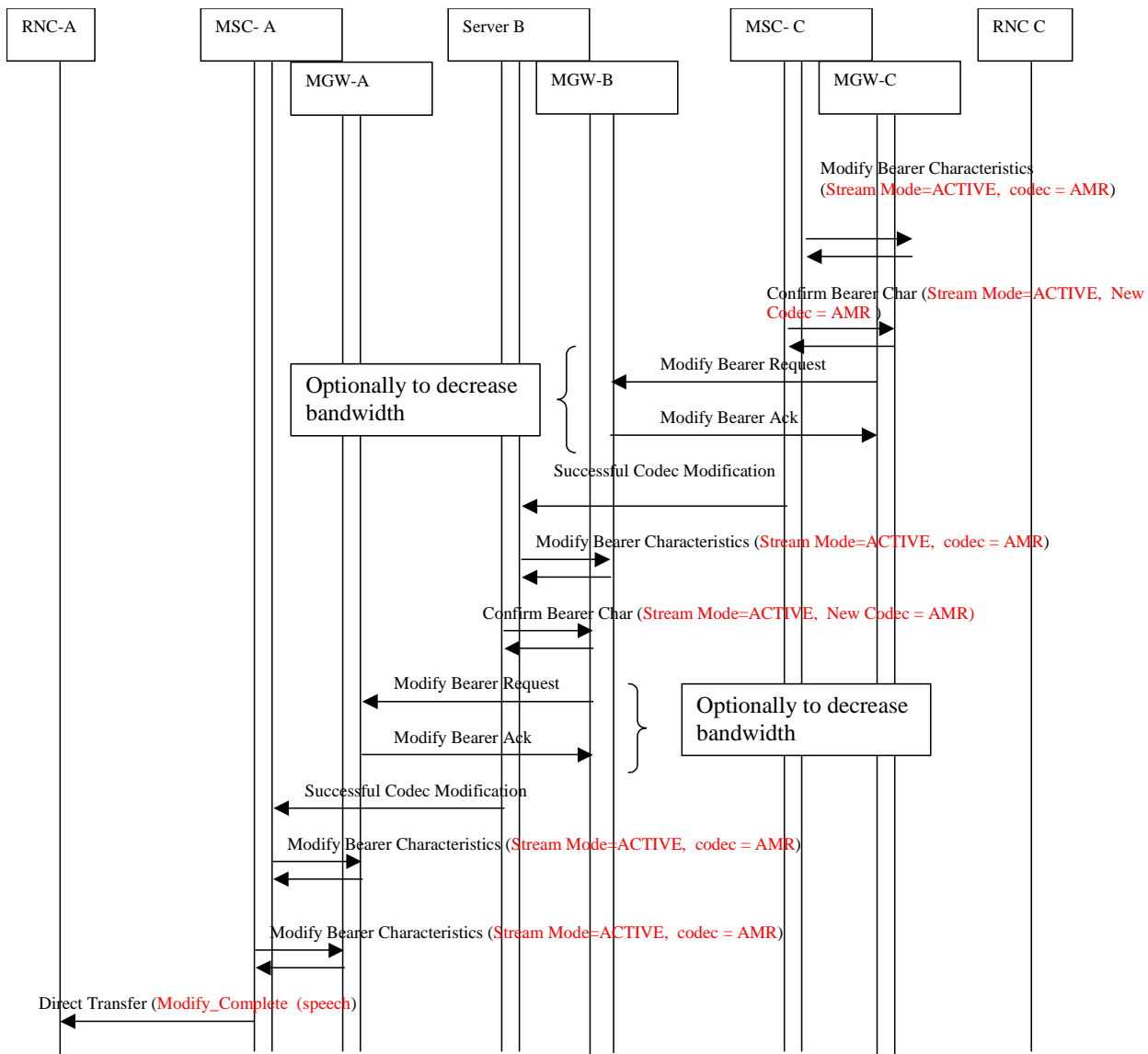**Figure 4.3.5.1/3: Service change MuMe to AMR**

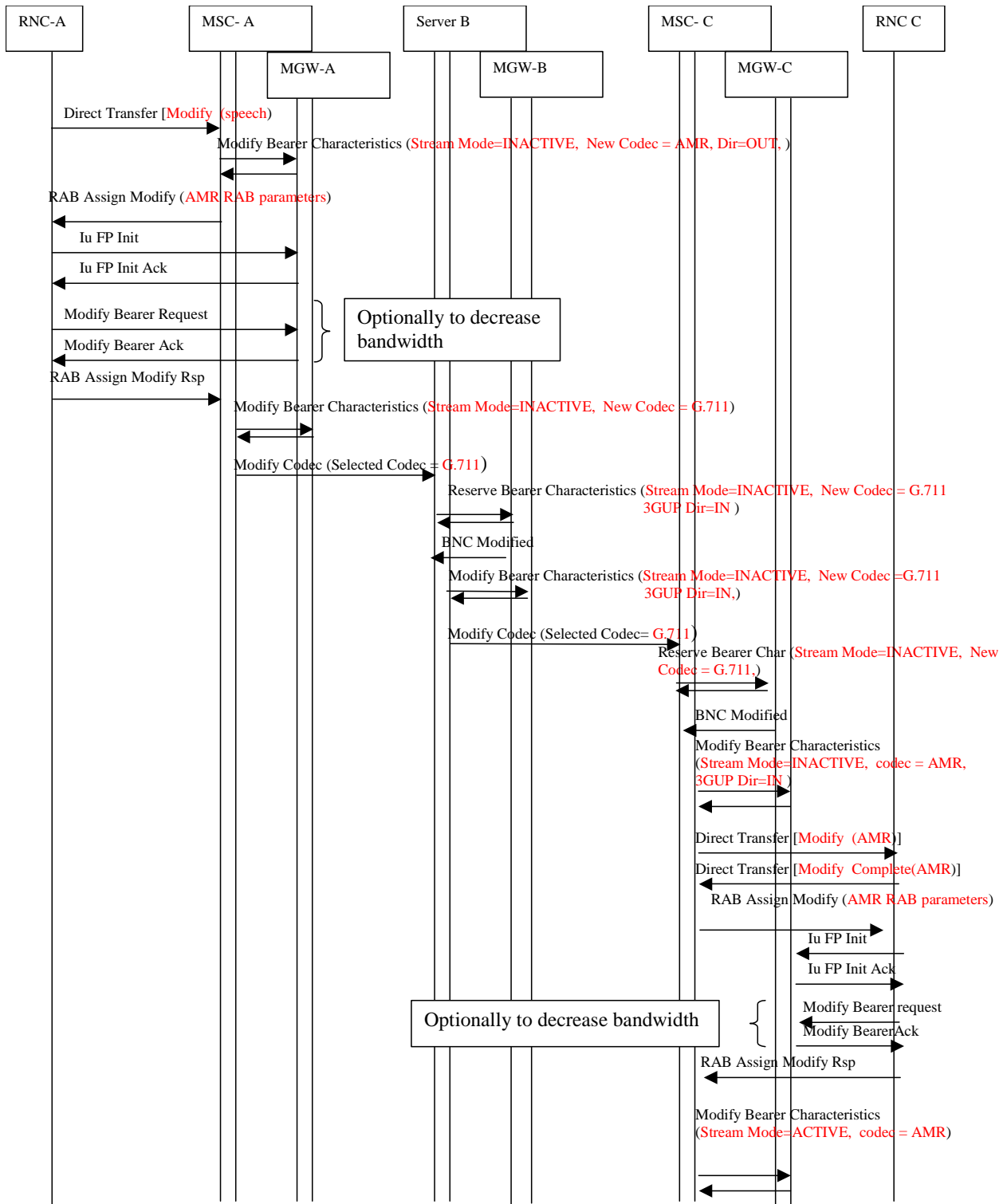**Figure 4.3.5.1/4: Service change MuMe to AMR (continued)**

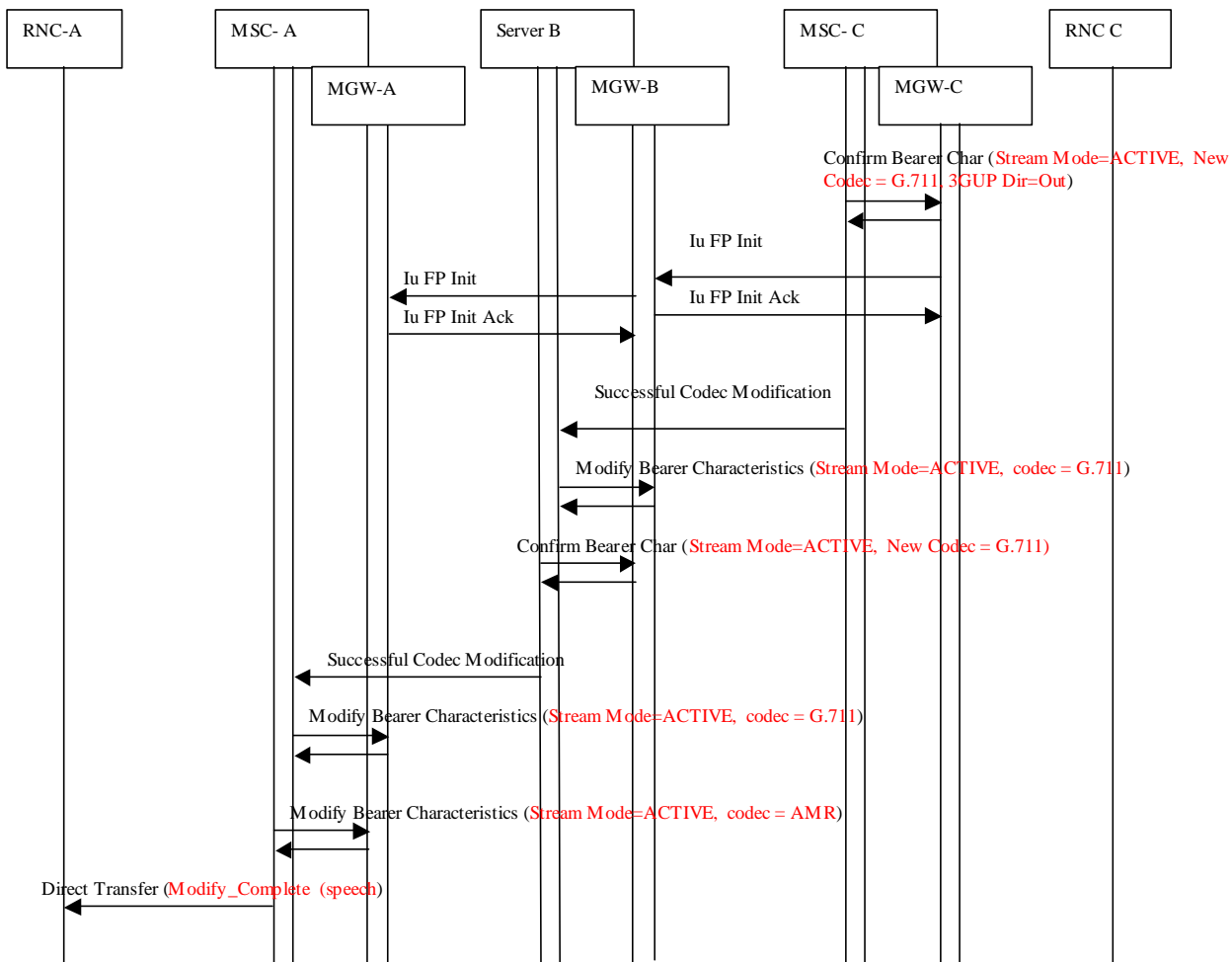**Figure 4.3.5.1/5: Service change MuMe to PCM(G.711)**

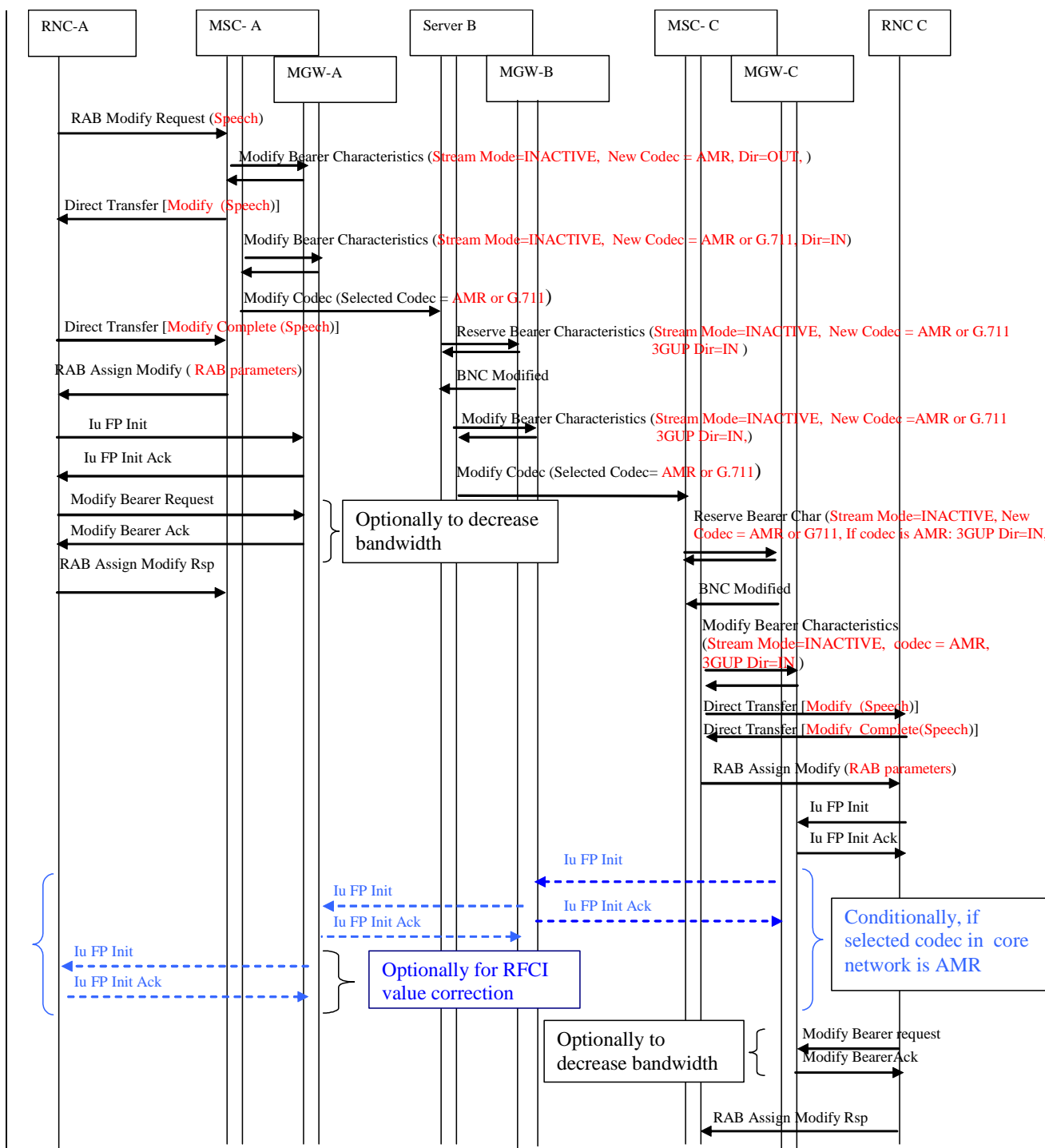**Figure 4.3.5.1/6: Service change MuMe to PCM(G.711) (continued)**

Figure 4.3.5.1/x: Network-initiated service change from MuMe to speech
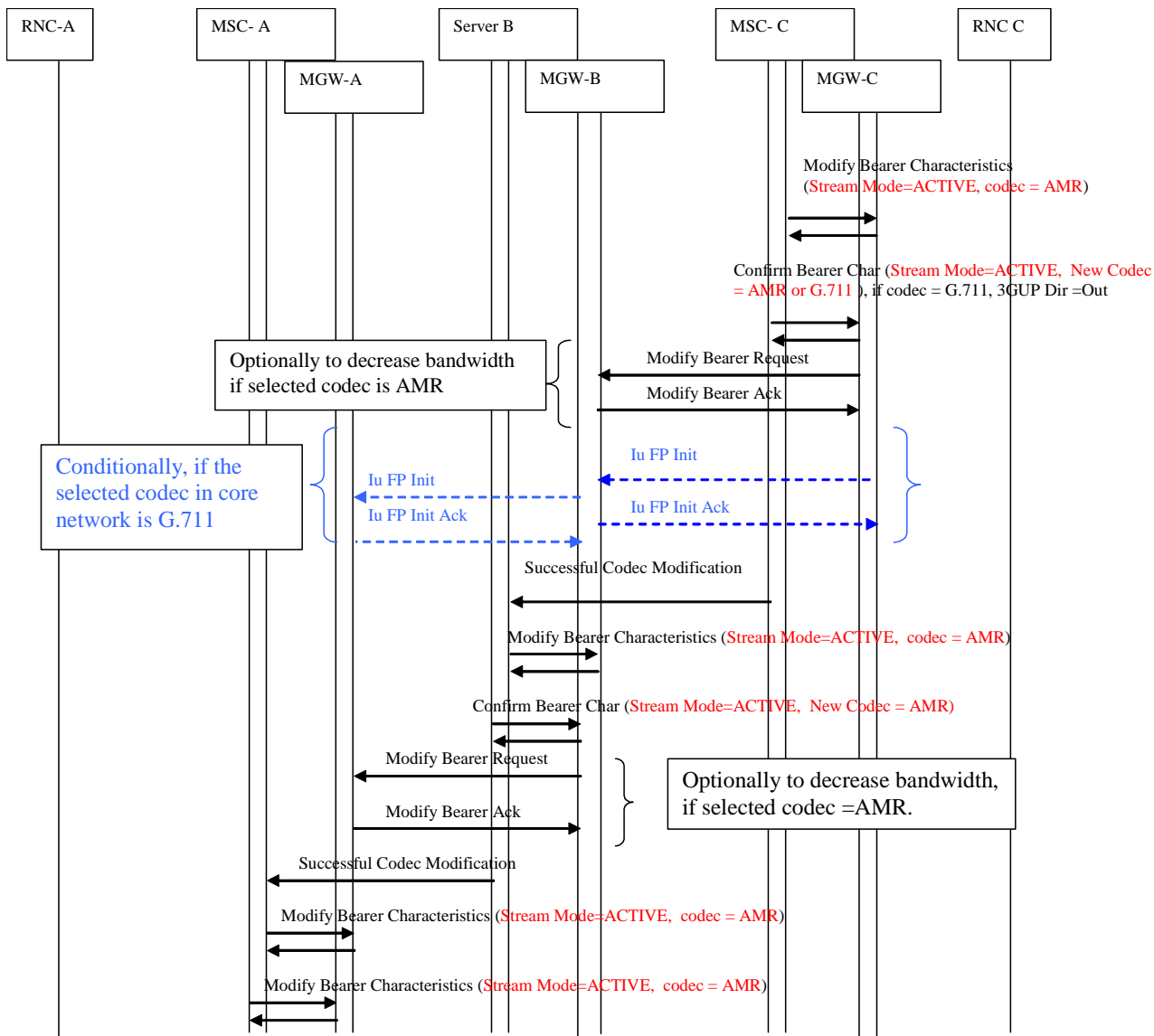
Figure 4.3.5.1/x: Network-initiated service change from MuMe to speech (continue)