**3GPP TSG CN Meeting #27**                                    **NP-050099**
**9th - 11th March 2005. Tokyo, Japan.**

| | |
|---|---|
| **Source:** | **CN3** |
| **Title:** | **CRs to Rel-5(with mirror CR) on Work Item "Circuit Switched Data Bearer Services"** |
| **Agenda item:** | **8.9** |
| **Document for:** | **APPROVAL** |

<u>**Introduction**</u>**:**

This document contains 3 CRs to Rel-6 on Work Item "CS Data" that have been agreed by TSG CN WG3, and are forwarded to TSG CN Plenary for approval.

| WG_tdoc | Spec | CR | R | Cat | Title | Rel | C_Ver | Work Item |
|---|---|---|---|---|---|---|---|---|
| N3-050197 | 23.910 | 050 | 3 | F | Nb transport for handover between UMTS and GSM | Rel-5 | 5.4.0 | CS Data |
| N3-050199 | 29.007 | 108 | 2 | F | Nb transport for handover between UMTS and GSM | Rel-5 | 5.10.0 | CS Data |
| N3-050201 | 29.007 | 109 | 3 | A | Nb transport for handover between UMTS and GSM | Rel-6 | 6,0,0 | CS Data |

CR-Form-v7.1

# CHANGE REQUEST

| ⌘ | **23.910** CR **50** | ⌘**rev** | **3** | ⌘ | Current version: | **5.4.0** | ⌘ |

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:* | ⌘ | **Nb transport for handover between UMTS and GSM** |

| *Source:* | ⌘ | Siemens |

| *Work item code:* | ⌘ | CS Data | | *Date:* ⌘ | 31/01/2005 |

| *Category:* | ⌘ | **F** | | *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:
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:* | ⌘ | Transport and Mc Configuration for IP or ATM not clearly specified for Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM.
For handover from A/Gb mode to Geran Iu mode, unclear when ATRAU´´ protocol or A-TRAU´protocol is applicable for non-transparent data calls. |

| *Summary of change:* | ⌘ | For Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM, packet transport is described in a similar manner as for Inter-MSC Handover with Iu Interfaces (compare to Clause 11.4) , and Mc configuration parameters are provided.
For handover from A/Gb mode to Geran Iu mode, A-TRAU'' protocol is applicable for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s. |

| *Consequences if not approved:* | ⌘ | Missing specification of details of packet transport may lead to interoperability problems for Inter-MSC Handover GSM <-> UMTS and vice versa at the Nb Interface
Unclear protocol for non-transparent data calls for handover from A/Gb mode to Geran Iu mode. |

| *Clauses affected:* | ⌘ | 10.2.1, 10.2.2, 10.2.3, 10.2.4 |

| | | **Y** | **N** | | | |
| *Other specs affected:* | ⌘ | **X** | | Other core specifications | ⌘ | TS 29.007 CR 108 |
| | | | **X** | Test specifications | | |
| | | | **X** | O&M Specifications | | |

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| *Other comments:* | ⌘ | Corresponding CR 049 against Rel-4, except for GERAN Iu-mode issue. |

## 10.2     User Plane

### 10.2.1    Handover from Iu mode to A/Gb mode

After a handover from from Iu mode to A/Gb mode the user plane between the anchor MSC and the visited MSC shall comply to:

-    the standard GSM A-interface protocols, i.e.:

    - A-TRAU or modified V.110 frames as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19].

    - up to four 16kbit/s substreams are multiplexed in one 64 kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 44.021 [18] and 3GPP TS 48.020 [19]).

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [25]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case.

### 10.2.2    Handover from A/Gb mode to UTRAN Iu mode

After a handover from GSM to UMTS the user plane between the anchor MSC and the visited MSC shall comply to:

-    the A-TRAU' protocol except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [25]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s).

The A-TRAU' protocol is defined as follows:

-    A-TRAU' frames are transmitted in regular intervals of 10 ms;

-    an A-TRAU' frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 48.020 [19]) each with a length of 320 bit;

-    the A-TRAU' protocol is used on a plain 64 kbit/s channel without substreams;

-    the same A-TRAU' format is used for the transparent and non-transparent transmission mode;

-    in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);

-    in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;

-    the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

## Next modified Clause

## 10.2.3    Handover from A/Gb mode to GERAN Iu mode

### 10.2.3.1    User plane for transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for transparent services between the anchor MSC and the visited MSC shall ~~be identical~~comply to:

-    the A-TRAU' protocol except for FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC = UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64 kbit/s and 32 kbit/s is based on ITU-T Recommendation I.460 [26].

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [25]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s).

### 10.2.3.2    User plane for non-transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for non-transparent services between the anchor MSC and the visited MSC shall comply to:

-    the A-TRAU'' protocol as defined below for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s,  if both MSCs are connected via a TDM interface.

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [25]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' or A-TRAU' protocol).

#### 10.2.3.2.1    A-TRAU'' frame format

~~For the handover scenario from GERAN A/Gb mode MSC to a GERAN Iu mode MSC, the existing A-TRAU' frame format will be extended to support the new defined RAB subflow data rates of the GERAN Iu mode.~~

~~For the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s the~~ The RLP frame length of 240 bit is used. For the transfer of this RLP frame length ~~to A-TRAU' protocol is modified. The~~the A-TRAU'' protocol is introduced. An A-TRAU'' frame has the same layout as the A-TRAU' frame and contains two A-TRAU frames.

One RLP frame with the length of 240 bit is contained in one A-TRAU frame. The A-TRAU'' protocol is only used for the non-transparent services.

In figure 9, the format of the A-TRAU frame for the RLP frame length of 240 is shown.

Next modified Clause

## 10.2.4    Handover within Iu mode PLMNs

After a handover from an Iu mode MSC to a UTRAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to

- the A-TRAU' protocol if both MSC are connected via a TDM interface except for the transparent cases FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64kbit/s and 32kbit/s is based on ITU-T Recommendation I.460 [26].

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The Nb UP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with annex P of ITU-T Recommendation I.366.2 [27]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s).

After a handover from an Iu mode MSC to a GERAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to

- the A-TRAU' ~~and~~ or A-TRAU" protocol or a plain 64 kbit/s channel if both MSC are connected via a TDM interface. The A-TRAU' protocol shall be used for transparent services except for the transparent cases FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel ~~is~~ shall be used between the MSCs. The rate adaptation between 64kbit/s and 32kbit/s is based on ITU-T Recommendation I.460 [26]. For non-transparent services, the A-TRAU'' protocol shall be used for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol shall be used for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The Nb UP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with annex P of ITU-T Recommendation I.366.2 [27]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' protocol, A-TRAU' protocol or plain 64kbits/s).

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# CHANGE REQUEST

| ⌘ | **29.007** CR **108** | ⌘**rev** **2** ⌘ | Current version: **5.10.0** ⌘ |
|---|---|---|---|

*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:*** ⌘ | **Nb transport for handover between UMTS and GSM** | |
| ***Source:*** ⌘ | Siemens | |
| ***Work item code:***⌘ | CS Data | ***Date:*** ⌘ 31/01/2005 |

| | |
|---|---|
| ***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 <u>TR 21.900</u>.

*Use <u>one</u> 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:*** ⌘ | Transport and Mc Configuration for IP or ATM not clearly specified for Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM. <br> For non-64kbit transparent CS data calls, bandwidth information is missing at IWF. <br> For handover from A/Gb mode to Geran Iu mode, unclear when ATRAU´´ protocol or A-TRAU´protocol is applicable for non-transparent data calls. |
| ***Summary of change:***⌘ | For Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM, packet transport is described in a similar manner as for Inter-MSC Handover with Iu Interfaces (compare to Clause 11.4) , and Mc configuration parameters are provided. <br> PLMN-BC Parameter added at A-MSC for non-64kbit transparent CS data calls. <br> For handover from A/Gb mode to Geran Iu mode, A-TRAU'' protocol is applicable for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s. |
| ***Consequences if not approved:*** ⌘ | Missing specification of details of packet transport may lead to interoperability problems for Inter-MSC Handover GSM <-> UMTS and vice versa: <br> • At the Nb Interface <br> • At the Mc Interface <br> Non-64kbit transparent CS data calls are not supported at the Mc interface. <br> Unclear protocol for non-transparent data calls for handover from A/Gb mode to Geran Iu mode. |
| ***Clauses affected:*** ⌘ | 11.1, 11.2, 11.4, 11.6.3, 11.6.3.1, 11.6.3.2 |

| | **Y** | **N** | | | |
|---|---|---|---|---|---|
| ***Other specs*** *affected:* | ⌘ | X | | Other core specifications | ⌘ TR 23.910 CR 050 |
| | | | X | Test specifications | |
| | | | X | O&M Specifications | |
| ***Other comments:*** | ⌘ | | | Corresponding CR 107 against Rel-4, except for GERAN Iu-mode issue. | |

# 11 Interworking between A/Gb mode MSC and Iu mode MSC

## 11.1 Handover ~~from Iu mode MSC~~ to A/Gb mode MSC

After a handover from an Iu mode MSC or an A/Gb mode MSC to an A/Gb mode MSC the user plane between the anchor MSC and the visited MSC shall comply to:

- the standard GSM A-interface protocols if both MSCs are connected via a TDM interface, i.e.:

    - A-TRAU or modified V.110 frames as defined in 3GPP TS 44.021 [27] and 3GPP TS 48.020 [28];

    - up to four 16kbit/s substreams are multiplexed in one 64kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 44.021 [27] and 3GPP TS 48.020 [28]).

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case. Furthermore, Clause 11.6.3 is applicable.

## 11.2 Handover from A/Gb mode MSC to UTRAN Iu mode MSC

After a handover from A/Gb mode MSC to an UTRAN Iu mode MSC the user plane between the anchor MSC and the visited MSC shall comply to:

- the A-TRAU' protocol if both MSCs are connected via a TDM interface except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11.6.3 is applicable.

The A-TRAU' protocol is defined as follows:

- A-TRAU' frames are transmitted in regular intervals of 10ms;

- an A-TRAU' frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 48.020 [28]) each with a length of 320 bit;

- the A-TRAU' protocol is used on a plain 64 kbit/s channel without substreams;

- the same A-TRAU' format is used for the transparent and non-transparent transmission mode;

- in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);

- in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;

- the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

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# Next modified Clause

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## 11.3 Handover from A/Gb mode MSC to GERAN Iu mode MSC

### 11.3.1 User plane for transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for transparent services between the anchor MSC and the visited MSC shall ~~be identical~~comply to:

- the A-TRAU' protocol except for FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC = UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64 kbit/s and 32 kbit/s is based on ITU-T Recommendation I.460.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11.6.3 is applicable.

### 11.3.2. User plane for non-transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for non-transparent services between the anchor MSC and the visited MSC shall comply to:

- the A-TRAU'' protocol as defined below for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s, if both MSCs are connected via a TDM interface.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' or A-TRAU' protocol). Furthermore, Clause 11.6.3 is applicable.

~~For the handover scenario from GERAN A/Gb mode MSC to a GERAN Iu mode MSC, the existing A-TRAU' frame format will be extended to support the new defined RAB subflow data rates of the GERAN Iu mode.~~

#### 11.3.2.1 A-TRAU'' frame format

~~For the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s t~~The RLP frame length of 240 bit ~~is~~ shall be used. For the transfer of this RLP frame length ~~to A-TRAU' protocol is modified. The~~the A-TRAU'' protocol is introduced. An A-TRAU'' frame has the same layout as the A-TRAU' frame and contains two A-TRAU frames.

One RLP frame with the length of 240 bit is contained in one A-TRAU frame. The A-TRAU'' protocol is only used for the non-transparent services.

In figure 15a, the format of the A-TRAU frame for the RLP frame length of 240 is shown.

## Next modified Clause

## 11.4    Handover within Iu mode PLMNs

After a handover from an Iu mode MSC to a UTRAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to:

-    the A-TRAU' protocol if both MSCs are connected via a TDM interface except for the transparent case FNUR = 32 kbit/s (ITC = UDI or RDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64 kbit/s and 32 kbit/s is based on ITU-T Recommendation I.460 [2].

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s).

After a handover from an Iu mode MSC to a GERAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to

-    the A-TRAU' ~~and~~ or A-TRAU" protocol or a plain 64 kbit/s channel if both MSC are connected via a TDM interface. The A TRAU' protocol shall be used for transparent services except for the transparent cases FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel ~~is~~ shall be used between the MSCs. The rate adaptation between 64kbit/s and 32kbit/s is based on ITU-T Recommendation I.460. For non-transparent services, the A-TRAU'' protocol shall be used for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol shall be used for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s.

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' protocol, A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11.6.3 is applicable.

## Next modified Clause

## 11.6.3    Transport on the access side of the IWF after inter-MSC relocation

Clause~~s~~ 11.1 to 11.4 ~~is~~ are applicable. Furthermore, the Nb UP is used in support mode; all interim Server nodes are assumed not to be aware of the relocation case – i.e. receive BICC IAM with same information as for connections beyond the IWF (clause 11.6.2). Figure 17 indicates the relevant connections, where MSC-A/MGW-A are the Anchor nodes and MSC-B/MGW-B are the Non-Anchor nodes.
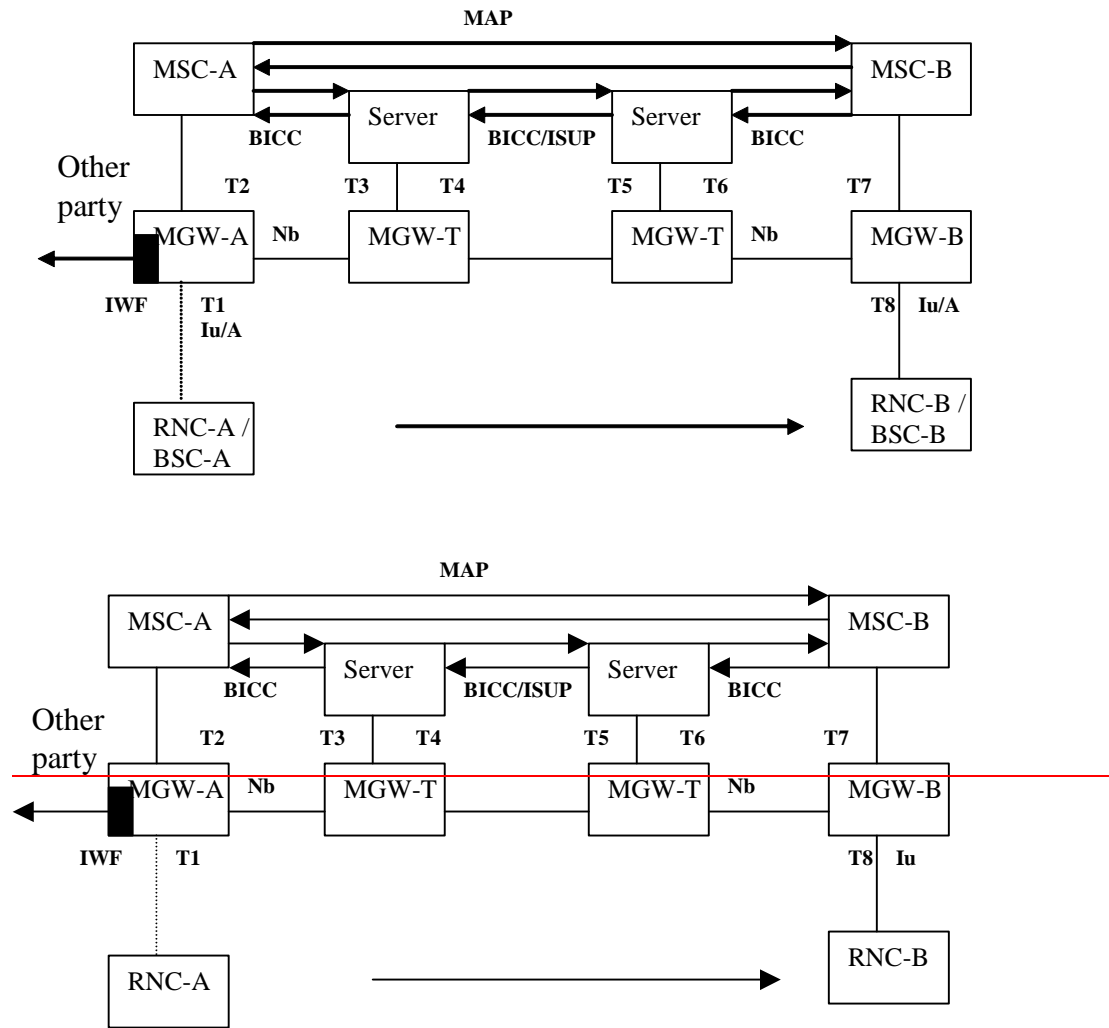
**Figure 17: Bearer Independent connections for Inter-MSC SRNS Relocation**

The IuUP shall be initialised on each Nb leg in a forward direction (regardless if Forward Bearer or Backward Bearer procedures are used), i.e. in the direction of the IAM. For further details see TS 23.205 [83]

## 11.6.3.1   Non-Transparent CSD

**Table 14: Non-Transparent CSD MGW Termination Properties For Inter-MSC SRNS Relocation**

| Termination Packages/Parameters | MSC-A | | | MSC-B | | | Intermediate Nodes |
|---|---|---|---|---|---|---|---|
| | **T1 (Iu)** | **T1 (A)** | **T2** | **T7** | **T8 (Iu)** | **T8 (A)** | **T3, T4, T5, T6** |
| **TMR** | - | - | - | UDI | - | - | UDI |
| **threegcsd:plmnbc** | PLMN_BC | PLMN_BC | PLMN_BC | - | - | - | - |
| **threegup:interface** | RAN | - | CN (NOTE 2) | CN (NOTE 2) | RAN | - | CN (NOTE 2) |
| **threegup:initdir** | IN | - | OUT (NOTE 2) | IN (NOTE 2) | OUT | - | IN (NOTE 2) |
| **threegup:mode** | support | - | Support (NOTE 2) | Support (NOTE 2) | support | - | support (NOTE 2) |
| **threegcsde:bitrate** | - | - | - | - | BITRATE | - | - |
| **threegcsd:gsmchancod** | - | GSM CC | GSM CC (NOTE 1) | - | - | - | - |
| NOTE 1:   GSM CC shall only be provided if T8 is an A interface. GSM CC shall not be provided if T8 is an Iu interface. | | | | | | | |
| NOTE 2:   Only applicable for a BICC network | | | | | | | |

## 11.6.3.2    Transparent CSD

**Table 15: Transparent CSD MGW Termination Properties For Inter-MSC SRNS Relocation**

| Termination Packages/Parameters | MSC-A | | | MSC-B | | | Intermediate Nodes |
|---|---|---|---|---|---|---|---|
| | **T1 (iu)** | **T1 (A)** | **T2** | **T7** | **T8 (iu)** | **T8 (A)** | **T3, T4, T5, T6** |
| **TMR** | - | - | UDI | UDI | - | - | UDI |
| **threegcsd:plmnbc** | PLMN_BC | PLMN_BC | PLMN_BC | - | - | - | - |
| **threegup:interface** | RAN | - | CN (NOTE 3) | CN (NOTE 3) | RAN | - | CN (NOTE 3) |
| **threegup:mode** | transparent | - | support (NOTE 3) | support (NOTE 3) | transparent | - | support (NOTE 3) |
| **threegup:initdir** | - | - | OUT (NOTE 3) | IN (NOTE 3) | - | - | IN (NOTE 3) |
| **threegcsden:bitrate** | - | - | - | - | BITRATE (~~note~~ NOTE 1) | - | - |
| **threegcsd:gsmchancod** | - | GSM CC | GSM CC (NOTE 2) | - | - | - | - |
| NOTE 1:   This is optional for the case when rate is 64kb/s then no rate adaptation is required. NOTE 2:   GSM CC shall only be provided if T8 is an A interface. GSM CC shall not be provided if T8 is an Iu interface. NOTE 3:   Only applicable for a BICC network | | | | | | | |

~~Note 1: This is optional for the case when rate is 64kb/s then no rate adaptation is required.~~

CR-Form-v7.1

# CHANGE REQUEST

| ⌘ | **29.007** CR **109** | ⌘ **rev** | **3** | ⌘ | Current version: | **6.0.0** | ⌘ |

*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:*** ⌘ | **Nb transport for handover between UMTS and GSM** | | |
| ***Source:*** ⌘ | Siemens | | |
| ***Work item code:***⌘ | CS Data | ***Date:*** ⌘ | 31/01/2005 |
| ***Category:*** ⌘ | **A** | ***Release:*** ⌘ | Rel-6 |

|  |  |
|---|---|
| *Use <u>one</u> of the following categories:*<br>***F*** *(correction)*<br>***A*** *(corresponds to a correction in an earlier release)*<br>***B*** *(addition of feature),*<br>***C*** *(functional modification of feature)*<br>***D*** *(editorial modification)*<br>Detailed explanations of the above categories can<br>be found in 3GPP TR 21.900. | *Use <u>one</u> of the following releases:*<br>*Ph2 (GSM Phase 2)*<br>*R96 (Release 1996)*<br>*R97 (Release 1997)*<br>*R98 (Release 1998)*<br>*R99 (Release 1999)*<br>*Rel-4 (Release 4)*<br>*Rel-5 (Release 5)*<br>*Rel-6 (Release 6)*<br>*Rel-7 (Release 7)* |

| | |
|---|---|
| ***Reason for change:*** ⌘ | Transport and Mc Configuration for IP or ATM not clearly specified for Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM.<br>For non-64kbit transparent CS data calls, bandwidth information is missing at IWF.<br>For handover from A/Gb mode to Geran Iu mode, unclear when ATRAU´´ protocol or A-TRAU´protocol is applicable for non-transparent data calls. |
| ***Summary of change:***⌘ | For Inter-MSC Handover GSM <-> UMTS and vice versa, and GSM -> GSM, packet transport is described in a similar manner as for Inter-MSC Handover with Iu Interfaces (compare to Clause 11.4) , and Mc configuration parameters are provided.<br>PLMN-BC Parameter added at A-MSC for non-64kbit transparent CS data calls.<br>For handover from A/Gb mode to Geran Iu mode, A-TRAU'' protocol is applicable for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s. |
| ***Consequences if<br>not approved:*** ⌘ | Missing specification of details of packet transport may lead to interoperability problems for Inter-MSC Handover GSM <-> UMTS and vice versa:<br>• At the Nb Interface<br>• At the Mc Interface<br>Non-64kbit transparent CS data calls are not supported at the Mc interface.<br>Unclear protocol for non-transparent data calls for handover from A/Gb mode to Geran Iu mode. |
| ***Clauses affected:*** ⌘ | 11.1, 11.2, 11.3, 11.4, 11a.1.3, 11a.1.3.1, 11a.1.3.2 |

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

# 11 Interworking between A/Gb mode MSC and Iu mode MSC

## 11.1 Handover ~~from Iu mode MSC~~ to A/Gb mode MSC

After a handover from an Iu mode MSC or an A/Gb mode MSC to an A/Gb mode MSC the user plane between the anchor MSC and the visited MSC shall comply to:

- the standard GSM A-interface protocols if both MSCs are connected via a TDM interface, i.e.:

    - A-TRAU or modified V.110 frames as defined in 3GPP TS 44.021 [27] and 3GPP TS 48.020 [28];

    - up to four 16kbit/s substreams are multiplexed in one 64kbit/s channel (Split/Combine function and Multiplexing function as defined in 3GPP TS 44.021 [27] and 3GPP TS 48.020 [28]).

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case. Furthermore, Clause 11a.1.3 is applicable.

## 11.2 Handover from A/Gb mode MSC to UTRAN Iu mode MSC

After a handover from A/Gb mode MSC to an UTRAN Iu mode MSC the user plane between the anchor MSC and the visited MSC shall comply to:

- the A-TRAU' protocol if both MSCs are connected via a TDM interface except for FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For both exceptions a plain 64 kbit/s channel is used between the MSCs.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11a.1.3 is applicable.

The A-TRAU' protocol is defined as follows:

- A-TRAU' frames are transmitted in regular intervals of 10ms;

- an A-TRAU' frame consists of two consecutive A-TRAU frames (as defined in 3GPP TS 48.020 [28]) each with a length of 320 bit;

- the A-TRAU' protocol is used on a plain 64 kbit/s channel without substreams;

- the same A-TRAU' format is used for the transparent and non-transparent transmission mode;

- in transparent mode the number of data bits in an A-TRAU' frame depend on the user rate only, each user rate corresponds to a fixed number of data bits (see below);

- in non-transparent mode A-TRAU' frames contain always complete RLP frames, rate adaptation is performed by means of the M2 bit;

-    the M1-bit is used to identify 1st and 2nd frame in both transmission modes.

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# Next modified Clause

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## 11.3      Handover from A/Gb mode MSC to GERAN Iu mode MSC

### 11.3.1      User plane for transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for transparent services between the anchor MSC and the visited MSC shall ~~be identical~~comply to:

-    the A-TRAU' protocol except for FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC = UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64 kbit/s and 32 kbit/s is based on ITU-T Recommendation I.460.

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11a.1.3 is applicable.

### 11.3.2.     User plane for non-transparent services

After a handover from a GERAN A/Gb mode MSC to a GERAN Iu mode MSC the user plane for transparent services between the anchor MSC and the visited MSC shall comply to:

-    the A-TRAU'' protocol as defined below for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s,  if both MSCs are connected via a TDM interface.

-    the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' or A-TRAU' protocol). Furthermore, Clause 11a.1.3 is applicable.

~~For the handover scenario from GERAN A/Gb mode MSC to a GERAN Iu mode MSC, the existing A-TRAU' frame format will be extended to support the new defined RAB subflow data rates of the GERAN Iu mode.~~

### 11.3.2.1       A-TRAU'' frame format

~~For the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s t~~The RLP frame length of 240 bit ~~is~~ shall be used. For the transfer of this RLP frame length ~~to A-TRAU' protocol is modified. The~~the A-TRAU'' protocol is introduced. An A-TRAU'' frame has the same layout as the A-TRAU' frame and contains two A-TRAU frames.

One RLP frame with the length of 240 bit is contained in one A-TRAU frame. The A-TRAU'' protocol is only used for the non-transparent services.

In figure 15a, the format of the A-TRAU frame for the RLP frame length of 240 is shown.

Next modified Clause

## 11.4 Handover within Iu mode PLMNs

After a handover from an Iu mode MSC to a UTRAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to:

- the A-TRAU' protocol if both MSCs are connected via a TDM interface except for the transparent case FNUR = 32 kbit/s (ITC = UDI or RDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64 kbit/s and 32 kbit/s is based on ITU-T Recommendation I.460 [2].

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU' protocol or plain 64kbits/s).

After a handover from an Iu mode MSC to a GERAN Iu mode MSC the user plane between the anchor MSC or MGW and the visited MSC or MGW shall comply to

- the A-TRAU' ~~and~~ or A-TRAU" protocol or a plain 64 kbit/s channel if both MSC are connected via a TDM interface. The A-TRAU' protocol shall be used for transparent services except for the transparent cases FNUR = 32 kbit/s (ITC = UDI), FNUR = 56 kbit/s (ITC=RDI) and FNUR = 64 kbit/s (ITC=UDI). For these exceptions a plain 64 kbit/s channel is used between the MSCs. The rate adaptation between 64kbit/s and 32kbit/s is based on ITU-T Recommendation I.460. For non-transparent services, the A-TRAU'' protocol shall be used for the RAB subflows with 12 kbit/s, 24 kbit/s, 36 kbit/s and 48 kbit/s and the A-TRAU' protocol shall be used for the RAB subflows with 14,4 kbit/s, 28,8 kbit/s, 43,2 kbit/s and 57,6 kbit/s.

- the Nb UP protocol if the anchor MSC or MGW and the visited MSC or MGW are connected via an ATM interface or IP interface. The NbUP shall be configured in support mode, the data is transported in a 64 kbit/s bit stream, formatted in SDUs of 40 octets and transmitted every 5 ms, in accordance with Annex P of ITU-T Recommendation I.366.2 [81]. PDU type 0 is used, i.e., payload CRC is applied. This is needed for the framing to be handled the same for all transports but the Frame Quality Classification control shall be ignored (3GUP property Delivery Of Erroneous SDUs = yes) and therefore interim nodes shall only pass on the CRC. The data is encoded between MSC-B/MGW-B (non-Anchor) and MSC-A/MGW-A (Anchor) as for the TDM case (A-TRAU'' protocol, A-TRAU' protocol or plain 64kbits/s). Furthermore, Clause 11a.1.3 is applicable.

Next modified Clause

## 11a.1.3 Transport on the access side of the IWF after inter-MSC relocation

Clause 11~~.4~~ is applicable. Furthermore, the Nb UP is used in support mode; all interim Server nodes are assumed not to be aware of the relocation case – i.e. receive BICC IAM with same information as for connections beyond the IWF (C~~e~~lause 11a.1.2). Figure 17 indicates the relevant connections, where MSC-A/MGW-A are the Anchor nodes and MSC-B/MGW-B are the Non-Anchor nodes.
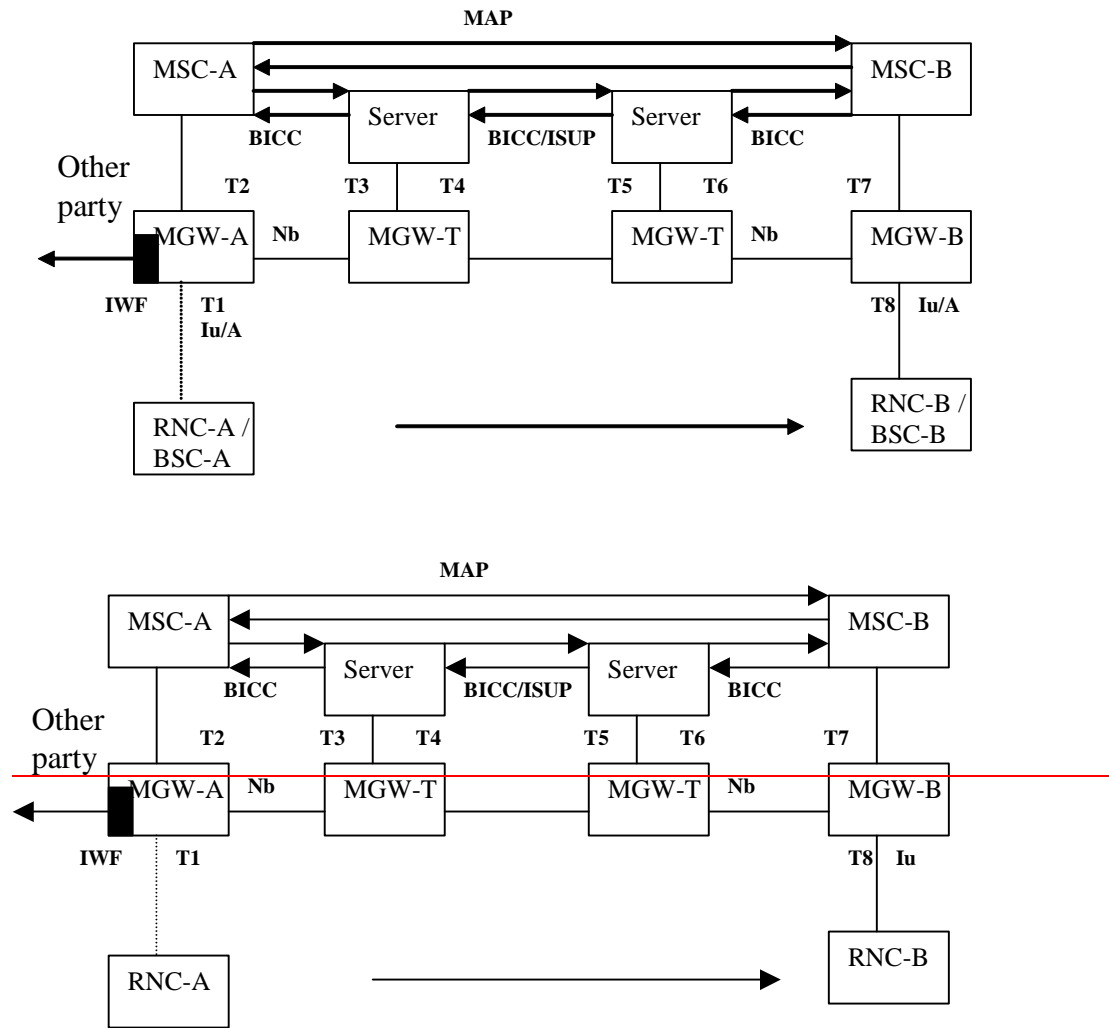
**Figure 17: Bearer Independent connections for Inter-MSC SRNS Relocation**

The IuUP shall be initialised on each Nb leg in a forward direction (regardless if Forward Bearer or Backward Bearer procedures are used), i.e. in the direction of the IAM. For further details see TS 23.205 [83]

## 11a.1.3.1  Non-Transparent CSD

**Table 14: Non-Transparent CSD MGW Termination Properties For Inter-MSC SRNS Relocation**

| Termination Packages/Parameters | MSC-A | | | MSC-B | | | Intermediate Nodes |
|---|---|---|---|---|---|---|---|
| | **T1 (Iu)** | **T1 (A)** | **T2** | **T7** | **T8 (Iu)** | **T8 (A)** | **T3, T4, T5, T6** |
| **TMR** | - | - | - | UDI | - | - | UDI |
| **threegcsd:plmnbc** | PLMN_BC | PLMN_BC | PLMN_BC | - | - | - | - |
| **threegup:interface** | RAN | - | CN (NOTE 2) | CN (NOTE 2) | RAN | - | CN (NOTE 2) |
| **threegup:initdir** | IN | - | OUT (NOTE 2) | IN (NOTE 2) | OUT | - | IN (NOTE 2) |
| **threegup:mode** | support | - | Support (NOTE 2) | Support (NOTE 2) | support | - | support (NOTE 2) |
| **threegcsde:bitrate** | - | - | - | - | BITRATE | - | - |
| **threegcsd:gsmchancod** | - | GSM CC | GSM CC (NOTE 1) | - | - | - | - |
| NOTE 1:   GSM CC shall only be provided if T8 is an A interface. GSM CC shall not be provided if T8 is an Iu interface. | | | | | | | |
| NOTE 2:   Only applicable for a BICC network | | | | | | | |

## 11a.1.3.2    Transparent CSD

**Table 15: Transparent CSD MGW Termination Properties For Inter-MSC SRNS Relocation**

| Termination Packages/Parameters | MSC-A | | | MSC-B | | | Intermediate Nodes |
|---|---|---|---|---|---|---|---|
| | **T1 (iu)** | **T1 (A)** | **T2** | **T7** | **T8 (iu)** | **T8 (A)** | **T3, T4, T5, T6** |
| **TMR** | - | - | UDI | UDI | - | - | UDI |
| **threegcsd:plmnbc** | PLMN_BC | PLMN_BC | PLMN_BC | - | - | - | - |
| **threegup:interface** | RAN | - | CN (NOTE 3) | CN (NOTE 3) | RAN | - | CN (NOTE 3) |
| **threegup:mode** | transparent | - | support (NOTE 3) | support (NOTE 3) | transparent | - | support (NOTE 3) |
| **threegup:initdir** | - | - | OUT (NOTE 3) | IN (NOTE 3) | - | - | IN (NOTE 3) |
| **threegcsden:bitrate** | - | - | - | - | BITRATE (~~note~~ NOTE 1) | - | - |
| **threegcsd:gsmchancod** | - | GSM CC | GSM CC (NOTE 2) | - | - | - | - |
| NOTE 1:   This is optional for the case when rate is 64kb/s then no rate adaptation is required. NOTE 2:   GSM CC shall only be provided if T8 is an A interface. GSM CC shall not be provided if T8 is an Iu interface. NOTE 3:   Only applicable for a BICC network | | | | | | | |

~~Note  1: This is optional for the case when rate is 64kb/s then no rate adaptation is required.~~