3GPP TSG CN Plenary Meeting #18 **NP-020578**
4th – 6th December 2002 New Orleans, USA.

Source: TSG CN WG4

Title: Corrections on Transcoder Free Operation Release 4

Agenda item: 7.7

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.153	038	2	N4-021284	Rel-4	Correction/clarification to Codec Modification Procedures	F	4.5.0
23.153	039	2	N4-021285	Rel-5	Correction/clarification to Codec Modification Procedures	A	5.2.0
29.232	045	2	N4-021286	Rel-4	Updates to support Codec Modification	F	4.6.0
29.232	046	2	N4-021287	Rel-5	Updates to support Codec Modification	A	5.3.0
23.153	048		N4-021389	Rel-4	Alignment on the optionality on usage of Global Titel Translation in case of relocation between RNC's connected to different 3G MSC's	F	4.5.0
23.153	049		N4-021390	Rel-5	Alignment on the optionality on usage of Global Titel Translation in case of relocation between RNC's connected to different 3G MSC's	A	5.2.0

3GPP TSG CN WG4 Meeting #16 ***N4-021284***
Miami, USA, 23rd – 27th September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **23.153** **CR** **038** ⌘ **rev** **2** ⌘ Current version: **4.5.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction/clarification to Codec Modification Procedures
Source:	⌘	CN4
Work item code:	⌘	OoBTC
Date:	⌘	29/08/02
Category:	⌘	**F**
Release:	⌘	REL-4

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:

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:	⌘	The modification procedures are misleading and contain some errors regarding the MGW control and behaviour, the IuUP handling is not described. **This is a category F CR and is essential for Codec Modification to be implemented in Rel-4.**
Summary of change:	⌘	The Modification chapter is updated to describe more clearly how the ITU-T procedures are applied to codec modification with Iu framing protocol. Part of the existing procedure is removed as it was misleading.
Consequences if not approved:	⌘	Codec modification could be interpreted in different ways by different manufacturers and interworking would fail.

Clauses affected:	⌘				
		Y	**N**		
Other specs	⌘	**Y**		Other core specifications	⌘ TS 29.232 – CR045 (N4-021286), New procedures based on Confirm_Char and Reserve_Char with 3GUP package properties added.
affected:			**X**	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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5.8 Modification Procedures

The OoBTC procedures shall support the following modification mechanisms:

i) ~~modify~~ Modification of Selected Codec.
(The codec type of the Selected Codec may be switched to another type within the Available Codec List, and/or the Active Codec Set of the Selected Codec may be modified, and/or the Supported Codec Set of the Selected Codec may be reduced.)

ii) Modification of~~modify~~ Available Codec List
~~-~~(The~~reduction of~~ Available Codec List may be reduced by removing codec types and modes)

iii) ~~mid~~Mid-call ~~codec~~ Codec ~~negotiation~~Negotiation
(The Available Codec List is re-negotiated, allowing the addition and removal of codec types and modes compared to the previous Available Codec List, and a new~~,~~ Selected Codec is chosen out of the new Available Codec List)~~codec type and available codec list~~

The specific call flows when such procedures may be required are detailed in Clause 6. Further information on the Available Codec List and the Selected Codec is provided in Section 5.2.~~-~~ Further information on codec types, codec modes, a Supported Codec Set and an Active Codec Set is provided in TS 26.103 [5]. The basic codec negotiation principles are defined by the BICC Call Control Procedures (see [6]) but the explicit Mc interface procedures are added.

5.8.1 Modification of Selected Codec

The codec modification procedures shall support the following changes:

i) change to currently selected codec type

ii) reduction of the currently selected codec type's available codec set (ACS)

iii) reduction of the currently selected codec type's supported codec set (SCS)

iv) reduction of the ACS of any codec in the Supported Codecs List (in addition to any change of the selected codec).

v) reduction of the SCS of any codec in the Supported Codecs List(in addition to any change of the selected codec).

vi) reduction of the codec types in the Supported Codecs List (in addition to any change of the selected codec).

The procedures described in Q.1902.4, clauses 10.4.1 to 10.4.3 [6] shall apply.

In Figure 5.8.1/1 and 5.8.1/2 the basic codec modification procedure is shown. ~~The principle is that the request for modification is made from one node through the network.~~ This Figure is an example; the codec modification procedure may be initiated by any node within the call. ~~Each node with an MGW connection indicates to its MGW that a codec modification may occur with a " reserve characteristics" procedure. This prepares the MGW for a bearer modification (based on the bearer requirements of the new codec) and reserves the resources for the new codec. When the far end node is reached and the modification can be accepted, Modify Acknowledgement is returned. If the bearer must be increased then (as shown in the Figure 5.8.1/1, actions 4,7,9,16) each MGW performs the required bearer modification, "modify characteristics" procedure, back to the preceding node prior to the server sending on the request for modification to the succeeding node. If bearer decrease is needed then no change to the bearer shall be made at this stage.~~

Upon Reception of a Modify Codec message (action 5 and 9 in Figure 5.8.1/1), a server node shall check if the Selected Codec is altered according to the criteria above. If the Selected Codec is not altered, the procedures in Section 5.8.2 (Modification of the Available Codec List) apply, otherwise the server node shall send a “Reserve Characteristics” procedure to the attached MGW for the corresponding termination (action 6 and 10 in Figure 5.8.1/1

To perform a modification of the selected codec at an Iu interface, the MSC server shall send a “Modify Bearer Characteristics” procedure to the attached MGW (action 1 and 12 in Figure 5.8.1/1). Upon completion of the “Modify Bearer Characteristics” procedure, the server node shall send a “RAB Assignment Request” to the radio access network (action 2 and 13 in Figure 5.8.1/1). The MSC server shall then wait to receive a corresponding “RAB Assignment Response” message from the radio access network (action 3 and 14 in Figures 5.8.1/2 and 5.8.1/3) before continuing the modification procedure.

An MSC server shall use the “Reserve Characteristic” procedure for the termination towards the preceeding node (with respect to the Modify Codec message) to perform the necessary bearer level modification. The MGW shall respond for that termination with the “Bearer Modified” procedure to indicate that the possible bearer modification to increase bandwidth was successful. The MGW shall not wait until the Iu UP initialisation is complete before replying with the “Bearer Modified” procedure. Each server shall not send forward the modify request to the succeeding node until the indication from its MGW that any necessary bearer level modification has been completed (BNC_Modified notification). The MSC server shall use the “Confirm Characteristics” procedure to confirm the modification at that termination.

An MSC server shall use the “Modify Characteristic” procedure for the termination towards the succeeding node (with respect to the Modify Codec message) to confirm the codec modification.

The specific handling of the Iu UP initialisation is decsribed in Section 5.8.4.

Error Cases are described in Section 5.8.5.

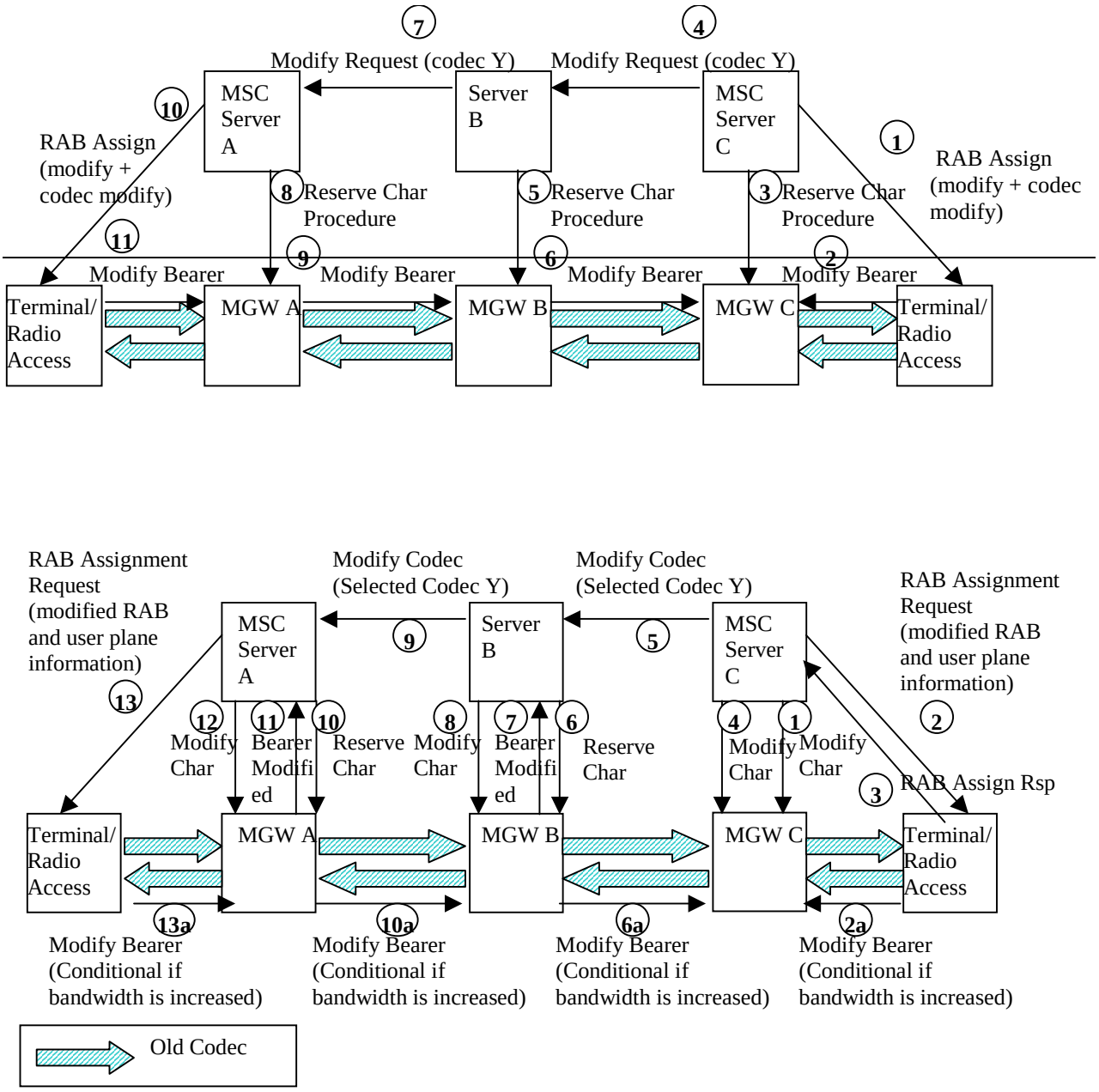
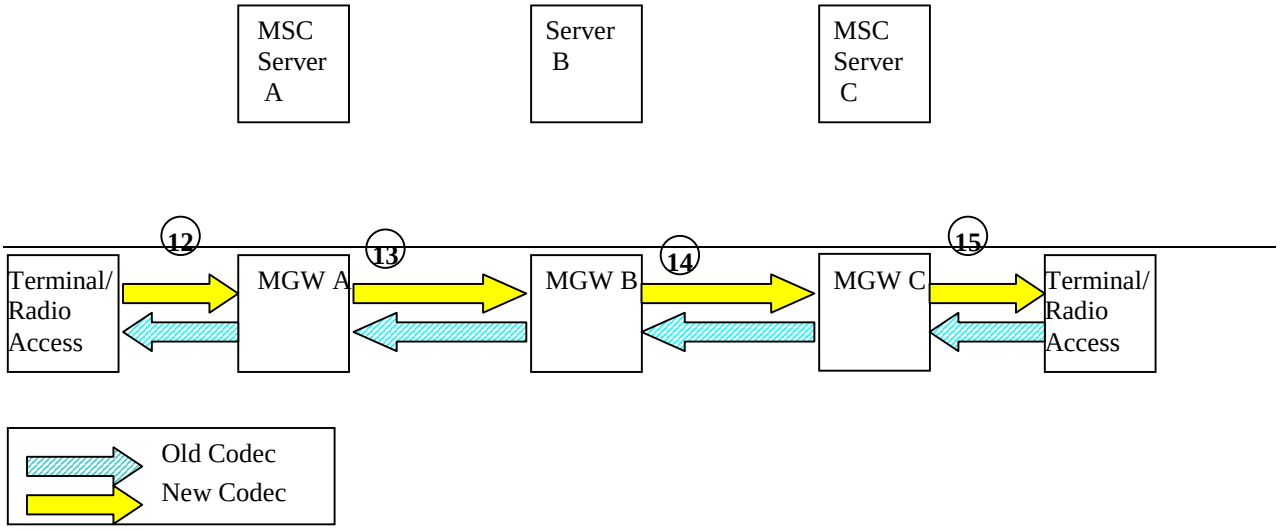


Figure 5.8.1/1: Codec Modification Control Procedures

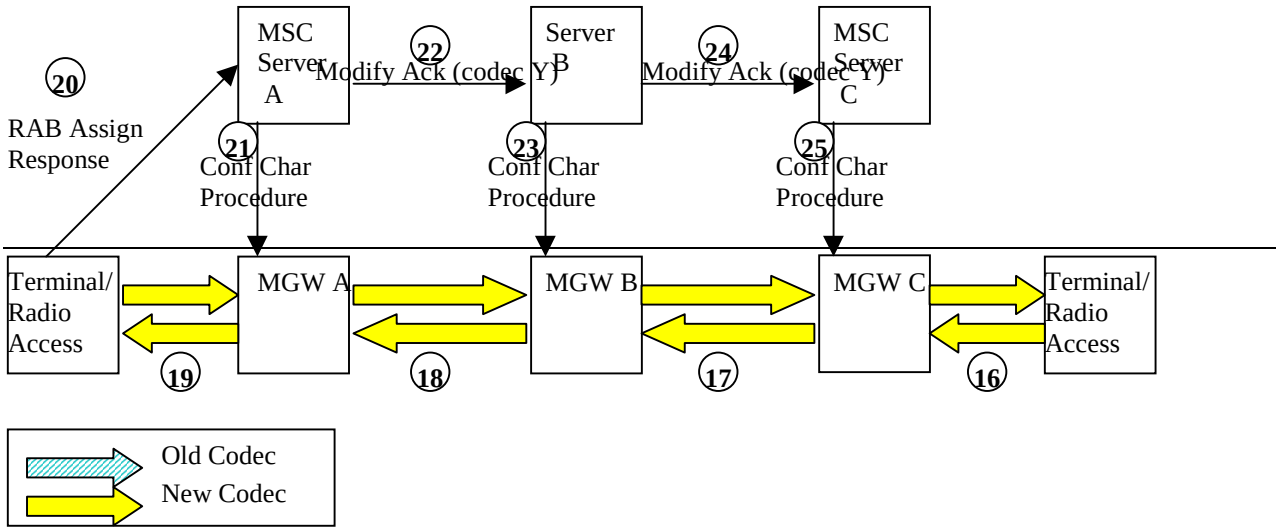
~~When the node terminating the Codec Modification receives the Modify request it requests the bearer modification and the codec modification. The MGWs are at this stage only monitoring for new codec type. As shown in Figure 5.8.1/2 the modification of the codec is performed as separate operation for Uplink and Downlink, this ensures that both the codec modification and bearer modification are synchronised.~~



~~Figure 5.8.1/2: Codec Modification inband procedure~~

~~Once the modifcation of the codec is complete the terminating end replies to the preceding nodes with Modify Ack and indicates to the MGW that the procedure is complete with Conf Char.~~

~~If the procedure was unsucessful then Modfiy Fail is return to the preceding nodes which then indicate to the MGWs to return to the previous codec selection.~~



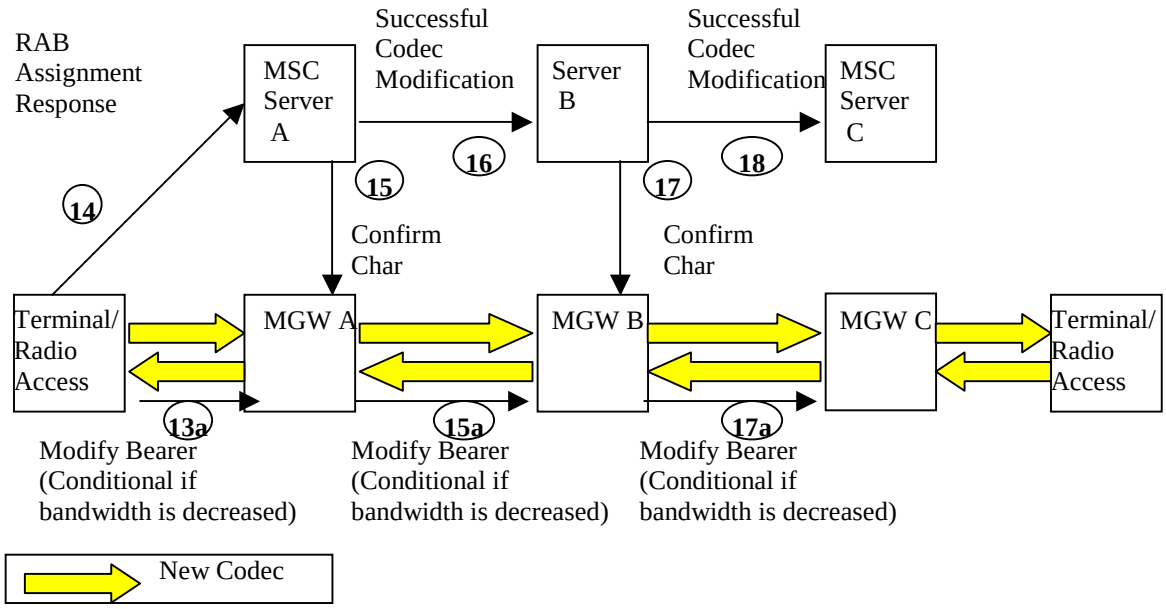


Figure 5.8.1/23: Codec Modification ~~inband procedure and~~ acknowledgement

5.8.2 Modification of Available Codec List

The modification of the Available Codec List shall support the following changes:

i) reduction of the ACS of any codec in the Supported Codecs List

ii) reduction of the SCS of any codec in the Supported Codecs List

iii) reduction of the codec types in the Supported Codecs List

~~Codec List modification may occur by "puncturing" of codec types or modes from the current Available Codec List.~~ T~~Note t~~his shall not include removal~~puncturing~~ of modes from the selected codec, as this would require Selected Codec modification as described in 5.8.1.

The procedures described in Q.1902.4, clauses 10.4.1 to 10.4.3 [6] shall apply.

No modification of the user plane and signalling towards the MGWs and radio access network is required,

In Figure 5.8.2/1 the basic "modification of available codec list" procedure is shown. This Figure is an example; the codec modification procedure may be initiated by any node within the call.

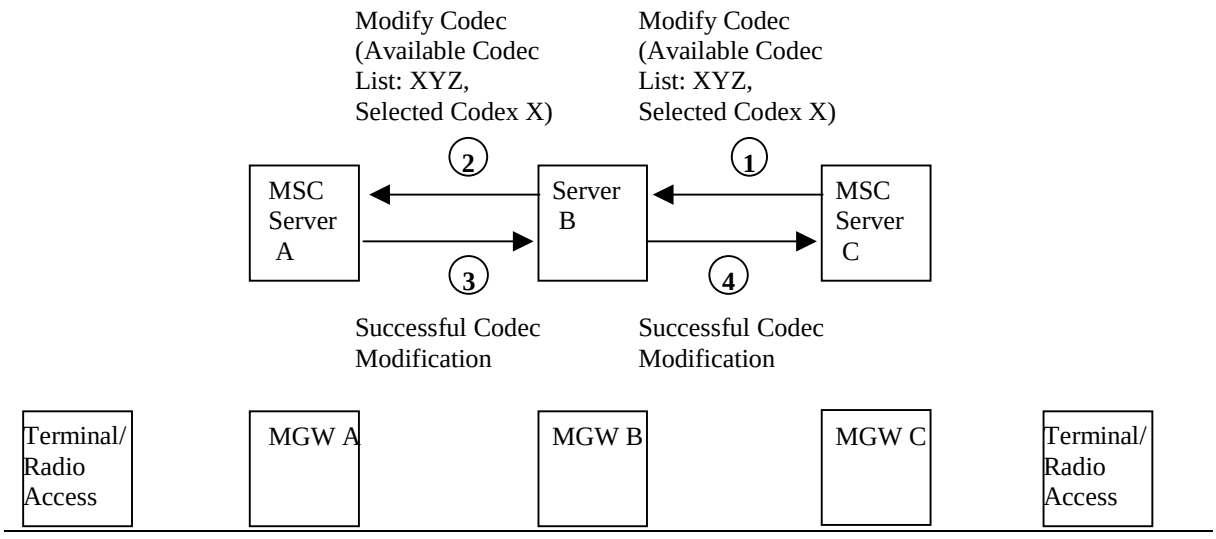


Figure 5.8.2/1: Modification of Available Codec List

~~If a node performs a procedure (e.g. call forwarding) which results in a reduction to the list of Available Codecs then it shall send the new Available Codecs List to all preceding nodes indicating Codec List Modification.~~

5.8.3 Mid-call Codec negotiation

The ~~selected~~ Selected ~~codec~~ Codec and the ~~available~~ Available ~~codec~~ Codec ~~list~~ List can be (re~~-negotiated~~) negotiated during the call using the "Mid Call Codec Negotiation" mechanism~~, when necessary~~. The Mid-Call Codec Negotiation mechanism results in a new Available Codec List, where new codec types or modes not within the previous Available Codec List may be included. The codec negotiation procedure is performed as for call set-up.

The procedures described in Q.1902.4, clauses 10.4.4 to 10.4.6 [6] shall apply.

The sequence is shown in Figure 5.8.3/1. Starting with the Modify to Selected Codec message, the remaining sequence is the same as for the Codec Modification in Section 5.8.1 except that the message name for the modify request is "Modify To Selected Codec" (instead of "Modify Codec") in order to allow collisions between the two procedures to be resolved. Everything stated in Section 5.8.1 shall also aply for the Mid-Call Codec Negotiation procedure.

The node initiating the "Mid Call Codec Negotiation" mechanism~~procedure~~ (MSC Server A in Figure 5.8.3/1) shall ~~sends a~~ select a Preferred Codec and a Supported Codecs List, which may contain new codecs and also may not contain ~~previous~~ codecs from the previous Available Codecs List. If the list no longer contains the previous Selected Codec, then a new codec ~~must~~ shall be selected as Preferred Codec. If the previous~~current selected~~ Selected ~~codec~~ Codec exists within the Supported Codecs List, ~~then~~ this codec~~it~~ should be ~~kept~~ selected as the ~~preferred~~ Preferred ~~codec~~Codec.

~~The codec negotiation procedure is performed as for set-up, each node may reduce the codec list and pass on the "punctured" list. The last node in the negotiation selects the preferred codec that is left in the remaining Supported Codecs List~~.

If a server node removes the Preferred Codec, from the Supported Codec List, the node shall select a new Preferred Codec.

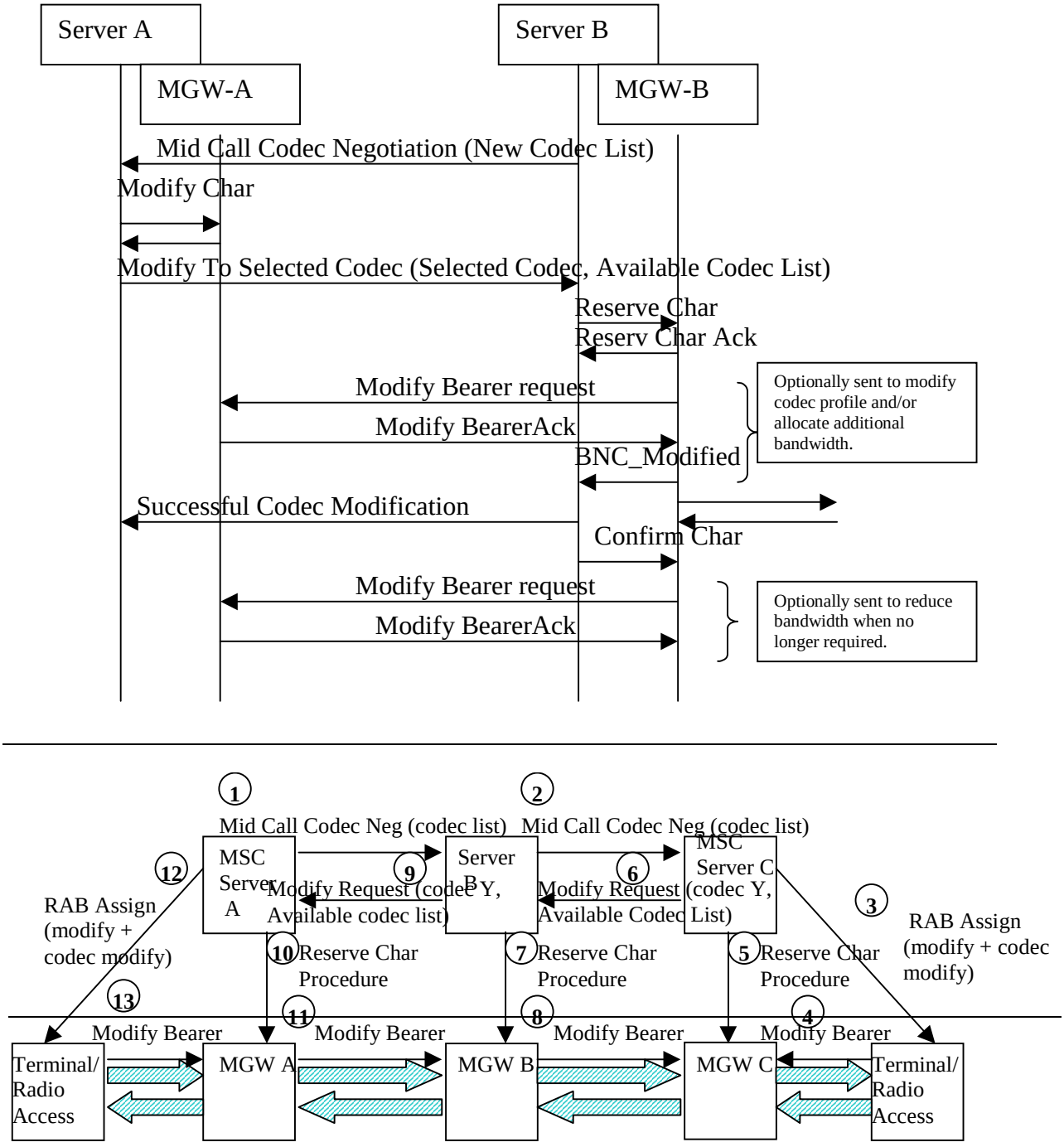


Figure 5.8.3/1: Mid Call Codec Negotiation

~~The modification to a new Available Codecs List and Selected Codec then follows the procedures described in clause 5.8.1/1 & 5.8.1/2,and 5.8.1/3 initiated by the last node receiving the Mid Call Codec Negotiation procedure.~~

5.8.4 Detailed Procedures For Iu Framing Protocol & Codec Modification

The IuFP must be initialised sequentially from one end to the other in order to store new RFCIs in each node to allow TrFO to resume. The IuFP shall be initialised in the backward direction with respect to the Codec Modification/Modify To Selected Codec message as shown in Figure 5.8.4/1.

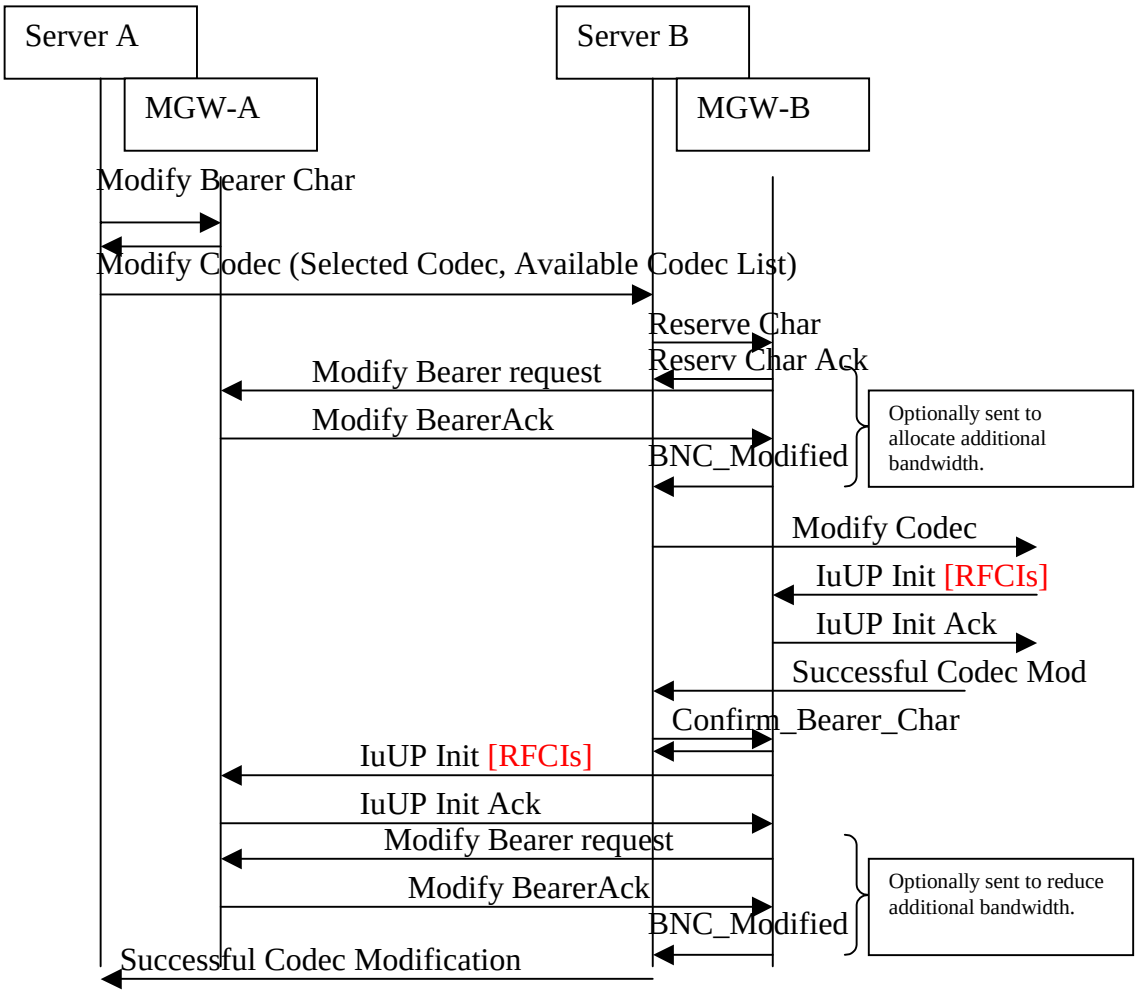


Figure 5.8.3.4/1: Successful Codec Modification including IuFP

A MGW receiving a Modify Bearer Characteristics procedure shall be prepared to receive an incoming modify bearer procedure, this may be to increase the bandwidth prior to IuUP Initialisation or to reduce the bandwidth after the IuUP Intialisation. As the new codec indicated in the Modify Bearer Characteristics procedure differs from the codec that is currently used the MGW shall be prepared to receive an IuUP Initialisation for the new codec.

Each termination receiving a Reserve Char will initiate bearer level modification to the preceeding node if needed - i.e. if the bandwidth needs to be increased to support the new IuUP. No IuUP initialisation occurs at this point in time. If the Codec Modification Request is terminated by a MGW the IuUP init through the core-network is triggered by the setting of the 3GUP package property “initialisation direction” to “OUT” in either the Reserve Char or the Confirm Char procedure; the MGW shall then start the IuUP Initialisation out from that Termination. If the node terminating the modification is an RNC then it will generate a new IuUP Initialisation toward its access MGW, each Termination shall have the initialisation direction set to “IN”. Each MGW shall in turn acknowledge the IuUP Init to the succeeding node (with respect to the modification request) and forward the RFCIs in an IuUP Initialsation to the preceding MGW (as for call set-up).

After completing the Iu UP initialisation and receiving the“Confirm Characteristics” procedure, the MGW may decrease the bandwidth of the corresponding bearer performing the “Modify Bearer” procedure (if needed) - no bearer bandwidth reduction shall be initiated while the UP is still initialised for the old codec.

An example call sequence is shown in Figure 5.8.4/2.

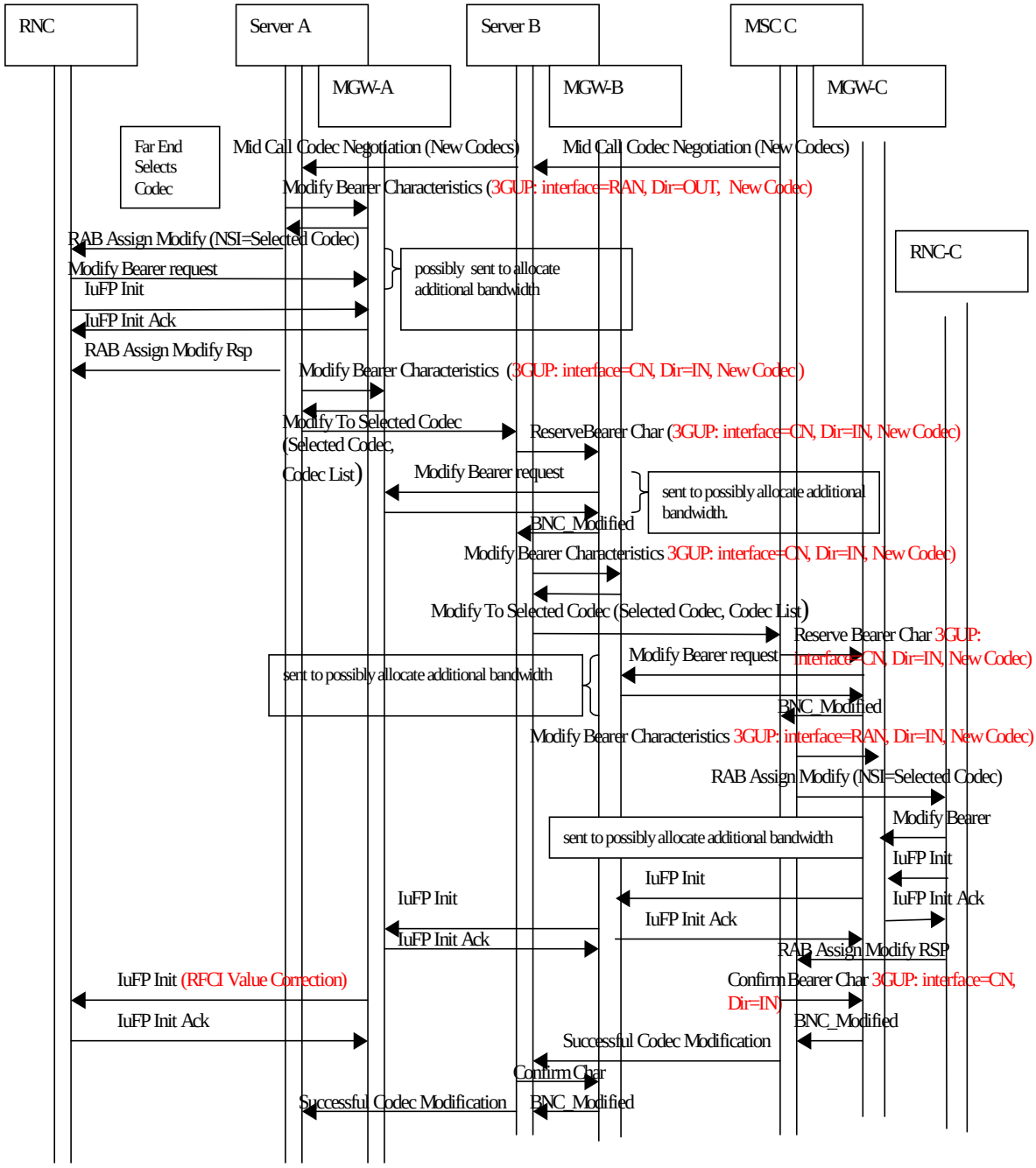


Figure 5.8.4/2: Mid Call Codec Negotiation Call Sequence

5.8.5 Unsuccessful Codec Modification

If the Codec Modification is unsuccessful at a certain node in the connection (due to the MGW rejecting a request to reserve the resources or a server rejecting the request to modify the codec) the Confirm_Char message shall be sent to a termination that previously performed a successful Reserve_Char Procedure to change the bearer back to its original bandwidth (if needed) and free up any reserved resources. However as the IuUP has not been modified, the Confirm_Char shall not trigger an IuFP re-initialisation. The basic sequence is shown in Figure 5.8.5/1 and a detailed call flow is described in Figure 5.8.5/2. A server that performed a Modify Bearer Characteristics procedure to a termination with the new codec shall perform a subsequent Modify Bearer Characteristics procedure to that termination with the old codec in the failure case. As no IuFP initialisation occurs in the unsuccessful case the IuFP currently intialised will then match the old codec restored by the subsequent Modify Bearer Char; the MGW then knows that it can return to TrFO.

The Codec Modification Failure message shall not be returned to a preceding node until notification of the bearer level modification (BNC_Modified).

RAB Assigment Modification Failure

If the reason for failed codec modification is due to an unsuccessful RAB Modification Request then the MSC shall assume that the old RAB is resumed and thus shall restore the old codec.

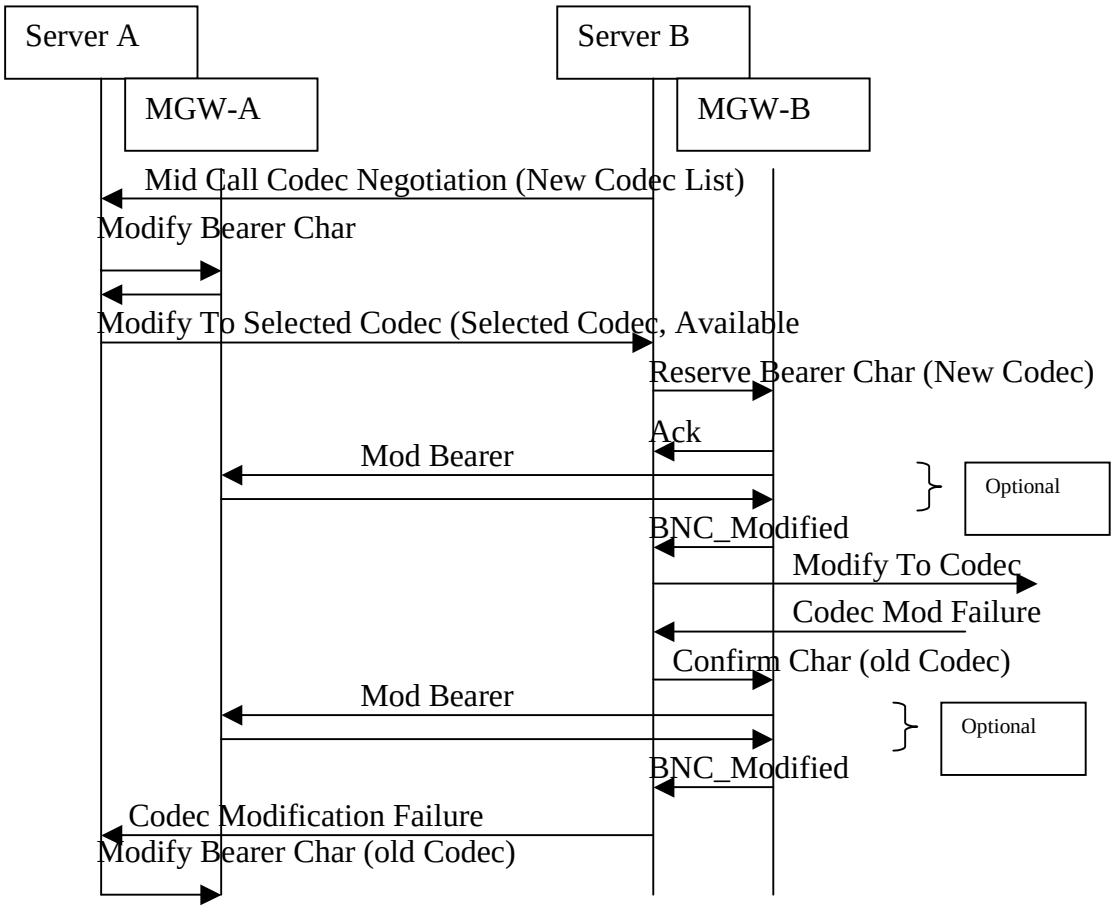


Figure 5.8.5/1: Unsuccessful Codec Modification

IuUP Initialisation Unsuccessful

If the IuUP initialisation fails (this must be due to some protocol error or transmission error because the resources have already been successfully reserved) then the UP protocol is cleared by the peers (see TS 25.415) and therefore the MGW shall notify the Server with a Bearer_Released notification, the call shall be cleared (normal MGW initiated call clearing applies – see TS 23.205 clause 7.4 [8]).

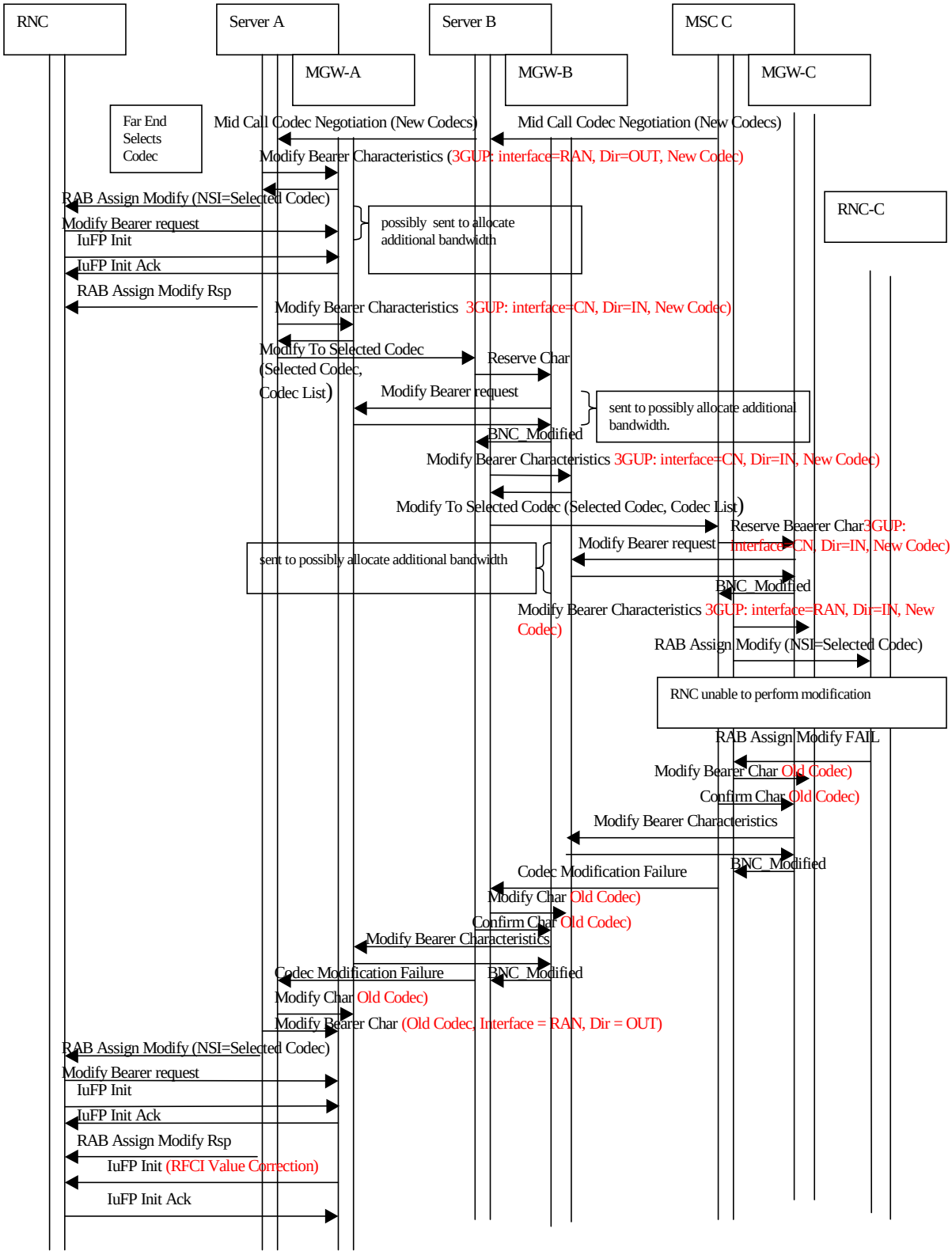


Figure5.8.5/2: Call Sequence for Unsuccessful Modification

3GPP TSG CN WG4 Meeting #16 **N4-021285**
Miami, USA, 23rd – 27th September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **23.153** **CR** **039** ⌘ **rev** **2** ⌘ Current version: **5.2.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

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Date:	⌘	29/08/02
Category:	⌘	**A**
Release:	⌘	REL-5

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The specific call flows when such procedures may be required are detailed in Clause 6. Further information on the Available Codec List and the Selected Codec is provided in Section 5.2.~~-~~ Further information on codec types, codec modes, a Supported Codec Set and an Active Codec Set is provided in TS 26.103 [5]. The basic codec negotiation principles are defined by the BICC Call Control Procedures (see [6]) but the explicit Mc interface procedures are added.

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The procedures described in Q.1902.4, clauses 10.4.1 to 10.4.3 [6] shall apply.

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An MSC server shall use the “Reserve Characteristic” procedure for the termination towards the preceeding node (with respect to the Modify Codec message) to perform the necessary bearer level modification. The MGW shall respond for that termination with the “Bearer Modified” procedure to indicate that the possible bearer modification to increase bandwidth was successful. The MGW shall not wait until the Iu UP initialisation is complete before replying with the “Bearer Modified” procedure. Each server shall not send forward the modify request to the succeeding node until the indication from its MGW that any necessary bearer level modification has been completed (BNC_Modified notification). The MSC server shall use the “Confirm Characteristics” procedure to confirm the modification at that termination.

An MSC server shall use the “Modify Characteristic” procedure for the termination towards the succeeding node (with respect to the Modify Codec message) to confirm the codec modification.

The specific handling of the Iu UP initialisation is decsribed in Section 5.8.4.

Error Cases are described in Section 5.8.5.

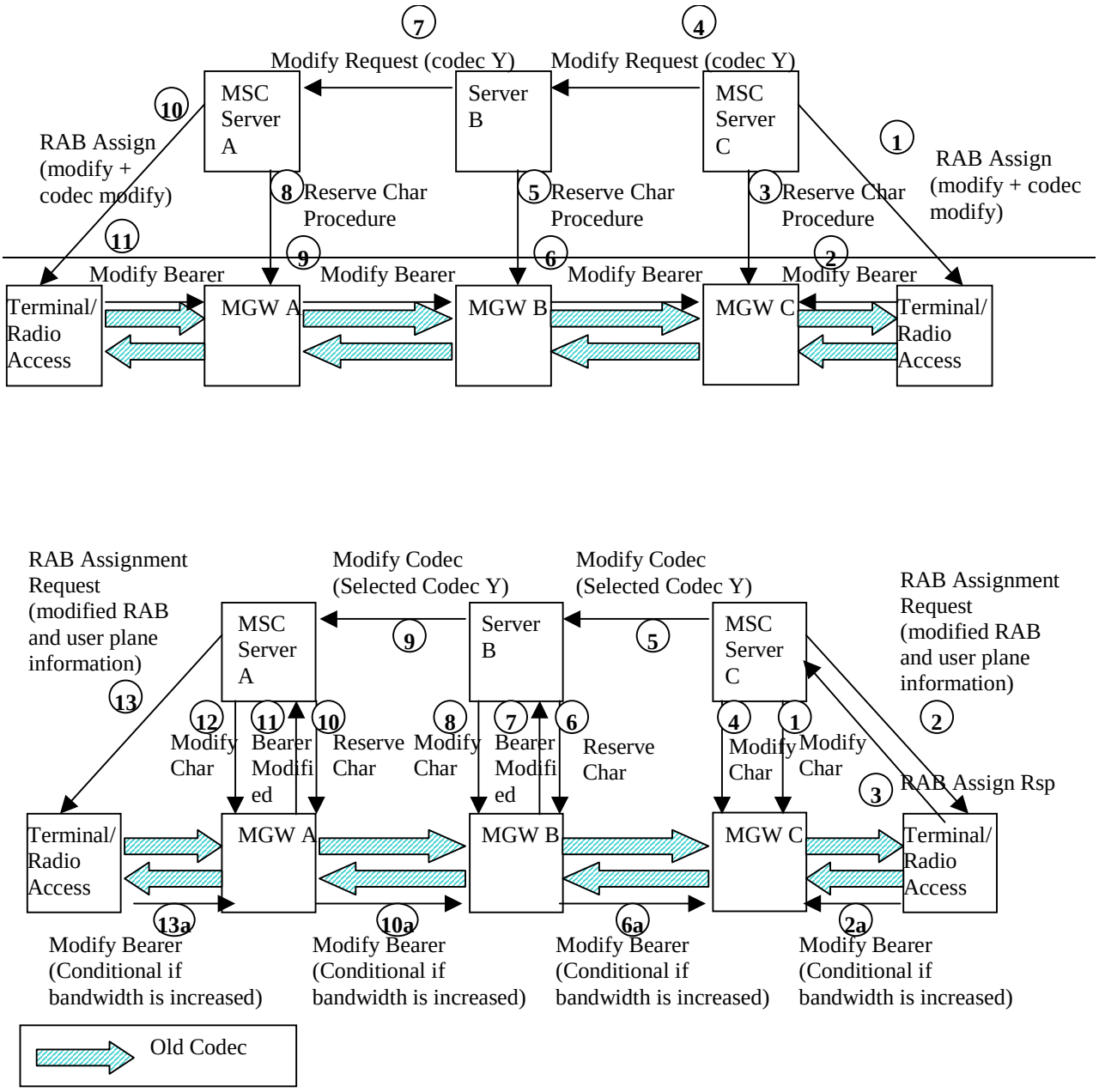
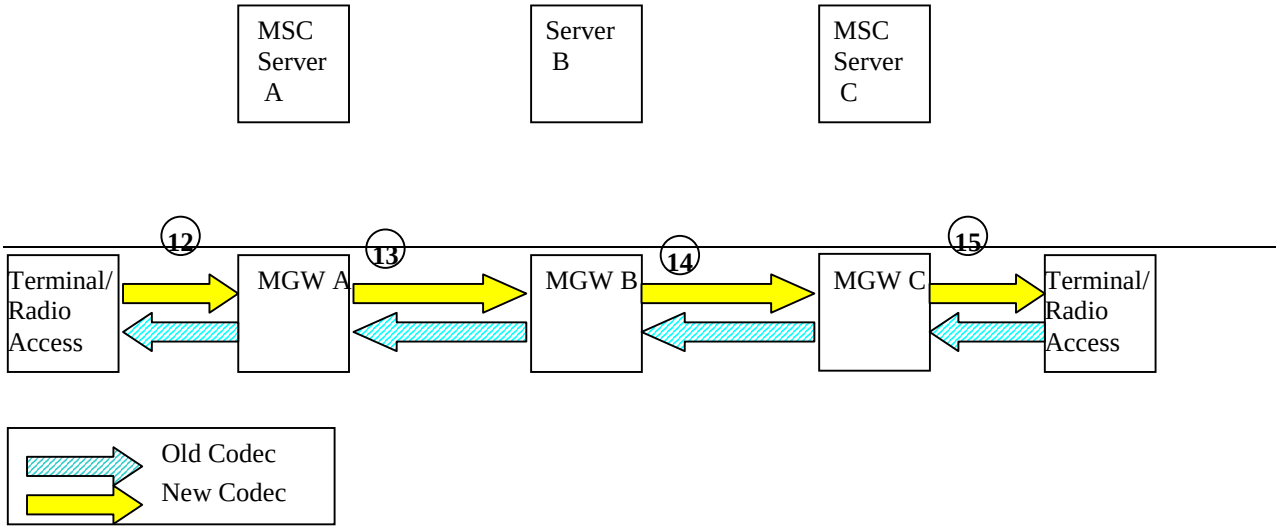


Figure 5.8.1/1: Codec Modification Control Procedures

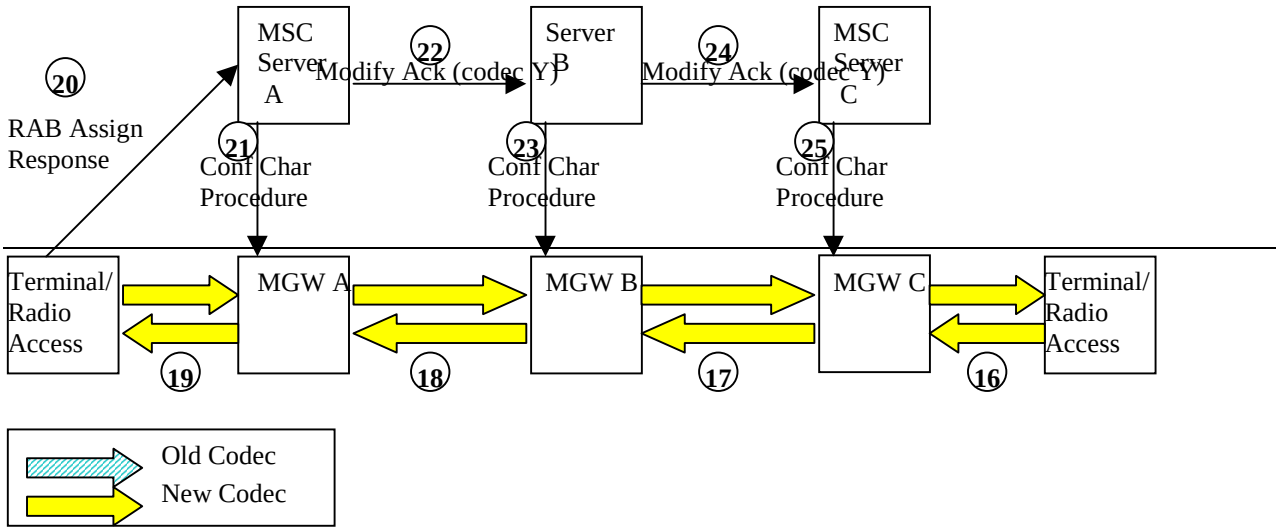
~~When the node terminating the Codec Modification receives the Modify request it requests the bearer modification and the codec modification. The MGWs are at this stage only monitoring for new codec type. As shown in Figure 5.8.1/2 the modification of the codec is performed as separate operation for Uplink and Downlink, this ensures that both the codec modification and bearer modification are synchronised.~~



~~Figure 5.8.1/2: Codec Modification inband procedure~~

~~Once the modifcation of the codec is complete the terminating end replies to the preceding nodes with Modify Ack and indicates to the MGW that the procedure is complete with Conf Char.~~

~~If the procedure was unsucessful then Modfiy Fail is return to the preceding nodes which then indicate to the MGWs to return to the previous codec selection.~~



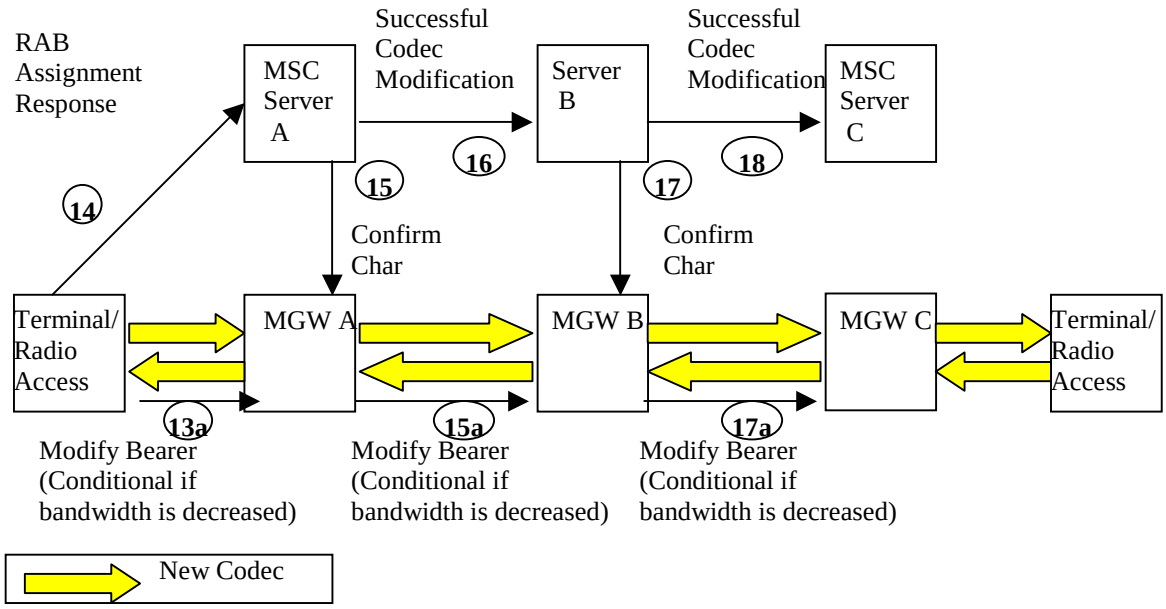


Figure 5.8.1/23: Codec Modification ~~inband procedure and~~ acknowledgement

5.8.2 Modification of Available Codec List

The modification of the Available Codec List shall support the following changes:

i) reduction of the ACS of any codec in the Supported Codecs List

ii) reduction of the SCS of any codec in the Supported Codecs List

iii) reduction of the codec types in the Supported Codecs List

~~Codec List modification may occur by "puncturing" of codec types or modes from the current Available Codec List.~~ T~~Note t~~his shall not include removal~~puncturing~~ of modes from the selected codec, as this would require Selected Codec modification as described in 5.8.1.

The procedures described in Q.1902.4, clauses 10.4.1 to 10.4.3 [6] shall apply.

No modification of the user plane and signalling towards the MGWs and radio access network is required,

In Figure 5.8.2/1 the basic "modification of available codec list" procedure is shown. This Figure is an example; the codec modification procedure may be initiated by any node within the call.

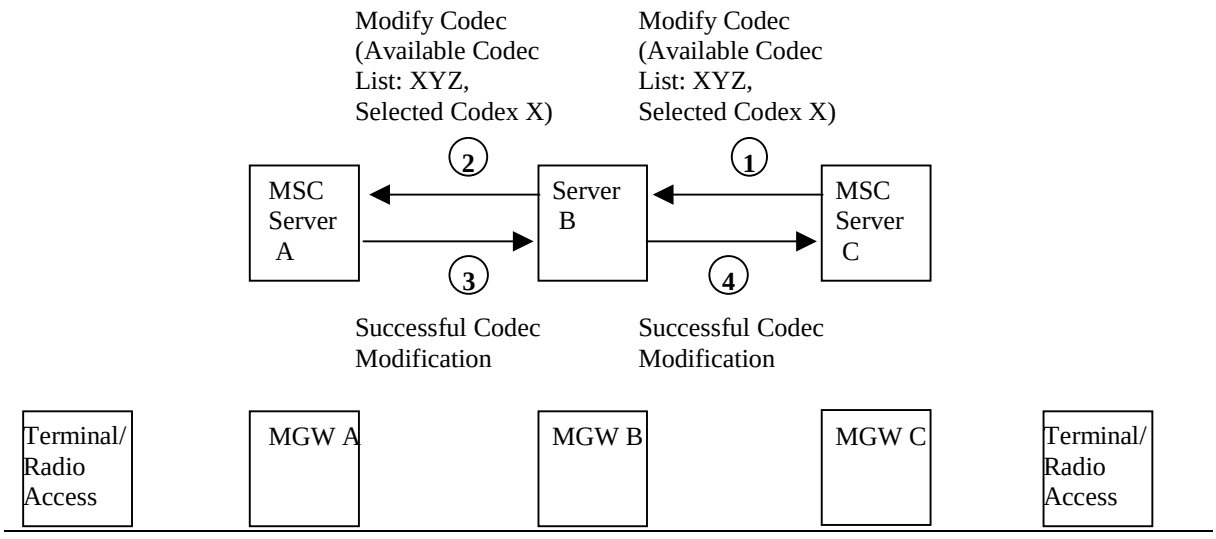


Figure 5.8.2/1: Modification of Available Codec List

~~If a node performs a procedure (e.g. call forwarding) which results in a reduction to the list of Available Codecs then it shall send the new Available Codecs List to all preceding nodes indicating Codec List Modification.~~

5.8.3 Mid-call Codec negotiation

The ~~selected~~ Selected ~~codec~~ Codec and the ~~available~~ Available ~~codec~~ Codec ~~list~~ List can be (re~~-negotiated~~) negotiated during the call using the "Mid Call Codec Negotiation" mechanism~~, when necessary~~. The Mid-Call Codec Negotiation mechanism results in a new Available Codec List, where new codec types or modes not within the previous Available Codec List may be included. The codec negotiation procedure is performed as for call set-up.

The procedures described in Q.1902.4, clauses 10.4.4 to 10.4.6 [6] shall apply.

The sequence is shown in Figure 5.8.3/1. Starting with the Modify to Selected Codec message, the remaining sequence is the same as for the Codec Modification in Section 5.8.1 except that the message name for the modify request is "Modify To Selected Codec" (instead of "Modify Codec") in order to allow collisions between the two procedures to be resolved. Everything stated in Section 5.8.1 shall also aply for the Mid-Call Codec Negotiation procedure.

The node initiating the "Mid Call Codec Negotiation" mechanism~~procedure~~ (MSC Server A in Figure 5.8.3/1) shall ~~sends a~~ select a Preferred Codec and a Supported Codecs List, which may contain new codecs and also may not contain ~~previous~~ codecs from the previous Available Codecs List. If the list no longer contains the previous Selected Codec, then a new codec ~~must~~ shall be selected as Preferred Codec. If the previous~~current selected~~ Selected ~~codec~~ Codec exists within the Supported Codecs List, ~~then~~ this codec~~it~~ should be ~~kept~~ selected as the ~~preferred~~ Preferred ~~codec~~Codec.

~~The codec negotiation procedure is performed as for set-up, each node may reduce the codec list and pass on the "punctured" list. The last node in the negotiation selects the preferred codec that is left in the remaining Supported Codecs List~~.

If a server node removes the Preferred Codec, from the Supported Codec List, the node shall select a new Preferred Codec.

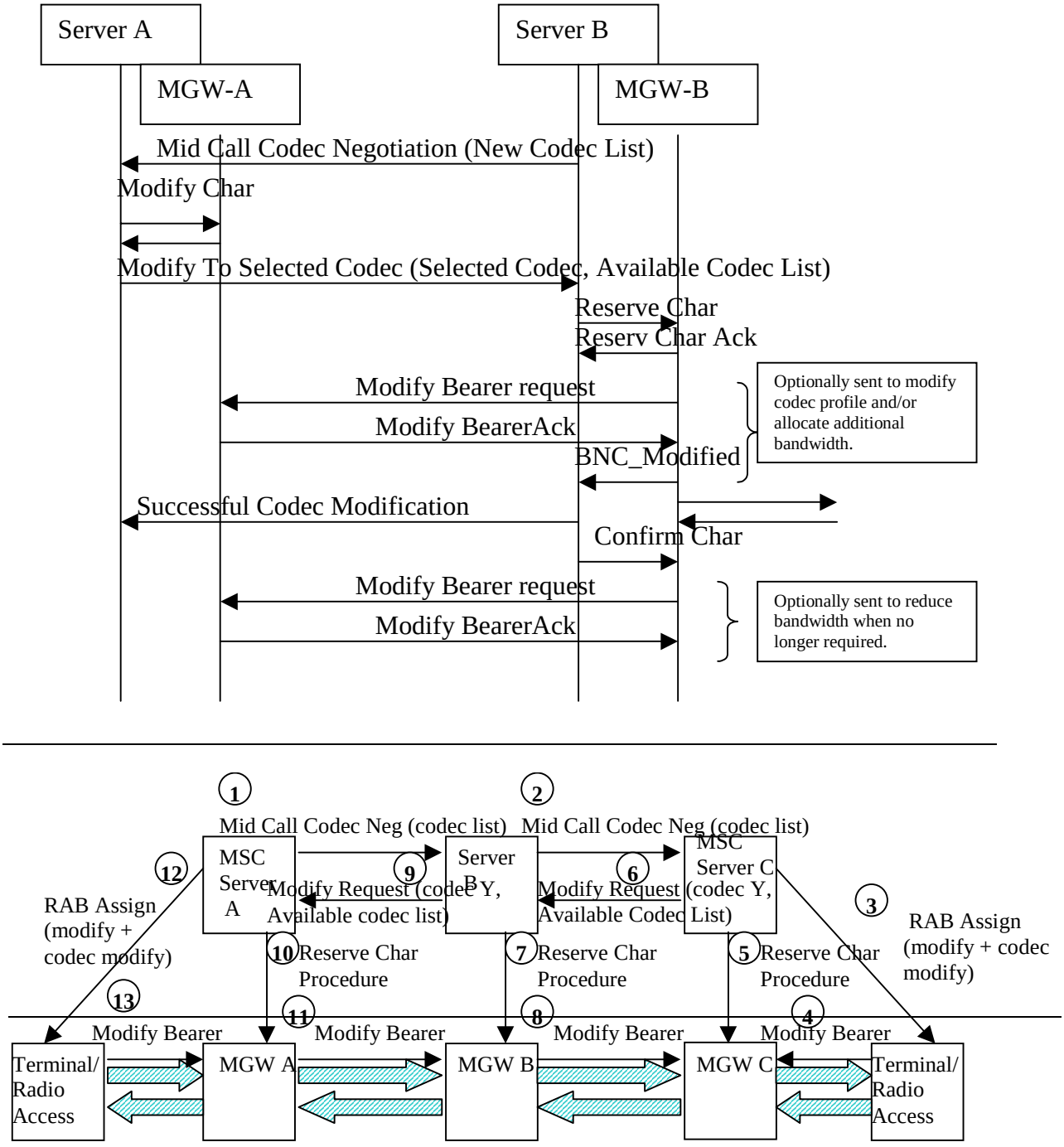


Figure 5.8.3/1: Mid Call Codec Negotiation

~~The modification to a new Available Codecs List and Selected Codec then follows the procedures described in clause 5.8.1/1 & 5.8.1/2,and 5.8.1/3 initiated by the last node receiving the Mid Call Codec Negotiation procedure.~~

5.8.4 Detailed Procedures For Iu Framing Protocol & Codec Modification

The IuFP must be initialised sequentially from one end to the other in order to store new RFCIs in each node to allow TrFO to resume. The IuFP shall be initialised in the backward direction with respect to the Codec Modification/Modify To Selected Codec message as shown in Figure 5.8.4/1.

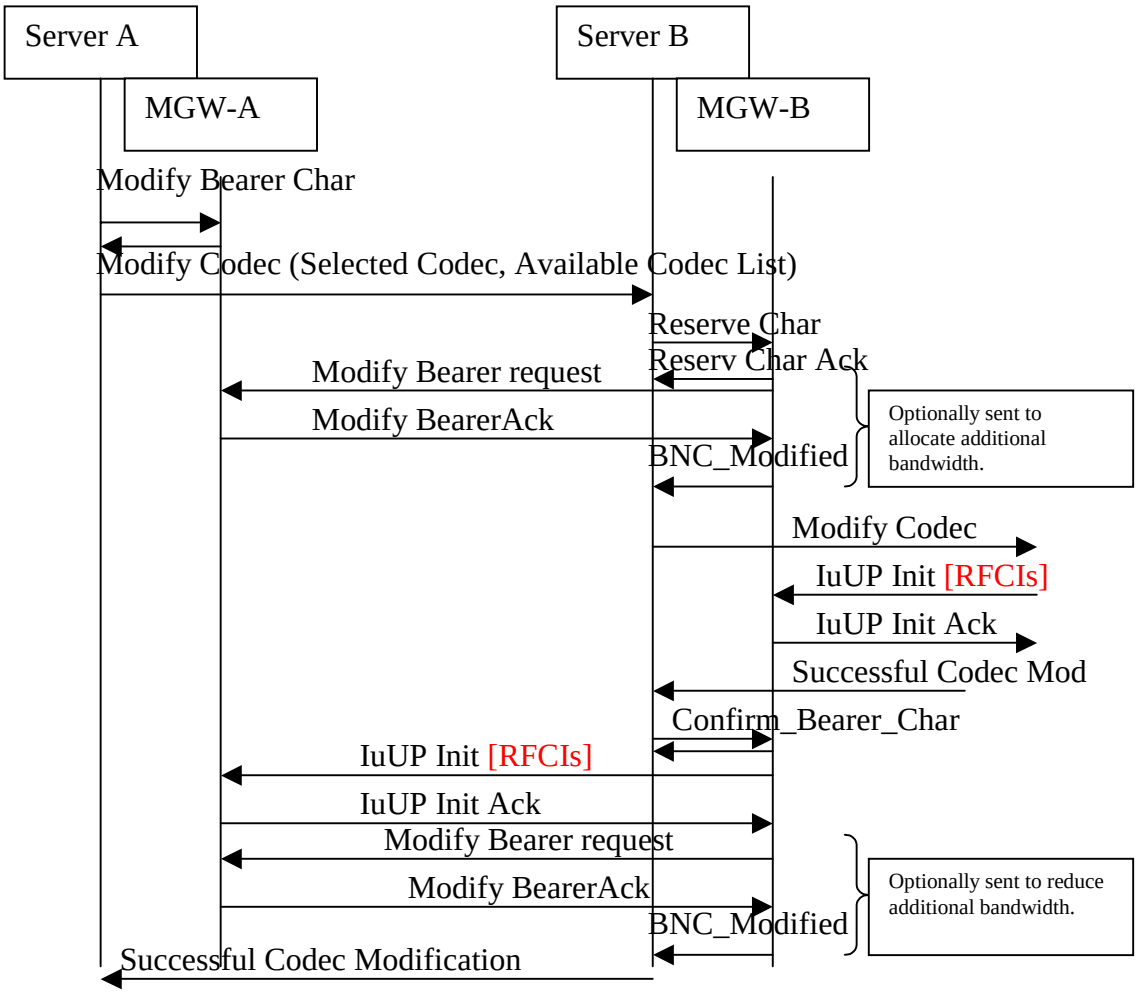


Figure 5.8.3.4/1: Successful Codec Modification including IuFP

A MGW receiving a Modify Bearer Characteristics procedure shall be prepared to receive an incoming modify bearer procedure, this may be to increase the bandwidth prior to IuUP Initialisation or to reduce the bandwidth after the IuUP Intialisation. As the new codec indicated in the Modify Bearer Characteristics procedure differs from the codec that is currently used the MGW shall be prepared to receive an IuUP Initialisation for the new codec.

Each termination receiving a Reserve Char will initiate bearer level modification to the preceeding node if needed - i.e. if the bandwidth needs to be increased to support the new IuUP. No IuUP initialisation occurs at this point in time. If the Codec Modification Request is terminated by a MGW the IuUP init through the core-network is triggered by the setting of the 3GUP package property “initialisation direction” to “OUT” in either the Reserve Char or the Confirm Char procedure; the MGW shall then start the IuUP Initialisation out from that Termination. If the node terminating the modification is an RNC then it will generate a new IuUP Initialisation toward its access MGW, each Termination shall have the initialisation direction set to “IN”. Each MGW shall in turn acknowledge the IuUP Init to the succeeding node (with respect to the modification request) and forward the RFCIs in an IuUP Initialsation to the preceding MGW (as for call set-up).

After completing the Iu UP initialisation and receiving the“Confirm Characteristics” procedure, the MGW may decrease the bandwidth of the corresponding bearer performing the “Modify Bearer” procedure (if needed) - no bearer bandwidth reduction shall be initiated while the UP is still initialised for the old codec.

An example call sequence is shown in Figure 5.8.4/2.

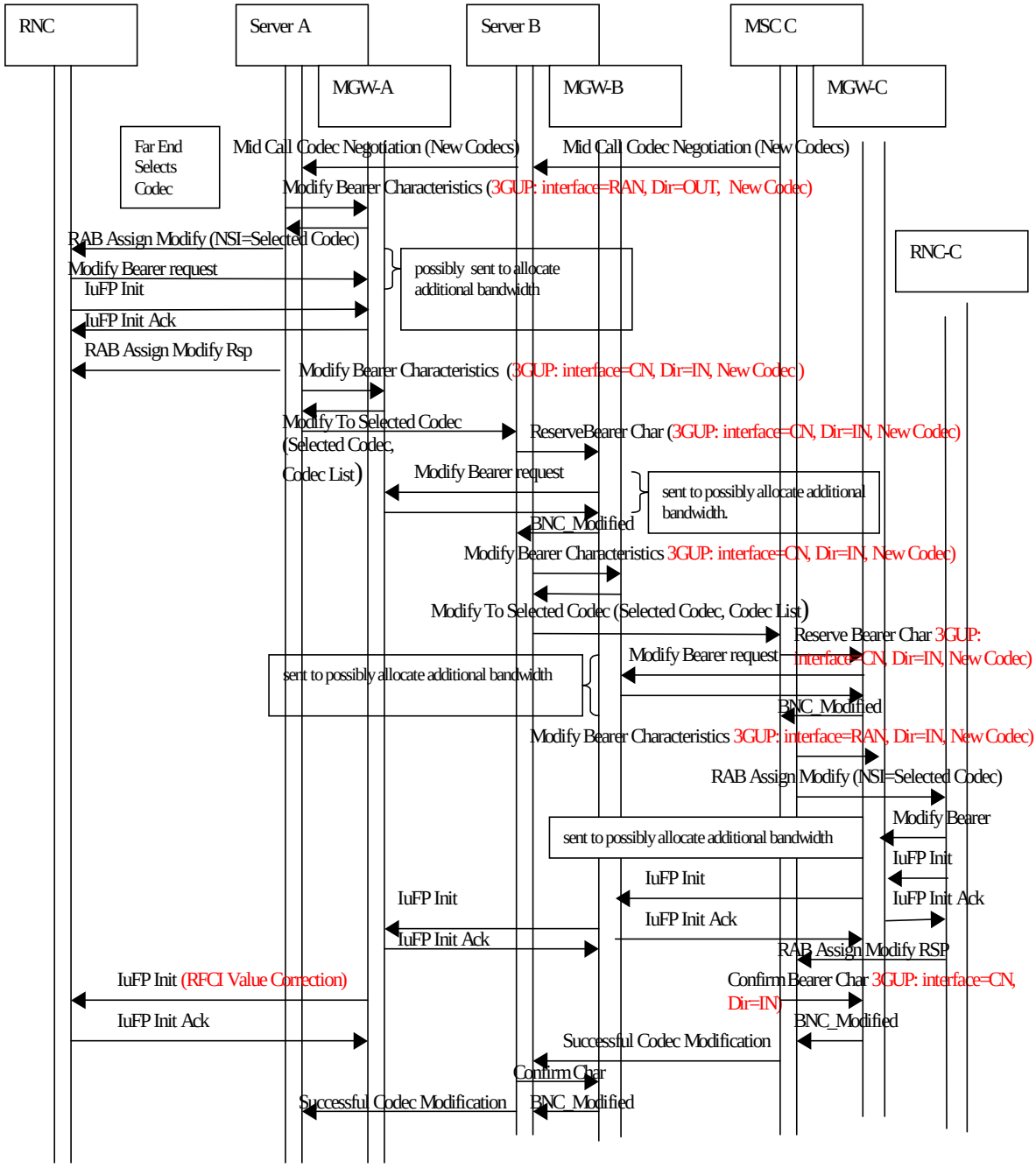


Figure 5.8.4/2: Mid Call Codec Negotiation Call Sequence

5.8.5 Unsuccessful Codec Modification

If the Codec Modification is unsuccessful at a certain node in the connection (due to the MGW rejecting a request to reserve the resources or a server rejecting the request to modify the codec) the Confirm_Char message shall be sent to a termination that previously performed a successful Reserve_Char Procedure to change the bearer back to its original bandwidth (if needed) and free up any reserved resources. However as the IuUP has not been modified, the Confirm_Char shall not trigger an IuFP re-initialisation. The basic sequence is shown in Figure 5.8.5/1 and a detailed call flow is described in Figure 5.8.5/2. A server that performed a Modify Bearer Characteristics procedure to a termination with the new codec shall perform a subsequent Modify Bearer Characteristics procedure to that termination with the old codec in the failure case. As no IuFP initialisation occurs in the unsuccessful case the IuFP currently intialised will then match the old codec restored by the subsequent Modify Bearer Char; the MGW then knows that it can return to TrFO.

The Codec Modification Failure message shall not be returned to a preceding node until notification of the bearer level modification (BNC_Modified).

RAB Assigment Modification Failure

If the reason for failed codec modification is due to an unsuccessful RAB Modification Request then the MSC shall assume that the old RAB is resumed and thus shall restore the old codec.

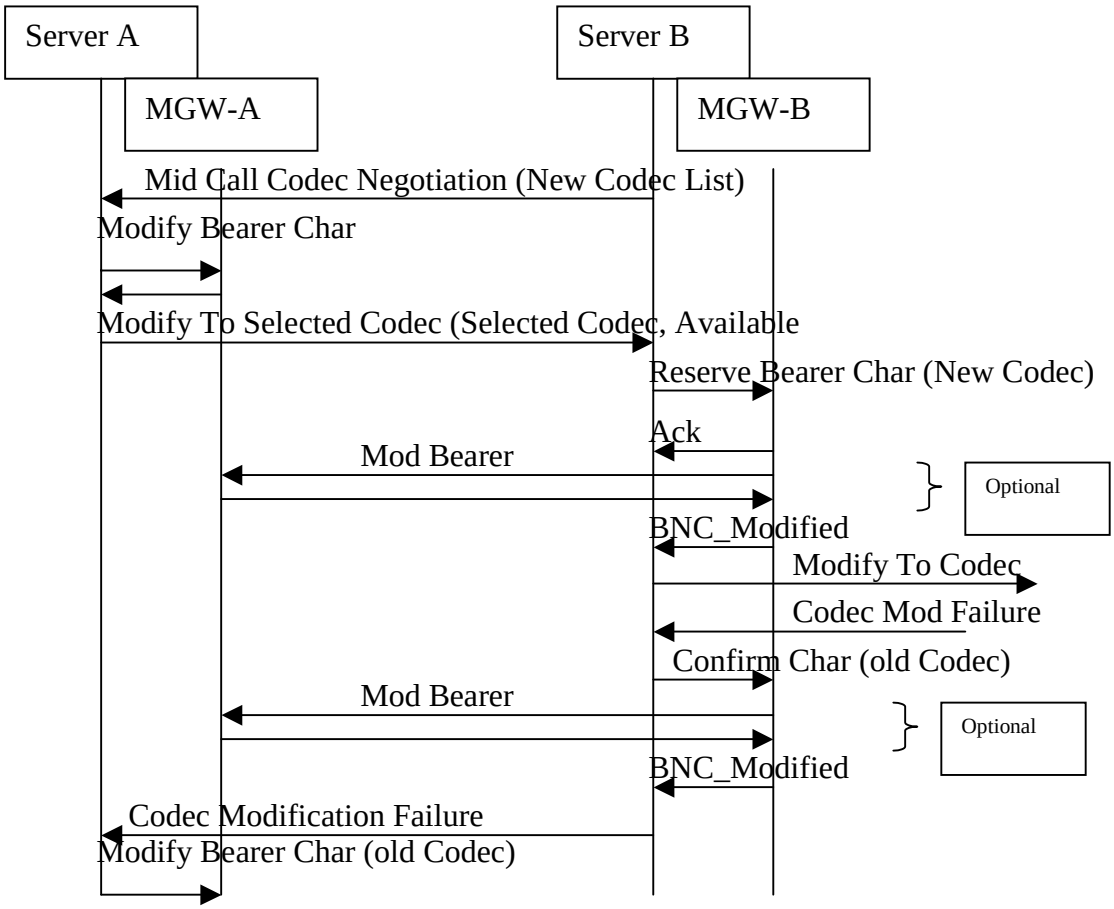


Figure 5.8.5/1: Unsuccessful Codec Modification

IuUP Initialisation Unsuccessful

If the IuUP initialisation fails (this must be due to some protocol error or transmission error because the resources have already been successfully reserved) then the UP protocol is cleared by the peers (see TS 25.415) and therefore the MGW shall notify the Server with a Bearer_Released notification, the call shall be cleared (normal MGW initiated call clearing applies – see TS 23.205 clause 7.4 [8]).

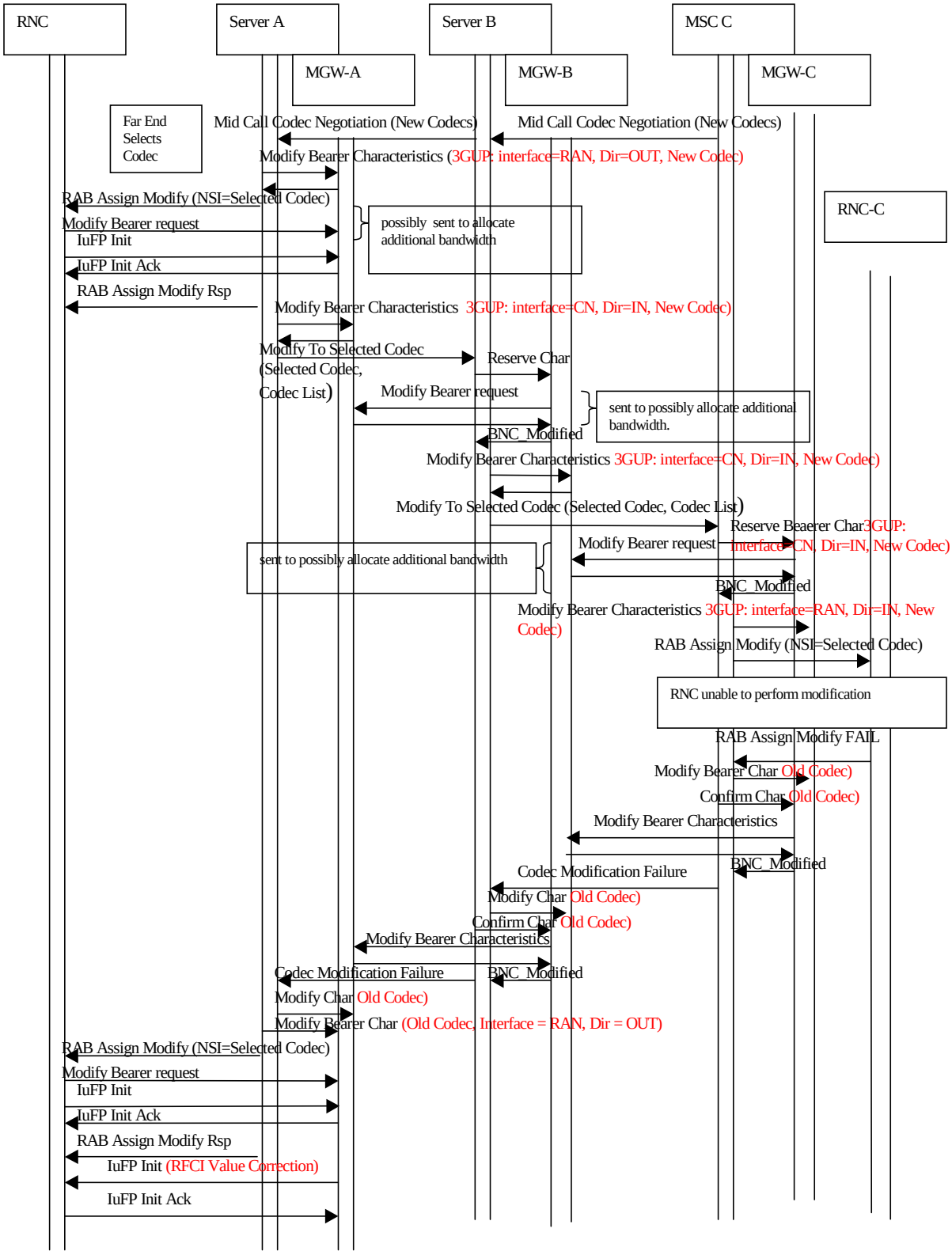


Figure5.8.5/2: Call Sequence for Unsuccessful Modification

3GPP TSG CN WG4 Meeting #17 **N4-021389**
Bangkok, THAILAND, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **23.153** **CR** **048** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*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 **X**

Title:	⌘	Alignment on the optionality on usage of Global Titel Translation in case of relocation between RNC's connected to different 3G MSC's
Source:	⌘	CN4
Work item code:	⌘	OoBTC
Date:	⌘	22/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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:
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:	⌘	**Essential correction** Section 6.2 of 23.153 mandates the usage of GTT in case of relocation between RNC's connected to different 3G MSC's. 23.009 states that GTT may optionally be used (e.g. Section 4.3.1) and also 25.410 leaves it open whitch addressing should be used (section 4.5.11).
Summary of change:	⌘	Sentence which mandates the usage of GTT in case of relocation between RNC's connected to different 3G MSC's
Consequences if not approved:	⌘	Inconsistency of specifications, 23.009 and 25.410 does not mandate the usage of GTT.

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

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**********First modified section**********

6.2 SRNS Relocation during TrFO

In order to maintain TrFO connection in SRNS Relocation, procedures specified in [8] and [11] for "Intra-MSC SRNS Relocation" shall be followed. Note that the "Intra-MSC SRNS Relocation" procedure can also be used for relocation between RNC's connected to different 3G MSC's. ~~In this case SCCP Global Title addressing shall be used to signal directly from the Anchor MSC to the drift RNC.~~

…

3GPP TSG CN WG4 Meeting #17 **N4-021390**
Bangkok, THAILAND, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **23.153** **CR** **049** ⌘ **rev** **-** ⌘ Current version: **5.2.0** ⌘

*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 ☐ Radio Access Network ☐ Core Network ☒

Title: ⌘	Alignment on the optionality on usage of Global Titel Translation in case of relocation between RNC's connected to different 3G MSC's	
Source: ⌘	CN4	
Work item code: ⌘	OoBTC	***Date:*** ⌘ 22/10/2002
Category: ⌘	**A**	***Release:*** ⌘ Rel5

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:

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: ⌘	Section 6.2 of 23.153 mandates the usage of GTT in case of relocation between RNC's connected to different 3G MSC's. 23.009 states that GTT may optionally be used (e.g. Section 4.3.1) and also 25.410 leaves it open whitch addressing should be used (section 4.5.11).
Summary of change: ⌘	Sentence which mandates the usage of GTT in case of relocation between RNC's connected to different 3G MSC's
Consequences if not approved: ⌘	Inconsistency of specifications, 23.009 and 25.410 does not mandate the usage of GTT.

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

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

**********First modified section**********

6.2 SRNS Relocation during TrFO

In order to maintain TrFO connection in SRNS Relocation, procedures specified in [8] and [11] for "Intra-MSC SRNS Relocation" shall be followed. Note that the "Intra-MSC SRNS Relocation" procedure can also be used for relocation between RNC's connected to different 3G MSC's. ~~In this case SCCP Global Title addressing shall be used to signal directly from the Anchor MSC to the drift RNC.~~

…

3GPP TSG CN WG4 Meeting #16 **N4-021286**
Miami, USA, 23rd – 27th September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.232** **CR** **045** ⌘ **rev** **2** ⌘ Current version: **4.6.0** ⌘

*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:	⌘	Updates to support Codec Modification
Source:	⌘	CN4
Work item code:	⌘	OoBTC
Date:	⌘	29/08/2002
Category:	⌘	**F**
Release:	⌘	Rel-4

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:

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:	⌘	Current Produres do not support codec modification for IuFP **This is a category F CR – it is essential for codec modification to work in Rel-4.**
Summary of change:	⌘	New Procedures: Confirm_Bearer_Characteristics, Reserve_Bearer_Char based on Q.1950 Confirm_Char and Reserve_Char with addition on properties from 3GUP package. Description of the MGW behaviour with respect to IuUP handling based on the indicated codec.
Consequences if not approved:	⌘	Codec modification does not work.

Clauses affected:	⌘	14.2.36,14.2.40, 14.2.41

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		TS 23.153 - CR 038 (N4-021284)
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.36 Modify Bearer Characteristics

This procedure is the same as that defined in the subclause "Modify Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection If indication on Protocol Negotiation Result requested: NotificationRequested (Event ID = x, "Prot Negotiation Result") If indication on Rate Change requested: NotificationRequested (Event ID = x, "RateChange")	If data call: PLMN bearer capbility = PLMN capability GSM channel coding=coding

If the “Modify Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Modify Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.

14.2.40 Reserve Bearer Characteristics

This procedure is the same as that defined in the subclause "Reserve Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection	

If the “Reserve Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination -when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Reserve Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.

14.2.41 Confirm Bearer Characteristics

This procedure is the same as that defined in the subclause "Confirm Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection	

If the “Confirm Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination- when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Confirm Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination -when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.

3GPP TSG CN WG4 Meeting #16 ***N4-021287***
Miami, USA, 23rd – 27th September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.232** **CR** **046** ⌘ **rev** **2** ⌘ Current version: **5.3.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Updates to support Codec Modification
Source:	⌘	CN4
Work item code:	⌘	OoBTC
Date:	⌘	29/08/2002
Category:	⌘	**A**
Release:	⌘	Rel-5

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:
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:	⌘	Current Produres do not support codec modification for IuFP
Summary of change:	⌘	New Procedures: Confirm_Bearer_Characteristics, Reserve_Bearer_Char based on Q.1950 Confirm_Char and Reserve_Char with addition on properties from 3GUP package. Description of the MGW behaviour with respect to IuUP handling based on the indicated codec.
Consequences if not approved:	⌘	Codec modification does not work.

Clauses affected:	⌘	14.2.36, 14.2.40, 14.2.41

	Y	N			
Other specs affected: ⌘	X		Other core specifications	⌘	TS 23.153 - CR 39 (N4-021285)
		X	Test specifications		
		X	O&M Specifications		

Other comments:	⌘	

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downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.36 Modify Bearer Characteristics

This procedure is the same as that defined in the subclause "Modify Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection If indication on Protocol Negotiation Result requested: NotificationRequested (Event ID = x, "Prot Negotiation Result") If indication on Rate Change requested: NotificationRequested (Event ID = x, "RateChange")	If data call: PLMN bearer capbility = PLMN capability GSM channel coding=coding

If the “Modify Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Modify Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.

14.2.40 Reserve Bearer Characteristics

This procedure is the same as that defined in the subclause "Reserve Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection	

If the “Reserve Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination -when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Reserve Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.

14.2.41 Confirm Bearer Characteristics

This procedure is the same as that defined in the subclause "Confirm Char" in ITU-T Recommendation Q.1950 (see 3GPP TS 29.205 [7]) with additions as shown below.

Address Information	Control information	Bearer information
	If framing protocol used: UP mode = mode UPversion =version Delivery of erroneous SDUs=value Interface=interface Initdirerection=initdirection	

If the “Confirm Bearer Characteristics” procedure contains a codec that is not currently in use at the Termination- when it receives this procedure, and if the framing protocol is used in support mode, the MGW shall be prepared to handle a framing protocol initialisation. If the “Confirm Bearer Characteristics” contains no codec or the -codec that is already in use at the Termination -when it receives this procedure, the MGW does not need to be prepared to handle a framing protocol initialisation.